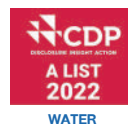




**ANNUAL REGISTRATION STATEMENTS/
ANNUAL REPORT 2022**
(Form 56-1 One Report)
PTT GLOBAL CHEMICAL PUBLIC COMPANY LIMITED



Because our plastic and chemical products are all around you, we take utmost care in every step throughout their journey to deliver only the best for you.

GC has been relentless in its research and development of plastic and chemical products for every facet of your life, both today and in the future, using efficient processes and eco-friendly production methods while also prioritizing environmental stewardship to achieve an ecological balance and make this world a better place.



GC foresees the future

GC believes it is possible to shape and create a sustainable world
from inside out

5

Megatrends

GC is shaping the future and responding to global needs with innovative high-value, low-carbon chemical, and plastic products that align with five megatrends.



GC Compostable packaging, produced from plants that absorb CO₂ during their growth, offers an eco-friendly compostable alternative that contributes to cleaner air while also reducing waste and greenhouse gases.



GC's chemical coating for wind turbine blades helps diminish friction, thus improving weather resistance and enhancing clean energy production efficiency.



Eco-friendly plant health solutions enable plants to grow well in every environment and produce clean air for every life.



1 Climate Change & Energy Transition

Responding to energy transition with clean technologies that reduce resource consumption and enhance decarbonization throughout product lifespans.



Compostable diapers answer the needs of an aging society and offers an eco-friendly option.



Chemicals for home and personal care products that meet all daily life needs and enhance the quality of life and safety for all.



UPCYCLING

Sofas made of upcycled fabrics, breathing new life into discarded plastic bottles and maximizing resource efficiency.



Safe, kid-friendly toys for children of all ages, promoting child development.



2 Demographic Shift

Meeting the needs of changing demographics with plastic and chemical innovations designed specifically for the current economic system and consumer behavior.

3 Health & Wellness

Enhancing health and wellness with innovations specifically designed to ensure safety and provide assurance at every stage of your life.



Food-grade bottles made of high-quality post-consumer recycled resin, maximizing resource efficiency and creating added value to used plastics.



Clothes and bags produced from upcycled plastic bottles, catering to eco-conscious lifestyles and reducing the amount of plastic waste in the environment.



Polyurethane flooring for playgrounds and sporting arenas that offers superior flexibility and safety.



4 Urbanization

Supporting the trend of urbanization and expansion of future societies with innovative solutions that improve convenience for all lifestyles.

5 Disruptive Technology

Building a bridge to the world of the future with innovations designed to optimize all technologies and usher in positive changes.



High impact-resistant
EV charger covers
for short circuit prevention.



Water and moisture-resistant
coatings for automotive chips
and circuit boards and EVs.



Protective automotive
coating technology for
aesthetic quality, durability,
and eco-friendliness.



Coatings for the production
of circuit boards
for mobile phones
and electronic devices.



Reinforcing resins and adhesive
promoters that extend rubber
lifespans and enhance safety.

GOOD PRODUCT

Good Products: GC delivers eco-friendly products that offer value and meet consumer needs.





GOOD PRODUCT

GC strives to answer the needs of the future world by developing innovative environmentally friendly plastic and chemical products that will improve the quality of life both today and in the future.

HIGHLIGHTS IN 2022

ENVICCO

GC unveils ENVICCO – high-quality PCR manufacturing plant

GC has launched ENVICCO, an integrated manufacturing plant of high-quality food-grade PCR that operates to international standards. It is also the largest plant of its kind in Southeast Asia.

Total capacity of
45,000 tons/year



Over
60,000 tons
of domestic plastic
waste reduced per year



Approximately
140,000 tons CO₂e
of greenhouse gases reduced per year*

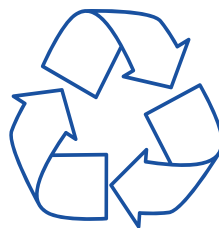


Equivalent to growing **15.52** million large trees or approximately
145,000 rai of plantation.**

Remarks:

* Over 60,000 tons of plastics diverted from landfilling equivalent to approximately 140,000 tons CO₂e of greenhouse gases reduced (TGO Guideline)

** Calculated based on the amount of gas a 10-year-old tree can absorb in one year, with each tree occupying 12-18 sq.m. or about 90-120 trees per rai.



GC strives towards Net Zero through investment in ECONIC

GC has invested in ECONIC, a British developer of an advanced Carbon Capture and Utilization (CCU) technology capable of retrieving carbon dioxide for reuse as feedstock in a sustainable polymer production process, thus advancing its goal to achieve Net Zero emissions by 2050.

GC joined “Better Thailand Open Dialogue”

GC joined “Better Thailand Open Dialogue” on a discussion panel on the topic “BCG: Future of the New Generation,” to highlight the significance of the BCG (Bio-Circular-Green Economy) model in the sustainable advancement of Thailand’s economy and society. At the event, GC also featured a booth showcasing the tangible outcomes of its efforts to support the government’s BCG economic model.



Celebrating the Successful Establishment of AGC Vinythai PCL (AVT)

AVT is a joint venture between Vinythai Public Company Limited and AGC Chemicals (Thailand) Company Limited, with GC has a major shareholder. This merger has put AVT in the forefront of Southeast Asia’s industry as a leading PVC and Chlor-Alkali producer and distributor and strengthened GC’s downstream business as it boasts a high growth rate and increases value for its olefins business group.



GC x Misteem has launched Thailand’s first-ever PCR packaging for cosmetic products

GC, along with Better Way (Thailand) Company Limited, the distributor of Misteem products, Top Trend Manufacturing Co., Ltd., and S & J International Enterprises Public Company Limited, attended the launch of the new and Thailand’s first-ever PCR (post-consumer recycled resins) packaging for Misteem lotions, which was aimed at reducing the amount of single-use plastics.



Showcasing upcycled homes in a BCG exhibition at APEC 2022

GC was officially invited by the Ministry of Foreign Affairs to exhibit a BCG booth at APEC 2022. The highlight was the model of an upcycled home made entirely of upcycled materials, including components such as the brick walls, roof, partitions, and acoustic panels, as well as furniture, appliances, and décor. The exhibit demonstrates GC’s technological preparedness in adding value to resources and support state policies in establishing the BCG model as the national economic model.



Unveiling UPTOYOU – a green product brand

Produced with the intention to utilize natural resources to the greatest advantage, the brand offers lifestyle products that feature **Revife Fiber by GC Upcycling** – an innovative fiber made 100% of upcycled plastics – as the main component so that every item helps to reduce greenhouse gas emissions.

GOOD PROCESS

Good Process: GC strives to maximize energy and resource efficiency across the value chain by improving its production processes, reducing waste, and promoting the use of clean energy while also optimizing operations by encouraging its personnel to Reskill-Upskill.





GOOD PROCESS

GC ensures the efficiency of all stages of production, placing great emphasis on taking the greatest advantage of resources and utilizing clean energy alongside personnel development.

HIGHLIGHTS IN 2022

Striving Towards Net Zero



Efficiency-driven

Enhancing process efficiency by reducing energy consumption and increasing the use of clean energy.



Compensation-driven

Offsetting carbon with high-efficiency carbon capture and storage technology and natural methods, such as reforestation.



Portfolio-driven

Restructuring the business in the long-term towards High-Value and Low-Carbon Businesses while also incorporating circular economy principles for business advancement.



GC has established a low-carbon transition framework with a goal to achieve Net Zero greenhouse gas emissions by 2050.

GC strives to optimize its energy consumption and instill awareness among employees of the importance of reducing energy use in the manufacturing process.



In 2022, GC carried

out **94** energy conservation projects in total

1,440,848 GJ of energy consumption reduced and
471.60 million baht of expenses saved

8.60 million tons CO₂e of greenhouse gases (Scopes 1 and 2) emissions; the emission target achieved (not exceeding 8.60 million tons CO₂e)

Zero landfilling for the **8th** consecutive year

FiT Project

Digital technology has been introduced to make the business processes leaner,

thus improving the operational efficiency by over **80%**

"We believe that our personnel are our future and the collaborative spirit is the force that will drive us towards success and happiness."





GC and PTT Group have piloted a CCS Hub Model – a carbon dioxide capture and storage technology – in pursuit of the Net Zero target

GC, PTT, PTTEP, Thaioil, IRPC, and GPSC have signed a memorandum of understanding to conduct a feasibility study for the application of Carbon Capture and Storage (CCS) technology, known as the CCS Hub Model. As the technology can capture several million tons of carbon from the manufacturing process each year and store it in underground safely and permanently without the carbon ever being released into the atmosphere, it serves as a concrete way to help GC achieve the Net Zero goal.

GC joined hands with GPSC to launch a floating solar project

GC has joined hands with Global Power Synergy Public Company Limited (GPSC) to initiate a floating solar project to reduce greenhouse gas emissions in pursuit of the Net Zero goal.



GC and PTT Group joined forces with the education and private sectors to establish Thailand CCUS Consortium, reinforcing Thailand's goals of net zero and carbon neutrality

GC, along with partners of BCGeTEC, Faculty of Engineering, Chulalongkorn University, and the private sector, announced the establishment of CCUS Technology Development Consortium at Future Energy Asia 2022, marking an important milestone in national-level collaboration for the development of efficient prototype technology. The consortium will help advance organizations and Thailand towards achieving carbon neutrality and net zero emissions.



1.12 million
units of electricity
produced per year

564 tons CO₂e
of greenhouse gases
reduced per year

The pontoons of the floating solar projects are made of GC's InnoPlus resin, which offers superior strength, durability, and heat resistance and is safe for humans and the environment. GC has planned to install more floating solar farms in other petrochemical plants in GC Group.



The Prime Minister's Industry Award 2022

GC won the Prime Minister's Industry Award in the Energy Management Category at the Prime Minister's Industry. The accolade underlines GC's management excellence in pursuit of the Net Zero goal and its readiness to deliver value to customers, allowing them to take part in reducing greenhouse gas emissions by using GC Group's products.



Best in Future Operations

GC won the Best in Future Operations Award at IDC Future Enterprise Awards 2022 for its the Furnace Management Program (FMP), in which advanced data analytics technology was utilized to develop a closed loop optimization model to improve data processing, thus making it possible to enhance the efficiency of high-temperature furnaces more accurately and quickly, save time for staff, and generate more profit.



ISB Award 2022

GC won an ISB EXCELLENCE award for excellent leadership in the industrial sector and an ISB DNA award for the outstanding promotion of corporate culture through the Community Waste Model Project from the Industrial Estate Authority of Thailand (IEAT).

GOOD CITIZENSHIP

Good Citizenship: GC has incorporated circular economy principles into its business operations and strives to achieve Net Zero emissions by 2050, demonstrating its responsibility to society communities, and the environment and commitment to sustainability.





GOOD CITIZENSHIP

GC utilizes GC Circular Living as the core concept for its decarbonization efforts in pursuit of the Net Zero goal and seeks to achieve sustainability in a balanced and responsible manner to create value to society, communities, and the environment.

HIGHLIGHTS IN 2022

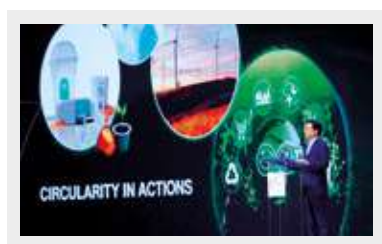


Dow Jones Sustainability Indices: DJSI

GC was ranked No. **1** on the Dow Jones Sustainability Indices (DJSI) in the chemical sector for the **4th** consecutive year, thanks to its sustainability-integrated business practices across environmental, social, and governance and economic dimensions in line with the ESG approach. The honor highlights GC's responsible business practices and sustainable contribution to the world.

GC Circular Living Symposium 2022: Together To Net Zero

GC organized GC Circular Living Symposium 2022, the third edition of the event, under the "Together To Net Zero" to carry on the use of GC Circular Living as the concept for its decarbonization efforts and development of green innovations.



GC was honored at the Communitas Awards 2022 in the US

GC won an excellence award in corporate social responsibility in the category of ethical and environmental responsibility at the Communitas Awards 2022 in the United States for its groundwater bank project for water sustainability at local orchards in Krok Yai Cha and Nong Taeng Mae Communities in Rayong, which was aimed at addressing the issues of drought in summer and flooding in the raining season and the problem of saltwater encroachment in agriculture areas. **GC was the only Thai company to receive this honor this year.**



GC was Thailand's only company to place on CDP's Double A List for climate change and water security leadership

GC was given the highest rating of A (Leadership Level) in the 2022 annual assessment of the Carbon Disclosure Project (CDP), a world-class sustainability assessment organization.



GC gave a talk at Net-Zero Transformation: D-emission for Our Sustainable Future at Climate Change Pavilion, COP27

GC gave a talk entitled “GC Decarbonization: The Path to Net Zero” at the event Net-Zero Transformation: D-emission for Our Sustainable Future, hosted by Thailand Greenhouse Gas Management Organization in UN Climate Change Pavilion at COP27 in Sharm El Sheikh, Egypt. GC strives to achieve net zero emissions by 2050 and restructure towards low-carbon businesses as it pursues long-term sustainable business growth.



GC showcased the YOUTURN waste management platform at APEC 2022

A total of 360 kilograms of waste from APEC 2022, held from November 14–19, 2022 at Queen Sirikit National Convention Center (QSNCC), was processed and managed for reuse through YOUTURN Platform by ENVICCO, a high-quality PCR producer.



835.20* kg CO₂e
of greenhouse gases eliminated,
equivalent to growing **93****
large trees

GC is proud to have made APEC 2022 more environmentally friendly and sustainable.



APEC 2022
at Queen Sirikit National
Convention Center



waste transportation
and separation via
YOUTURN Platform



ENVICCO's
recycling plant

“The More You Plant, the Better” Project

The BMA joined hands with GC to transform garbage dumps into forests by launching “The More You Plant, the Better” Project

to create a **55** rai area of green space in the heart of Bangkok



Remarks:

- * Over 360 kg of plastics diverted from landfilling equivalent to approximately 835.20 kg. CO₂e of greenhouse gases reduced (TGO Guideline)
- ** Calculated based on the amount of gas a 10-year-old tree can absorb in one year, with each tree occupying 12-18 sq.m. or about 90-120 trees per rai.

The Bangkok Metropolitan Administration joined hands with GC to develop the area around the On Nut Solid Waste Disposal Center into a 55-rai green space under “The More You Plant, the Better” project.

The goal of the project was to transform the former landfill into an eco-forest to serve as a learning center and a model for forest planting for carbon credit purposes.

Forestation for carbon sequestration

GC added 25 rai of green space to GC Chemical Experience Campus in Rayong as part of the “Forestation for Carbon Sequestration Project.” Local plants with high carbon absorption rates were chosen, including black wattle, golden trumpet, and beach calophyllum.

When it reaches
the age of five, each tree
can sequester **74** tons
of carbon dioxide per year



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CORPORATE STRATEGIES, VISION, AND MISSION

VISION

To be a Leading Global Chemical Company for Better Living

Leading Global

refers to GC Group as a world-class chemical company.

Chemical Company

refers to GC Group as a producer of petrochemicals and chemicals across the integrated value chain that grows businesses through international investments, with a focus on high value-added products.

Better Living

refers to GC Group as a producer that strives to deliver value and elevate the quality of life through chemical products that meet consumer needs that is guided by social and environmental responsibility and seeks to contribute to the mitigation of global warming.

MISSION

SHAREHOLDER

We deliver fair and sustainable returns for shareholders through excellent and trustworthy performance management.

BUSINESS PARTNER

We provide the best solutions to business partners through innovative products and services.

SOCIETY

We integrate social and environmental responsibility into our business practices to achieve sustainable development.

EMPLOYEE

We build an adaptable organization that promotes learning through a happy work environment and actively develop its employees' capabilities so as to equip them for new challenges, foster their dedication to and engagement with the organization, and achieve professional excellence.

OBJECTIVES AND GOALS

PTT Global Chemical Public Company Limited (GC) systematically reviews its corporate vision, mission, and direction annually to ensure alignment with the circumstances as well as short-term and long-term trends in pursuit of its aspiration to become an international leader, as detailed below.



BUSINESS GROWTH

GC strives to become a world-class petrochemical and chemical manufacturer with an integrated value chain, foster growth, and generate profit in a sustainable and uninterrupted manner, with emphasis on growing investment in performance and specialty chemicals, low-carbon businesses, and international investments.



SUSTAINABILITY

GC strives to operate its businesses under the framework of sustainability and has earned international recognition thanks to its consistent sustainability actions. GC has also announced its goal to achieve net-zero emissions of Scopes 1 and 2 greenhouse gases (GHG) by 2050, reinforcing its commitment to becoming a world-class model organization of sustainability practices.

CORPORATE STRATEGIES

In 2022, the Russia-Ukraine war led to an increase in the prices of energy and commodity products, while China's strict Zero-COVID policy caused a global supply disruption, triggering an economic recession and an ensuing slowdown in petrochemical demand. In addition, an energy transition was accelerated by a surge in environmental consciousness and the climate policies implemented by various countries across the globe, impacting the competitiveness of the industry in the long-term. GC has been closely monitoring these trends and analyzing short-term impacts in order to promptly adjust its operation plans in line with the challenging business condition while also advancing its long-term plan to achieve sustainable growth and respond to megatrends. As a result, GC has been able to accomplish its goals in different areas as planned and maintain its sustainability leadership, as

demonstrated by its being ranked as the number one company in the petrochemical industry by the Dow Jones Sustainability Indices (DJSI), making it the only chemical company in Thailand and Asia to occupy the top spot for four consecutive years and placed in the top 10 for 10 consecutive years.

GC's business directions and strategic plans are aimed at building and maintaining competitiveness, sustainable business growth, and preparedness in various aspects in support of future growth. GC uses these directions and strategic plans as frameworks for business operations and regularly monitor outcomes to accomplish short-term and long-term corporate goals, with emphasis on the following four strategic focuses:

1 STEP CHANGE



GC actively enhances its business competitiveness, operations, and resilience through the fostering of operational excellence, modernization and advanced technology, integration and diversification, market-focused businesses, and business restructuring in order to bolster its strength and create an advantage over competitors. Below are the key strategies:

Operational excellence: GC seeks to elevate its operations and sustainably place itself in the 1st quartile in the long term with the goal of achieve world-class operational excellence in five areas: safety, reliability, energy efficiency, cash costs, and Return On Invested Capital (ROIC). In addition, GC strives to enhance its operational efficiency by consistently creating added value through its MAX Infinity Project and digitalization plan in order to bring benefits to GC and other companies in GC Group while also implementing integrated management through the Map Ta Phut Integration (MTPI) initiative to maintain and increase profit in a sustainable manner.

Modernization and advanced technology: GC bolsters its competitiveness with respect to productivity and safety by introducing digital technology in order to create GC Smart Plant and complex-wide integration, which not only modernizes plants and improve the efficiency of the manufacturing process but also ensures the efficient utilization of human resources and investments. In addition, GC promotes sustainability through reduction of resource and energy consumption and carbon dioxide emissions.

Integration and diversification: GC seeks to enhance feedstock flexibility so as to achieve competitive production costs and long-term feedstock security and extend the value chain to downstream petrochemical businesses to further create added value, thus strengthening GC's competitiveness and ability to meet the growing demand of downstream industries.

Market-focused business: GC places emphasis on High Value Products (HVPs) and diverse applications by co-developing products with key partners across the value chain and developing customer solution marketing to better meet the needs of the full range of end-users while also focusing on fostering long-term distribution security.

Business restructuring: GC restructures its business to accommodate the global trends of energy transition, technological advancement, and reduction of Greenhouse Gas (GHG) emissions, thus enabling it to preserve its long-term competitiveness and supporting its decarbonization efforts and, in turn, ability to accomplish its net-zero goal by 2050.

2

STEP OUT



GC strives to foster steady business growth through various forms of investment, such as joint ventures, Mergers and Acquisitions (M&A), and Corporate Venture Capitals (CVC), which will give it access to latest businesses and technologies and achieve exponential growth. In the future, GC will be seeking growth in high value and low-carbon businesses and opportunities to generate synergy and maximize value through its existing businesses, markets, and technologies, such as through the recently-acquired allnex and its innovative products that answer consumer needs in response to megatrends and through joint ventures in both performance chemical businesses and bio and circularity businesses.

3

STEP UP



GC has announced its intent to achieve internationally-recognized leadership in the area of sustainability by integrating circular economy principles and an environmental, social, and governance (ESG) framework into its business operations as well as declared its goals to reduce emissions of Scopes 1 and 2 GHG to zero by 2050. To this end, it seeks to translate its established plans to practical actions through four strategies:

Efficiency-driven:

Optimizing the production process, transitioning to alternative energy, as well as developing and introducing new low-carbon technologies to production or enhance decarbonization efficiency.

Portfolio-driven:

Adjusting the portfolio towards low-carbon businesses in response to increased eco-consciousness among consumers, such as by investing in High Value Businesses (HVBs) involving high-performance chemicals, bio-plastics, and recycled plastics; creating a closed-loop system for circularity in pursuit of low-carbon businesses, such as bio-plastic and bio and circularity products, so as to offer a comprehensive and diverse range of alternatives for consumers; and establishing a closed-loop system for its products through YOUTURN Platform.

Compensation-driven:

Adopting high-performance Cost-competitive Carbon Capture, Utilization, and Storage (CCUS) technologies and engaging in natural carbon offsetting, such as through reforestation and soil-based and ocean-based carbon sequestration; as well as implementing carbon credit management to offset carbon from production and operations in order to achieve net-zero emissions.

Leadership:

Achieving leadership in sustainability by adopting international sustainability practices in key aspects, such as Environmental, Social, and Governance (ESG), in a balanced manner with emphasis on contributing value to society sustainably and expanding sustainability practices to all companies in GC Group in accordance with the Decarbonization Roadmap in order to serve as a model for the petrochemical and other related industries.

4

TRANSFORMATION



To ensure the successful implementation of the three aforementioned Steps, it is necessary for GC to elevate its operational efficiency in a concrete manner, equip itself for business volatility, and foster a competitive advantage in line with the future growth trajectory. To this end, GC has established a pathway for organization transformation to achieve suitable, agile, and flexible work processes and methods through the FIT Project, which involves end-to-end work process adjustments and the introduction of digital systems to reduce costs, improve operational efficiency, enhance system effectiveness, boost agility, and decrease risks. In conjunction, GC carries out people development through knowledge and competency enrichment, upskilling and reskilling, and the strengthening of the organizational culture in order to develop a flexible mindset among its employees. GC also strives to strengthen supporting units and lay down the foundation for effective governance, risk management and internal control, and compliance (GRC), so as to assure GC's stakeholders of its transparency, accountability, and corporate governance.

BACKGROUND AND SIGNIFICANT DEVELOPMENT

PTT Global Chemicals Public Company Limited (GC) was founded through the amalgamation of PTT Chemical Public Company Limited (PTTCH) and PTT Aromatics and Refining Public Company Limited (PTTAR). It was registered on October 19, 2011 to be PTT Group's Chemical Flagship. GC's registered and paid-up capital is Baht 45,088,491,170, comprising 4,508,849,117 ordinary shares at a par value of Baht 10 per share.

GC's registered and paid-up capital is Baht

45,088,491,170

comprising

4,508,849,117

ordinary shares

at a par value of

Baht **10** per share.



DEBENTURE ISSUANCE AND OFFERING

(1) In January 2022, GC issued and offered unsubordinated and unsecured debentures No. 1 in Thai baht to institutional and high net worth investors, consisting of the following:

5-year debenture due January 25, 2027, with a fixed coupon rate of Baht 2.13 per year, paid every six months throughout the term, worth Baht 14,000 million

7-year debenture due January 25, 2029, with a fixed coupon rate of Baht 2.65 per year, paid every six months throughout the term, worth Baht 2,000 million

10-year debenture due January 25, 2032, with a fixed coupon rate of Baht 3.05 per year, paid every six months throughout the term, worth Baht 2,000 million

12-year debenture due January 25, 2034, with a fixed coupon rate of Baht 3.29 per year, paid every six months throughout the term, worth Baht 12,000 million

(2) In March 2022, GC Treasury Center Co., Ltd., a subsidiary of GC, issued and offered unsubordinated and unsecured debentures No. 1 in US dollar, consisting of:

10-year debenture due March 30, 2032, with a fixed coupon rate of Baht 4.40 per year, paid every six months throughout the term, worth USD 1,000 million

30-year debenture due March 30, 2052, with a fixed coupon rate of Baht 5.20 per year, paid every six months throughout the term, worth USD 300 million

(3) In June 2022, GC issued and offered unsubordinated and unsecured debentures No. 2 in Thai baht to institutional and high net worth investors, consisting of:

5-year debenture due June 15, 2027, with a fixed coupon rate of Baht 3.21 per year, paid every six months throughout the term, worth Baht 5,000 million

12-year debenture due June 15, 2034, with a fixed coupon rate of Baht 4.00 per year, paid every six months throughout the term, worth Baht 3,000 million

(4) In June 2022, GC issued and offered unsubordinated and unsecured debentures No. 3 in the Thai baht to institutional and general investors, consisting of:

7-year debenture due June 30, 2029, with a fixed coupon rate of Baht 3.50 per year, paid every six months throughout the term, worth Baht 17,000 million



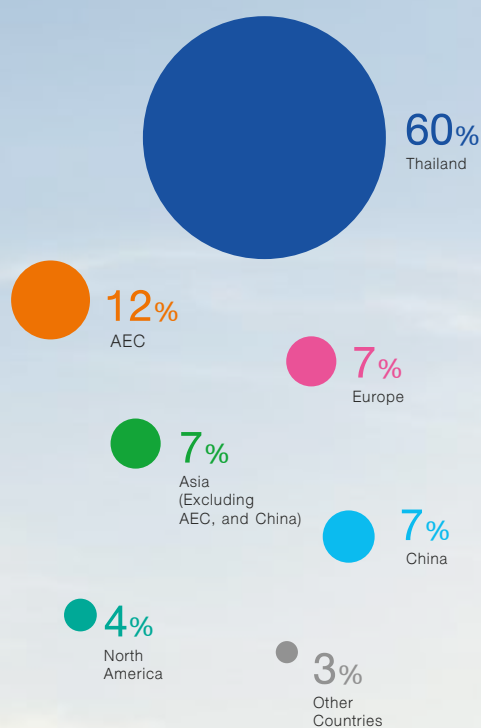
FINANCIAL HIGHLIGHTS

SALES REVENUES

Unit: Baht Million

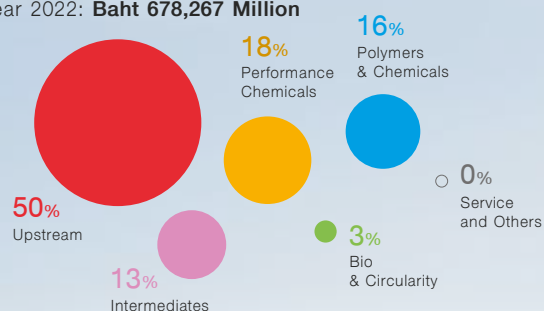


SALES REVENUES

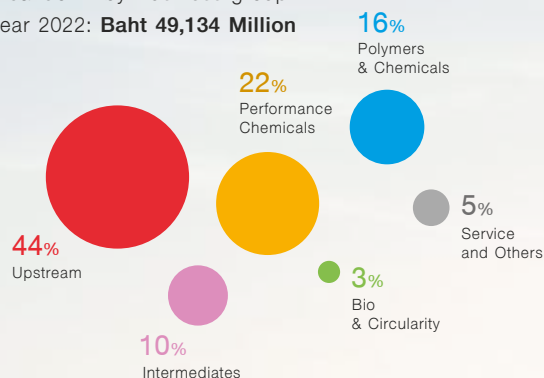
Breakdown by Geography
Year 2022

Remark: Represent the sales revenue based on the geographical location of customers

SALES REVENUES

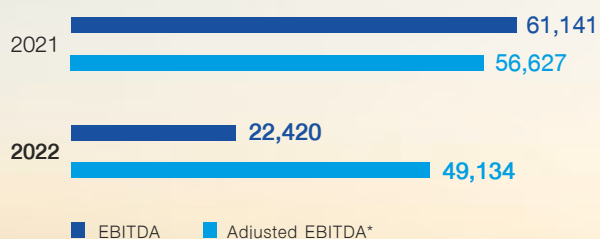
Breakdown by Business group
Year 2022: **Baht 678,267 Million**

Adjusted EBITDA*

Breakdown by Business group
Year 2022: **Baht 49,134 Million**

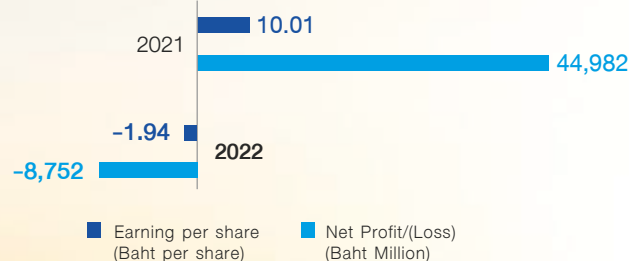
EBITDA & Adjusted EBITDA*

Unit: Baht Million



■ EBITDA ■ Adjusted EBITDA*

NET PROFIT/(LOSS)



■ Earnings per share (Baht per share) ■ Net Profit/(Loss) (Baht Million)

Remark: * Adjusted EBITDA refers to EBITDA excluding Stock gain/(loss), NRV, Gain/(loss) from commodity hedging, and Extra item.

Statements of Financial Position (Baht Million)	2020	2021	2022
Total Assets	489,383	747,481	719,965
Cash and Cash Equivalents + Current investments in financial Assets	60,658	74,994	31,963
Other Current Assets	69,253	134,098	140,046
Property, Plant and Equipment	269,177	301,042	296,321
Non-Current Assets	90,295	237,347	251,635
Total Liabilities	200,389	419,878	421,138
Interest Bearing Debt (IBD)	155,083	275,375	301,854
Other Liabilities	45,306	144,503	119,284
Total Equity	288,994	327,603	298,828
Key Financial Ratios	2020	2021	2022
Current Ratio (Times)	2.20	1.42	1.65
EBITDA to Sales Revenues (%)	6.22	13.14	3.31
Net Profit on Sales Revenues (%)	0.06	9.67	-1.29
Return on Total Assets (%)	0.86	9.50	-0.01
Return on Equity (%)	0.07	15.01	-2.87
Interest Bearing Debt to Equity (Times)	0.54	0.84	1.01
Net Interest Bearing Debt to Equity (Times)	0.33	0.61	0.90
Interest Bearing Debt to EBITDA (Times)	7.64	4.50	13.46
Net Interest Bearing Debt to EBITDA (Times)	4.65	3.28	12.04
Dividend payment (Baht/Share)	2020	2021	2022*
1 st Half	0.00	2.00	0.75
2 nd Half	1.00	1.75	0.25
Full year	1.00	3.75	1.00
Earning per Share (Baht/Share)	0.04	10.01	-1.94
Dividend Payout Ratio (%)	>200%	37%	N/A

Remark:

- * The Board of Directors' Meeting No. 2/2023 held on February 13, 2023, agreed to propose the Annual General Meeting of Shareholders to consider and approve on the dividend payment for the year 2022 operating performance of Baht 1.00 per share, of which Baht 0.75 per share was paid as interim dividend on September 21, 2022. The remaining dividend of Baht 0.25 per share is to be proposed to the 2023 Annual General Meeting of Shareholders for approval.

AWARDS AND RECOGNITIONS

Confirmation of company's performance excellence in economic, social and environmental aspects in 2022 can be demonstrated by being recognized both national and international level.

INTERNATIONAL LEVEL



Dow Jones Sustainability Indices (DJSI)

GC has been ranked 1st in the 2022 Dow Jones Sustainability Indices (DJSI) in the Chemicals Sector for the fourth consecutive year and positioned among the Top 10 companies in the DJSI World and Emerging Markets Index for the tenth consecutive year.



CLIMATE



WATER

Carbon Disclosure Project

GC has been included in CDP's "A List" (Leadership Level) for Climate Change and Water Security. The "A List" is the highest level evaluation from CDP.



MSCI ESG Rating

GC has been listed among the world's Top 10 companies of the commodity chemical sector. The assessment provides assurance for investors that GC's operations are in accordance with environmental, social and governance principles.



IDC Future Enterprise Awards 2022

GC has won the Best in Future Operations Award from the International Data Corporation (IDC) for the Furnace Management Program (FMP) which uses advanced analytics technology to develop a Close Loop Optimization model to process and improve performance in Olefins Plant, Branch 2.



FTSE4Good

FTSE4Good Index Series

GC has been selected as a member of the FTSE4Good Index Series "Top 5" and the FTSE4Good Index Series for the seventh consecutive year (2016 - 2022). This is a testament of GC's awareness of Environmental, Social and Governance (ESG) factors in our business operations.



The Asset Awards

GC has received the Platinum Award for ESG from The Asset Awards 2022, which was organized by the region's leading financial magazine, The Asset.



International Sustainability & Carbon Certificate

GC's Olefins Cracker Plant and Polyethylene Plant have obtained the "ISCC PLUS" certification from the International Sustainability & Carbon Certification, reflecting our readiness and commitment to support bio-economy and circular economy.



EcoVadis Supplier Sustainability Ratings

GC has achieved an EcoVadis Gold rating in ESG with a score of 72 and placed in the 97th percentile of companies in the chemicals industry.



ASEAN CG Scorecard

GC received ASEAN Corporate Governance Scorecard: ASEAN Top 20, Top 3 of Thai PLCs and ASEAN Asset Class from institution ASEAN Capital Market Forum.

NATIONAL LEVEL



SET Sustainability Awards of Honor

GC has received the SET Sustainability Award of Honor for the fifth consecutive year. This reflects the remarkable alignment of our business operations with sustainable development practices as well as the comprehensive and transparent disclosures on our operations.



Thailand Sustainability Investment 2022 (THSI)

GC has maintained our position on the list of Thailand Sustainability Investment for the eighth consecutive year (2015-2022). This demonstrates our efforts in creating benefit for both internal and external stakeholders in the environmental, social and governance aspects, which is also in line with international standards.



The Prime Minister's Industry Award

GC has received the Prime Minister's Industry Award for Energy Management from the Ministry of Industry to be honored for driving Thai industry towards the excellence and being a role model, which reflects strength of management system and social responsibility at GC17.



CSR-DIW Continuous Award

16 plants under GC Group have received the CSR-DIW Continuous Award for the 15th consecutive year.



Thailand Corporate Excellence

GC has won a Distinguished Award in Innovation Excellence from the Thailand Management Association (TMA). This award reflects GC's commitment to research and development and innovation to drive the organization towards sustainable growth and strengthen our competitiveness.



Investor's Choice Awards 2022

GC has received the Investor's Choice Award 2022 for the 11th consecutive year as a listed company with a perfect score of 100 percent in the Annual General Shareholders' Meeting Assessment.



ESG100 Company

GC has been awarded the 2022 ESG100 Company Certificate and included among other companies on the ESG100 list following an evaluation of Thai publicly listed companies on their Environmental, Social and Governance (ESG) factors in 2022 by Thaipat Institute.



CAC Change Agent Award 2022

GC was awarded the CAC Change Agent Award 2022 by Thai Private Sector Collective Action Against Corruption (CAC) reiterating our commitment to create the transparent business network that is free of corruption throughout the supply chain by encouraging SME suppliers to declare their intent to join CAC. This is to promote shared standards of conducting business with corporate governance and in line with our organizational development goal to achieve sustainability.

MAJOR EVENTS AND ACTIVITIES IN 2022

Projects utilizing GC's expertise, innovation, and technology to address Thailand's urgent problems

JANUARY 7, 2022



GC and the Royal Thai Navy jointly organized "Preserve Thailand's Sea by Royal Initiative" event as a tribute marking the occasion of Her Royal Highness Princess Sirirannavari Nariratana Rajakanya's birthday anniversary

GC delivered mesh containers for storing used plastic bottles which have been cleaned. It also delivered prototype survival bags upcycled from PET plastic bottles to the Navy. Volunteers from GC's diving club then planted corals on the seabed. The project is a collaboration between the Navy and the company aiming for promoting the sustainable management of marine plastic waste. This will be achieved via the transformation of PET plastic waste such as transparent plastic bottles, and PE plastic waste such as opaque plastic bottles and plastic bags, into products with the value produced according to the Circular Economy principle. Also, this is to promote responsible tourism by reducing the amount of waste and conserving the seas of Thailand.

JANUARY 26, 2022



GC and PTT deliver plastic row boats to Songkhla Administrative Organization in aid of flood victims in Songkhla province

GC and PTT Plc. delivered plastic row

boats to Songkhla provincial administrative organization. The delivery was made at the front of Building 1 at PTT's headquarters in Bangkok. The goal is to alleviate the plights of people who suffered from flooding in many areas of Thailand in 2022 when monsoon valleys and typhoons swept across Thailand affecting people in many places. The boats were to be used by the provincial administration to prepare their response to floods and to alleviate the plight of flood victims.

The plastic rowboats were made from the company's LLDPE compound resins using rotational molding. This production method eliminates indentations on the finished product, making the boats strong but flexible while resisting impacts and scratches. UV-resistant materials have been added, making the boats resistant to ultraviolet radiation and thus suitable for long outdoor use. Since the boats are made entirely of plastic, they can be recycled when damaged or no longer used.

FEBRUARY 1, 2022

GC joins with PTT Group to supply ATK test kits to Rayong City Municipality and the Tourism Authority of Thailand

GC partnered with PTT Group to supply 6,000 ATK test kits to the Rayong City Municipality and the Tourism Authority of Thailand. The kits were to be used by tourists visiting Rayong Province and Samet Island.



FEBRUARY 7, 2022

GC and 6 partner organizations sign a Memorandum of Understanding for Phase 2 operations of the Fishermen Life Enhancement Center (FLEC) in Songkhla

GC and six organizations from the government sector, civil society sector, and private sector jointly signed a memorandum of understanding to operate the second phase of the Fishermen Life Enhancement Center (FLEC) in Songkhla. Partner organizations included the Fish

Marketing Organization, the Department of Labor Protection and Welfare, The Planned Parenthood Association of Thailand under the Patronage of Her Royal Highness the Princess Mother, Stella Maris Center Songkhla (Ban Suk San), GEPP Sa-ard Co., Ltd., and CPF. Phase 2 of the center's operations will take place from 2021-2025.

The Center's work draws on the expertise of all six organizations to advance labor protection and improve the quality of life of fisheries workers in Songkhla and their family members by global human rights principles. The philosophy of sufficiency economics was applied to food security to enable fisheries worker households to become self-sufficient. Marine and coastal waste management were implemented based on the concept of circular economy to conserve the natural resources of the sea. These measures are in line with the United Nations Sustainable Development Goals (SDGs). The company has extensively applied its know-how and experience in waste management from the origin to the end of the waste chain. Through the use of the "YOUTURN" Platform, awareness of waste management has been raised among residents.

FEBRUARY 8, 2022



GC gives batteries to Border Patrol Police Region 3 headquarters

GC delivered 428 batteries in good condition to Border Patrol Police Region 3 headquarters in recognition of the civilian sector's security needs. Border Patrol Police Region 3 provides security along the border area in northern Thailand and supports people in rural areas who live far from transportation and lack access to the power grid. The company also supported the replacement of batteries in Border Patrol Police schools that use solar-powered electrical systems.

FEBRUARY 18, 2022



GC supported the procurement of beds for critical patients at the Golden Jubilee Medical Center, Mahidol University

GC provide financial assistance to purchase electrically adjustable hospital beds for critical patients at Golden Jubilee Medical Center, Faculty of Medicine Siriraj Hospital, Mahidol University. This was in line with Golden Jubilee Medical Center's plan to increase the capacity of patient admission both in terms of quality and quantity to facilitate from 350,000 patients annually, to 700,000 patients annually.

MARCH 10, 2022



GC delivers PE gowns to Mahidol University

GC supplied 1,000 PE gowns under the Greater Care by GC brand to the Faculty of Public Health at Mahidol University. The delivery was made at NPC Safety and Environmental Service Co., Ltd (NPC S&E) in Rayong. The protective gowns are used to protect people who have to work during COVID-19 outbreaks. Health workers benefit from the protection the gowns provide by reducing the risk of contracting the virus.

MARCH 23, 2022



GC, Kao, Kanebo, and allies donate PPE suits made under the "Sort Bottles to Help Doctors" program to promote sustainability and protect society from the COVID-19 crisis

GC joined Kao Consumer Products (Southeast Asia) Co. Ltd., Kao Industrial (Thailand) Co., Ltd., and Kanebo Cosmetics (Thailand) Co., Ltd. in donating 1,000 PPE suits made from used plastic bottles. The PPE suits were made under the "Sort Bottles to Help Doctors" project and were given to Chakri Naruebodindra Medical Institute of the Faculty of Medicine, Ramathibodi Hospital, Mahidol University as well as the Faculty of Medicine Vajira Hospital, Navamindradhiraj University. It was hoped that the PPE suits would protect frontline personnel from infection during COVID-19 outbreaks while also contributing to the vision of sustainable environmental preservation. The delivery was made at the Energy Complex in Bangkok.

In its capacity as an organization that applied the Circular Economy principle in its business operation, the company initiated the "YOUTURN" Platform for the comprehensive management of plastic waste derived from used items. GC had previously collaborated with about 50 partners under the "Sort Bottles to Help Doctors" project, which uses the YOUTURN Platform. The program was able to send used plastic bottles into the upcycling process and produce PPE suits, which have been delivered to healthcare personnel at 50 hospitals across the country struggling with outbreaks of COVID-19.

MAY 25, 2022



GC delivers InnoPlus clean water containers to Five Provinces Bordering Forest Preservation Foundation for further distribution to the victims of drought

GC introduced the GC Shares Kindness for Thais Fighting Drought program to help people in drought-affected areas who have a shortage of water containers to store water for general consumption. The company provided clean InnoPlus water containers made from special LLDPE resins. The program was carried out in collaboration with the government sector, educational institutions, and charities, whose representatives were present at the Five Provinces Bordering Forest Preservation Foundation within the 1st Infantry Battalion, 1st Infantry Regiment, and the King's Guard Task Force in Bangkok. The containers were further distributed to people living in forest areas along the borders of five provinces, namely Chachoengsao, Chonburi, Rayong, Chanthaburi and Sa Kaeo.

AUGUST 1, 2022



GC Group delivers air purifiers capable of filtering out pollutants and PM2.5 particulate matter to the Royal Thai Navy

GC Group and Rajapranugroh Foundation, under royal patronage, handed over 14 air purifiers to the Royal Thai

Navy so that it can address the environmental and air pollution problems affecting the population in the long term. GC has provided researchers, innovations, and knowledge that have enabled the design, development, and production of 3 models of air purifiers.

GC hoped to share its expertise and experience in a way that would benefit society and the nation by enabling interested parties to expand this knowledge and produce air purifiers themselves. This would help save costs and alleviate the problem of air pollution. The 14 air purifiers were handed over at the Rajapranugroh Foundation office in Bangkok. The 3 air purifiers that GC Group designed, produced, and delivered to the relevant authorities include:

- 1st Generation: the prototype machine was developed by the Rajapranugroh Foundation based on the principle of the Venturi Scrubber air treatment system, which achieved a treatment efficiency of 79.5%. GC Group provided funds for the production of 7 air cleaners and tested them in 2 areas. These areas included the outdoor areas of Wat Ratchabophit Sathitmahasimaram Ratchaworawihan and Sa Pathum Palace in Bangkok.
- 2nd Generation: GC Group provided researchers, innovations, and knowledge that enabled the development of air purifiers with filters for air treatment. Efficacy was measured in both closed and open systems, with success. The effectiveness in filtering out PM2.5 dust in the air was 95.7%. One unit was delivered to the Rajapranugroh Foundation in January 2021.
- 3rd Generation: GC Group and GC Maintenance and Engineering Co., Ltd (GCME) conducted further research and expanded the second generation air purifiers by using the principle of three-layer filter treatment. The efficiency of filtering out PM2.5 was 99.2%. Four units were delivered to the Foundation in December 2021.

NOVEMBER 1, 2022



GC supplied InnoPlus containers of clean drinking water to the Thai Red Cross Society for further distribution in drought-affected areas

GC gave away 400 units of 1,500-liter InnoPlus brand water tanks and provided

financial assistance to build pedestals for the water tanks. This was in support of a drinking water distribution campaign aimed at alleviating the plight of people in drought-stricken localities. Another goal was to assist localities throughout Thailand that were suffering from a shortage of water containers to store water for human consumption.

SEPTEMBER 2, 2022

GC supplied LLDPE plastic beads for breast implant manufacturing in collaboration with Sabina

GC provided LLDPE resins to Sabina Public Company Limited to be used as the main raw material for manufacturing breast implants for postoperative breast cancer patients. GC also provided fabrics recycled from used PET plastic bottles. The colors were to be made into fabric bags to hold the equipment used to sew breast implants. The bags and equipment were later given to volunteers who performed the necessary sewing before the implants were delivered to breast cancer patients. In 2022, 35,000 breast implants were produced as part of this initiative.

OCTOBER 17, 2022



GC jointly opens a center for learning traditional fishing boat practices and renovates a fish market

GC opened a center for learning traditional fishing boat practices under the name Rayong Fisherman Market in cooperation with the Small Boat Fishermen's Association in Rayong Province. A renovated area in front of a fish market near the learning center was also renovated to create a center for selling high-quality fishery products. The goods sold here are mainly supplied by local fishermen, and care is taken to ensure that the goods are fresh, clean, safe, and fairly priced. The requirements for the use of the "Green Fishery" logo are also met. Products certified as "Green Fishery" are guaranteed by the Rayong Provincial Fisheries Office.

The program was jointly implemented by the government and private organizations to provide income to local fishermen and support their work. The Ban Kao Yot Small Boat Fishermen's Association helped to establish the Ban Kao Yot Small Boat Fishing Learning Center. The center was to become a learning place for anyone interested in small-boat fishing in Rayong. The center was also to host study visits by student groups and learners from the government and private sectors who wanted to learn about marine wildlife conservation. Examples of marine fauna conservation that can be learned at the center include the construction of "crab beds," the production of artificial seagrass, and its use for the care of juvenile marine animals and as a habitat for marine animals. The center also promotes sustainable fishing as a profession. The work of the Fishermen's Association earned the group the highest award for fishing groups from the Ministry of Fisheries in 2017, as well as a plaque of honor for an "outstanding farmers' institute" from the Ministry of Agriculture and Cooperatives.

NOVEMBER 1, 2022

GC provides emergency funds to the Thai Red Cross to assist disaster victims

GC provided financial support as emergency funds to a fund managed by the Thai Red Cross Society for Disaster Victims to support disaster victims. The money was to be used to support disaster victims, for example, to purchase necessary everyday items, medicines, and medical supplies.

NOVEMBER 20, 2022

**GC delivers 50 plastic rowboats to the Department of Disaster Prevention and Mitigation to help people affected by the flood disaster**

GC delivered 50 plastic rowboats to the Department of Disaster Prevention and Mitigation to help people affected by the floods and alleviate their hardship. The plastic rowboats were made from GC's LLDPE resins using a rotational molding process. This makes the boats strong but flexible and resistant to impacts and scratches. The addition of UV-resistant materials makes the boats resistant to ultraviolet radiation, making them suitable for long outdoor use. Since the boats are made entirely of plastic, they can be recycled when damaged or no longer used.

NOVEMBER 21, 2022

**GC hands over upcycled vests for traffic directors, to promote safety in Thai society**

GC partnered with Thai Beverage Public Company Limited to provide 3,028 upcycled vests for traffic directors. The vests were to be used in the operations of security teams in villages in all 76 Thailand provinces. They were also to be used to people's benefit under various circumstances. The vests were given to the Department of Provincial Administration, Ministry of Interior. To achieve a high level of safety, the upcycled vests are fluorescent. Being made from used PET plastic bottles, the making of the vests helps bring used plastic under proper management and creates added value for plastic waste.

DECEMBER 7, 2022

GC joins with PTT Group to hand over consumer staples in aid of disaster-afflicted people

GC handed over consumer staples, including food and drinking water, to communities in 4 municipalities and urban areas in Rayong.

DECEMBER 27, 2022

GC won an accolade from Communitas Awards 2022 in the United States for excellence in corporate social responsibility, given for GC's groundwater bank for a water sustainability project

GC received a Communitas Award from the United States in the category for organizations deemed as having achieved excellence in corporate social responsibility. Specifically, the conferred award was for the sub-category of environmental ethics and sustainability-focused environmental responsibility.

The award was given in recognition of GC's implementation of the groundwater bank project in orchard areas in the Krok Yai Cha and Nong Taeng Me community in Mueang district of Rayong province. The objective of the project was to alleviate the water shortage in the dry season, flooding in the rainy season and saltwater from the sea intruding farmlands. GC is the only company in Thailand to have received the 2022 award. The groundwater bank project was a collaboration between GC, Maptaphut Town Municipality, and the King Mongkut's University of Technology Thonburi. The project was initiated in 2020 under a concept to promote co-existence between communities and industrial plants. The company's volunteers have completed a total of 20 groundwater banks up until the present, helping to increase the amount of groundwater. The produce of farmers who participated in the project has increased by an average of 32% while the average inundation period at orchards has reduced to just half a day, from 2-3 days previously.

DECEMBER 23, 2022

**GC presents upcycled blankets to the Navy in aid of cold-stricken people**

GC gave 1,000 upcycled blankets to the Royal Thai Navy to help out cold-stricken people in Navy-managed areas in

the Northern, Eastern, and Northeastern regions that were afflicted by a cold spell. The upcycled blankets were produced by Ban Wat Chak Daeng Sufficiency Economy Community Enterprise. One blanket is produced from 11 plastic bottles of 1.5-liter size. In addition to their uses in times of cold weather, the blankets help reduce the amount of used plastic.

Driving Strategies Elevating Competitiveness

MARCH 28, 2022



GC Group signs asset management system procurement contract for prototype bio-refinery plant with National Science and Technology Development Agency (NSTDA), creating improved opportunities for millions of households in the agriculture industry

GC and GC Maintenance and Engineering Company Limited (GCME) signed a procurement contract with the National Science and Technology Development Agency (NSTDA) for an asset management system to be used at a prototype bio-refinery plant. GCME was selected by the NSTDA, Ministry of Higher Education, Science, Research and Innovation, as the winner of the bid for the project, which had a contract value of 100 million USD.

The prototype bio-refinery plant uses GMP processes (microbes production, bioseparation, biotransformation) and non-GMP processes (biomass treatment and cellulose production, fermentation and products sorting, chemical composition adjustment) as well as utility and laboratory systems. The plant would help reinforce and increase Thailand's capacity to develop and produce value-added agricultural goods, thereby promoting income in the farm sector and uplifting people's quality of life.

MARCH 29, 2022



GC installs C3 Splitter column at Olefins 2 Modification Project: OMP Project at GC Branch 3 (I-4) in Rayong

GC and Samsung Engineering (Thailand) Co., Ltd. participated in a merit-making and worship of guardian deity ceremony for the installation of the C3 Splitter column. The large distillation column has a diameter of 5.2 meters, a height of 110.9 meters, and a weight of 853 tonnes. The column was installed as part of Olefins 2 Modification Project (OMP) at GC's Branch 3 in Rayong. The OMP project would help improve the Olefins 2 unit's capacity to use propane and ethane as raw materials and enable ethane to be diverted to other olefins plants. This would bring about lesser use of raw materials that had higher costs and improve competitiveness for downstream business expansion. The project was scheduled for completion and operation by February 2023.

OCTOBER 17, 2022



GC joins the ceremony celebrating the successful establishment of AGC Vinythai Public Company Limited

GC participated in a ceremony celebrating the successful establishment of AGC Vinythai Public Company Limited (AVT) at The Athenee Hotel Bangkok. AVT came into being from a merger between Vinythai Public Company Limited (VNT) and AGC Chemicals (Thailand) Co., Ltd. (ACTH). GC is one of AVT's major shareholders. The merger is an important business move that would allow AVT to progress toward becoming a leading Chlor-Alkali and PVC products manufacturer and distributor in the Southeast Asia region. The merger would also reinforce GC's prowess in its downstream businesses, which were growing at a high rate. Furthermore, the development would add value to GC's olefins business line as it supplies feedstock to AVT.

DECEMBER 20, 2022



GC joins SCB in moving sustainably toward the "Together Net Zero" target by announcing success in the first issuance of a sustainability-linked loan

GC signed an agreement supporting the first Sustainability-Linked Loan (SSL) of 15 billion baht in amount with Siam Commercial Bank Public Company Limited. The loan was being taken to appropriately manage liquidity concerning future operating plans. The loan also reinforced the two firms' advancement of sustainable business principles that would promote a balance between environmental, societal, economic, and organizational governance pursuits. The signing took place at SCB Academy on the 18th floor of East Tower, SCB Park.

Driving new opportunity strategies to create growth in new businesses or abroad

JUNE 30, 2022

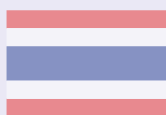


GC, in its capacity as the FTBF chair, promotes bilateral relations between Thailand and the French Republic

GC, in its capacity as the Thai chair of FTBF (France-Thailand Business Forum), co-hosted the 3rd annual assembly of FTBF members alongside MEDEF International - the largest employer federation in France as well as Thailand's Joint Standing Committee on Commerce, Industry, and Banking (JSCCIB). Special discussions were held on two topics, namely Transport & Mobility and the BCG drive. The talks also touched on decarbonization and the development of sustainable Smart Cities. Representatives from state agencies included those from the Ministry of Foreign Affairs Department of European Affairs, the Ministry of Commerce's Department of Trade Negotiations, the Office of the Ministry of Transport Permanent Secretary's Foreign Affairs Division, the Embassy of France in Bangkok, and the Eastern Economic Corridor Office of Thailand. Participating CEO-level representatives from Thailand's private sector included those from WHA Group, Thai Union, Thai Beverage, Double A, Loxley, Mitrphol, Sea Value, Kasikorn Bank, and CP Group. A delegation of french businesspersons from about 20 leading firms was also in Thailand to partake in the event.

The FTBF is a mechanism promoting investment cooperation and opportunities between the two nations' private sectors. The forum coincides with the France-Thailand Roadmap 2022-2024 state sector collaboration framework, which was rectified by the foreign ministers of both nations in April 2022. The roadmap expands on the Declaration of Intent on transportation systems transformation that was rectified at the ministers of transport level in December 2021.

The company has held the chair position for the FTBF since 2017. Investment-wise, the company is Thailand's largest investor in the French Republic (information based on rankings compiled by the Ministry of Foreign Affairs in 2021) due to its 100% shareholding in Vencorex.



AUGUST 29, 2022



GC Group joins with PTT to open an office in Texas, USA to reaffirm its "Step Out" overseas expansion tactic

GC Group consisted of PTTGC International Private Limited (GC International) and PTTGC America Corporation (GCA) joined with PTT International Trading USA Inc. (PTTUSA) to open the group's "US Office" at the event titled "US Office Opening Ceremony 2022". The office is situated in Texas, USA. The office's opening marks another successful step by the group and reaffirms commitment to the "Step Out" tactic of seeking new business growth opportunities abroad, while also being an extension of the "Second Home Base" expansion drive.



Advancing business sustainability strategies and low-carbon industry development projects under the Circular Economy principles

MARCH 11, 2022



GC joins with Toyota Tsusho (Thailand) Co., Ltd. to launch new “YOUTURN” drop point in response to the circular economy concept

GC joined with Toyota Tsusho (Thailand) Co., Ltd. or TTTC to unveil the development of products such as the Single Layer Fuel Tank, which was being manufactured using the rotomolding process, which complies with the Circular Economy principle. The company and TTTC also jointly opened a new YOUTURN Drop Point at Toyota Tsusho (Thailand) Co., Ltd. in Bangkok, reasserting commitment to sustainable cooperation and business operation via the “YOUTURN” Platform for plastic waste management. The platform enables everybody to play a part in adding value to plastic waste.

In 2021, TTTC employees played a role in donating plastic PET bottles to the “Sort Bottles to Help Doctors” project organized by YOUTURN and partners. The bottles were upcycled into PPE suits that were given to medical personnel who were handling the COVID-19 outbreaks in areas with a shortage of PPE. The cooperation illustrated the benefits that can be bestowed onto society and the Earth by applying the “YOUTURN, Sort to Give” concept.



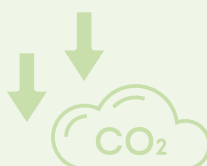
MARCH 18, 2022



GC participates in an event announcing the success of the Climate Action Leaders Forum batch 1

GC participated in an event held to announce the success of the first batch of Climate Action Leaders Forum at Rajpruek clubhouse in the North Park Project, Bangkok. The event was organized by Thailand's Greenhouse Gas Management Organization, the Ministry of Natural Resources and Environment, the Office of Natural Resources and Environmental Policy and Planning, Mahidol University's Faculty of Environment and Resource Studies, and the United Nations Development Program.

GC was among the sponsors of the program as well as an organizing partner for the forum. The program was aimed at creating awareness of and being a communication stage for matters relating to climate change. The hope was for leaders of various sectors to exchange their thoughts and experiences on the topic, leading to concrete progress in Thailand's drive to reduce greenhouse gas emissions.



APRIL 28, 2022



GC and TPBI jointly sign cooperation agreement on “YOUTURN x WON” project to expand on sustainable plastic waste management using circular economy principles

GC and TPBI jointly signed a cooperation agreement on “YOUTURN x WON” project to promote and support plastic waste management that adheres to circular economy principles. The program also aimed to foster good practices in waste sorting and resource use among consumers, ultimately leading to a pilot circular economy model for other plastic-related businesses and contributing to Thailand's sustainability.

The project would promote and support the YOUTURN x WON projects while issuing feasibility studies and developing guidelines for advancing pilot plastic waste management projects. This would be achieved by expanding on GC's existing waste management model (YOUTURN) as well as that of TPBI (WON). Plastic waste take-in points would be expanded while recycled or upcycled products would be developed for utilization by established goals. The cooperation would also see stretchy plastics, hard plastics, and other types of plastics sorted under the program used as raw materials for GC's ENVICCO global-standard plastic recycling plant or TPBI's plant as well as other plants in the future.



MAY 19-20, 2022



GC participates in “Better Thailand Open Dialogue”

GC participated in the “Better Thailand Open Dialogue” at Royal Paragon Hall, Siam Paragon shopping complex, Bangkok. The event was inaugurated by Prime Minister Gen. Prayut Chan-o-cha.

Company representatives joined the dialogue for the topic of “BCG, the Future for the New Generation” that took place in the “Better Stage: Creative Platform for Modern People for A Better Thailand”. Talks at this stage were also participated in by representatives from McKinsey & Company and Mu Space and Advanced Technology Company Limited. The discussion reinforced the importance of the BCG (Bio-Circular-Green) economy model in propelling the Thai economy, dissipating income, and improving employment coverage to all communities. The BCG model was being used to lead Thailand toward sustainable social and economic development. On this occasion, the company presented products and business concepts that respond to BCG economy model requirements, simultaneously illustrating GC’s determination in operating its businesses while sustainably caring for the environment. Said products and concepts were spread over 3 exhibition areas, as follows:

- **Bio Zone:** Bioplastic products made from renewable everyday biomass sources were displayed, with videos demonstrating the processing of plant matter into biofuels, biochemicals, and bioplastics of the BioPBS and PLA types.
- **Circular Zone:** Recycled and upcycled products were displayed and sold. Exhibit viewers also interacted and contributed to plastic waste management by bringing used plastic bottles to the Digital Drop Point on the YOUTURN Platform. Participants were eligible to receive recycled items as prizes.
- **Green Zone:** Low-carbon everyday products were exhibited. The items help reduce greenhouse gas emissions and save energy.

JUNE 1, 2022



PTT Group leads the pilot study of CCS Hub Model, using prototype carbon capture and storage technology as it strives to reach the target of carbon neutrality and net zero greenhouse gas emissions

GC and PTT Group – comprising PTT Public Company Limited, PTT Exploration and Production Public Company Limited, Thai Oil Public Company Limited, IRPC Public Company Limited, and Global Power Synergy Public Company Limited – signed a memorandum of agreement on cooperation in a program to study the feasibility of applying Carbon Capture and Storage (CCS) technology, also known as the CCS Hub Model. The MOA was signed at Phalang Thai meeting room at PTT headquarters in Bangkok.

GC and PTT Group, as national energy organizations, strive to sustainably improve the national development level and foster economic, social, and environmental security in line with a policy to reach carbon neutrality by 2050 and net zero greenhouse gas emissions by 2065. To contribute to addressing the climate change crisis, PTT Group elevated its climate change management by engaging in cooperation in technology overseen by PTT Group Technology Committee (GTC) so greenhouse gas emissions reduction could be jointly managed within PTT Group. A pilot study on CCS technology application involving the CCS Hub Model would be undertaken. The CCS Hub technology can capture millions of tonnes of carbon dioxide in the production process and trap it in permanent geological storage within an appropriate and safe stratum. The stored carbon is not released back into the atmosphere. The study would commence in areas of Rayong and Chonburi where PTT Group operated.

JUNE 6, 2022



GC signs a memorandum of agreement with DIPROM on cooperation in promoting and developing the hemp plant industry toward commercialization

GC signed a memorandum of agreement with the Department of Industrial Promotion (DIPROM) on cooperation in promoting and developing the hemp plant industry toward commercialization. The signing took place at PTT headquarters in Bangkok.

The MOA would foster joint research and development on combining hemp fibre and bioplastics, which would then be processed into various products in the future. The use of the hemp and bioplastic combination would reduce leftover hemp fibre, generate added economic value for hemp farmers and respond to the government’s policy to reduce single-use plastics which has come into effect.

JUNE 7, 2022



GC and Mistine partner with allies to launch cosmetics containers made from PCR – a first for Thailand

GC and Better Way (Thailand) Co., Ltd. – the distributor of Mistine cosmetics – as well as Top Trend Manufacturing Co., Ltd. (TTM) and S&J International Enterprises Public Company Limited (S&J) jointly unveiled an innovation using PCR (Postconsumer Recycled Resins) to produce bottles or containers for the Mistine White Spa Rose' body care product. The environmentally friendly containers were a first for Thailand. The event transpired at Energy Complex in Bangkok.

The cooperation between the trade partners was undertaken with a shared aim of reducing waste from single-use plastics, through the promotion of awareness about correct waste management in society. The company developed and brought the PCR innovation into use as a component of Mistine's product containers. TMM brought in its 3-Layered Plastic Recycle technology to produce the containers, with S&J helping to test and ensure that the containers are safe and free from contamination. Consumers would be able to use environmentally friendly products with peace of mind.



JUNE 26, 2022



GC joins the “Row for the River and Three Canals” event to raise awareness of the waste problem in rivers and the ocean

GC joined the opening ceremony for the “Row for the River and Three Canals” event, which was a follow-up event for the “Row for Chao Phraya, Collect Waste from Pak Nam Pho to the Gulf” events organized by Thammasat University in 2018 and 2019. This year's event resulted from the collaboration between Puey Ungphakorn Centenary Hall and Park, the Faculty of Social Administration, Thammasat University, the Ministry of Natural Resources and Environment, the Bangkok Metropolitan Administration, Nonthaburi Province, the people sector, and partner organizations. The event was held to promote the reduction of waste by all sectors of society.

Waste was collected from Om Non, Bang Kruai, and Bang Kok Noi canals in Nonthaburi province. 1 hour of rowing by participants on each of the canals yielded 221 kilograms of collected waste. The most prominent types of waste included foams and plastic bottles, which were to be sent into the sorting and recycling processes.



JULY 17, 2022



GC joins the opening of KLOUD by KBank model green building

GC, Kasikorn Bank, and partners jointly opened the KLOUD by KBank model green building that reflected the partner organizations' sustainable growth pursuits. The company provided its innovation for comprehensive plastic waste management so the building would achieve the target of zero waste to landfill. The “YOUTURN” Platform was brought in to help with waste sorting at the origin point of waste. Machines to convert food waste into organic fertilizer and the “YOUTURN Reverse Vending Machine” were deployed. The latter enables plastic waste to be more easily transported to recycling or upcycling points so the waste would become products that generate added value. The waste would be run through recycling machines that process used plastic into upcycled wall decorations for use inside buildings. The “Upcycling by GC” prize exchange machine was also set up and users would be able to exchange recyclable waste for clothes, bags, furniture, and other items by using the “YOUTURN” mobile application.



JULY 20, 2022



GC and PTT Group join hands with partners from the education, state, and private sectors to set up the “Thailand CCUS Consortium” to reassert Thailand’s targets for carbon neutrality and net zero emissions

GC joined with PTT Public Company Limited and partners from the BCGeTEC center at the Faculty of Engineering, Chulalongkorn University as well as those from national-level private sector firms to announce the setting up of the “CCUS Technology Development Consortium”. The announcement was made at the Future Energy Asia 2022 event. The consortium would see cooperation in the development of carbon dioxide capture, utilisation, and storage technology. Premrutai Vinaiphath, the deputy permanent secretary to the Ministry of Energy, participated as a witness. The consortium was advised by several state agencies and public organizations, including the Ministry of Energy’s Energy Policy and Planning Office, the Ministry of Natural Resources and Environment’s Office of Natural Resources and Environmental Policy and Planning, the Electricity Generating Authority of Thailand, and Thailand Greenhouse Gas Management Organization.

JULY 26, 2022



GC participates in the reception of Their Royal Highnesses for the opening ceremony of the new office of the Friends in Need (of “PA”) Volunteers Foundation, Thai Red Cross Society

GC representatives received Her Royal Highness Princess Soamsawali Krom Muen Suddhanarinatha and Her Royal Highness Princess Bajarakitiyabha Narendiradebyavati on the occasion of Their Royal Highness’ attending the opening ceremony for the new office of the Friends in Need (of “PA”) Volunteers Foundation, Thai Red Cross Society. On the occasion, GC has bestowed memento brooches in recognition of the company’s continual support of the Foundation since 2020.

GC representatives presented Their Majesties with a basket of upcycled products jointly developed by GC, the Friends in Need (of “PA”) Volunteers Foundation, and the Nabha Foundation. The products were made from used PET bottles, some of which were collected from schools and communities in Sukhothai province. The products helped generate income for communities in Sukhothai and Khon Kaen and promoted job opportunities for prison inmates. Said stakeholders played roles in the production process that ranged from thread dyeing, weaving, sewing, and stitching, leading to the finished products.

AUGUST 24, 2022



GC partakes in the opening ceremony for Thinker: a Self Portrait sculpture park

GC joined the opening ceremony for Thinker: a Self Portrait sculpture park at Thammasat University Rangsit Campus. The company sponsored the construction of the park in remembrance of Prof. Dr. Adul Wichiencharoen, who made significant contributions to Thammasat University and the Thai education circle. The park was designed with an environmental conscience – emphasis had been placed on the use of resources from areas within the campus grounds. The new green space would be used for recreational activities and relaxation by members of the Thammasat community.

The Thinker: A Self Portrait sculpture was made in adherence to circular economy principles. Raw materials were selected from among GC’s leftover feedstock such as the external metallic structure of insulators, steel pipes left from construction projects, and other items. These raw materials were melted to form recycled steel, resulting in value being added to resources and in the promotion of eco-efficiency. The result would become a model for other sculpture projects. In addition, the circular landscaping for the sculpture was meant to portray a cycle of adding value to resources.



AUGUST 25-26, 2022



GC holds “GC Circular Living Symposium 2022: Together To Net Zero”, to elevate Circular Economy pursuits, with leading partners from Thailand and abroad who strove to reduce their greenhouse gas emissions to zero

GC held the “GC Circular Living Symposium 2022: Together To Net Zero” event to expand on gains in the pursuits of the Circular Economy principle and the Net Zero goal. It was the third year for the company to hold the symposium, which participants hope would foster balance and sustainability and address the global warming crisis. About 40 leading thinkers at the national and international levels from the public and private sectors, members of the new generation, leading universities, the environmental experts’ circle, and startup companies shared their experiences and discussed ways to reduce greenhouse gas emissions to zero, which would make for a sustainable Earth. About 2,000 people physically attended the symposium, with some 200,000 people in Thailand and roughly 5,000 people from abroad opting to view it through online broadcasts. The symposium took place at Royal Paragon Hall in Siam Paragon, Bangkok.

GC places importance on the creation of balance that would aid the pursuit of sustainability. Circular Economy principles has been adopted for use in the organization, while there was a focus on optimizing the use of natural resources to achieve the highest benefit. These practices would enable the company to deliver products and options that had good quality and were safe and environmentally friendly to trade partners, stakeholders, and society. The practices would also advance the company’s progress on the sustainability front per the Paris Agreement. The company is among those seeking to address global warming by pursuing the “Together To Net Zero” goal. This would cut net greenhouse gas emissions to zero by the year 2050. Greenhouse gas emissions will be cut by 20% within the year 2030 and net emissions will be reduced to zero under Scopes 1 and 2 within the year 2050. To lessen carbon release, the company also plans to reduce greenhouse emissions under Scope 3 by 50% throughout the entire value chain. This would be achieved via 3 decarbonization pathways: Efficiency-driven, Portfolio-driven, and Compensation-driven. The company is ready to play a part in advancing cooperation against the global warming crisis while fostering a lance on the economic, societal, and environmental fronts by the ESG principle so that all sectors would progress toward the “Together To Net Zero” goal collectively.

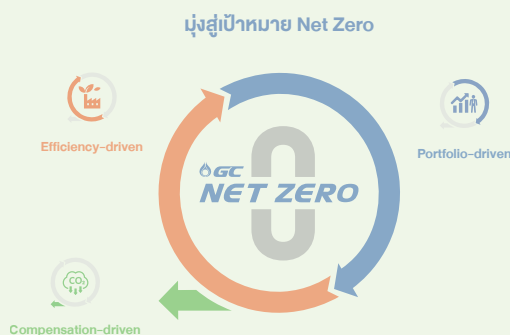
SEPTEMBER 6, 2022



GC and IEAT sign a memorandum of agreement on waste management cooperation under circular economy principles, to achieve Net Zero

GC and the Industrial Estate Authority of Thailand (IEAT) signed a memorandum of agreement on waste management cooperation by circular economy principles. The signing took place at the IEAT headquarters, with the objective being to rapidly advance plastic waste management pilot projects in industrial estates. Other purposes included fostering correct plastic waste sorting behavior and developing products from plastic waste that would yield benefits to communities as well as commercial benefits.

The cooperation would be applied at industrial estates, with its scope also extending to corporate social responsibility activities and feasibility studies on the development of products from plastic waste for the benefit of communities.



SEPTEMBER 13, 2022



GC launches ENVICCO plant for the production of high-quality recycled resins

GC unveiled its ENVICCO plant for the comprehensive production of high-quality recycled resins. The plant was capable of producing food-grade plastics that conform to global standards and was the largest of its kind in Southeast Asia.

ENVICCO had a production capacity of 45,000 tonnes per year, with a 30,000 tonnes per year capacity for producing PCR rPET Food Grade recycled plastic beads and 15,000 tons per year capacity for producing PCR rHDPE recycled resins. ENVICCO's operation would help reduce plastic waste in Thailand by some 60,000 tonnes per year and greenhouse gases by 75,000 CO₂ equivalent tonnes per year. This was the same as growing about 78,000 rai of forest or planting 8.32 million large trees.

ENVICCO is a joint venture of GC and ALPLA. The latter is a global leader in plastic packaging products and recycled plastics. ENVICCO aims to give value to used plastics by enabling them to become new products whose qualities are on par with those made from new plastic beads. This would be achieved under circular economy principles, with world-class recycling technology having been selected for use. Collaboration from all sectors in the aspect of plastic waste management would sustainably foster a quality and environment that is also sustainable.

SEPTEMBER 23, 2022



GC reinforces its strength by pairing up with financial institutes to foster sustainability

GC held a signing ceremony with commercial banks for lending contracts worth about 27 billion baht at Anantara Siam Bangkok Hotel. The borrowings were being made to pay off previous loans and use the funds for general operations.

The borrowing was an important step for GC's cooperation with its 6 partner banks, which included Siam Commercial Bank Public Company Limited, Krung Thai Bank Public Company Limited, Land and Houses Bank Public Company Limited, Kiatnakin Phatra Bank Public Company Limited, Bangkok Bank Public Company Limited and TMBThanachart Bank Public Company Limited. The loans will be used in support of liquidity and business growth under the company's tactical plans to navigate volatile economic circumstances. Said volatility was being caused by domestic as well as external factors, including but not limited to heightened inflation, conflicts between superpowers, and the risk of a global economic recession. The loans would also be used in support of the company's goal of achieving "Together To Net Zero" goal. The loan contracts signing reflected the company's as well as the partner banks' commitment and preparations toward a sustainable society.



OCTOBER 1, 2022



GC communicates its vision of organizational progress toward sustainability, at "Sustainability Expo 2022"

GC reached its 3rd-year milestone in its partnership with Thailand's leading organizations to collaboratively host the Sustainability Expo. The 2022 expo was held from September 26-October 2, 2022 at Queen Sirikit National Convention Centre in Bangkok under the concept of "Good Balance, Better World". Sustainability Expo co-hosts included Thai Beverage Public Company Limited (ThaiBev), Frasers Property (Thailand) Public Company Limited, The Siam Cement Public Company Limited (SCG), and Thai Union Group Public Company Limited (Thai Union). The objective of the expo was to promote awareness among all sectors about sustainable development.

GC representatives engaged in talks under the segment "CEO Panel Discussion: Leading Sustainable Business" and expressed their vision about sustainability-related work operations which the company had carried out over the past 10 years under the "GC Chemistry for Better Living" concept. The sustainability efforts demonstrated the company's role as a chemical products organization that continually helps improve the environment and people's quality of life. The company has applied sustainability principles to all work processes, as well as optimized the conscious use of resources, and utilized good governance principles for corporate management.



OCTOBER 7, 2022



GC joins with GPSC to inaugurate a floating solar power production project, in line with the “Together to Net Zero” goal

GC joined Global Power Synergy Public Company Limited (GPSC) to inaugurate a floating solar power production project that would help drive the climate change response. The project aligns with the company's carbon neutrality and net zero greenhouse gas emissions goals, taking GC and GPSC one step closer to “Together to Net Zero” goal.

GC used clean energy, namely solar energy from floating panels, to tangibly reduce greenhouse gas emissions. The solar installation produced 1.12 million electricity units per year and reduced greenhouse gas emissions into the atmosphere by 564 CO₂ equivalent tons. Over the 20-year contract period, this would be equivalent to doing away with installing 1 million units of 1-tonne airconditioners. GC planned to expand solar installation for electricity generation projects to petrochemical plants operated by its group of companies.

The project brings into use an environmentally friendly plastic processing innovation (the InnoPlus plastic beads) that was developed by GC Group. InnoPlus is resistant to impacts, heat, and chemicals while also being flexible and can be made into various shapes.



OCTOBER 28, 2022



GC and UNIQLO hold marine waste reduction activities in Rayong to reinforce environmental sustainability

GC and Uniqlo Thailand Co., Ltd. (UNIQLO) – the global apparel brand – held a marine litter reduction activity with 145 volunteers from GC, UNIQLO, and other entities. The volunteers collected litter from the beach and learned about waste management at the model community at Mae Ramphueng beach in Rayong province. 315 kilograms of waste was collected and used to produce Refuse Derived Fuel (RDF). Making fuel out of the waste instead of sending them to landfills would help reduce greenhouse gas emissions by 730.80 kilograms of CO₂ equivalent. This equated to the greenhouse gas absorption capacity of 81 trees in 1 year.

The activity was part of the “JOIN: THE POWER OF CLOTHING” campaign supporting activities for the betterment of the world. Aside from contributing to reducing marine litter, the activity helped preserve the marine and coastal ecosystems so their natural beauty and biodiversity remain protected. GC and UNIQLO also provided funding support for the correct management of recyclable waste for the Samphao Thong community.



NOVEMBER 1, 2022



GC partners with BMA to change landfill into eco-forest under the “The More Planted, the Better” event to create 55 rai of green area

GC and the Bangkok Metropolitan Administration inaugurated the “The More Planted, the Better” program at an old landfill area at On Nut Waste Disposal Center in Prawet district of Bangkok. The event was being jointly implemented by GC, the BMA, and experts from Kasetsart University's Faculty of Forestry. The objective was to reduce greenhouse gas emissions and aid efforts in support of Thailand's target of achieving Net Zero goal in 2065. The event would contribute to the BMA's policy to plant one million trees, while also aligning with GC's business operation guideline that seeks to balance the 3 ESG dimensions of environmental, social, and corporate governance. Furthermore, it would lend to GC's goal of achieving Net Zero by 2050.

The event involves planting a forest to create a green area that boasts an eco-forest. The planting was being done under academic consultation, making the program the first of its kind in Thailand. There was also a possibility the program would be expanded to become a model for the creation of carbon credits in Thailand in the future. The site is situated on 55 rai of land in an old landfill area at On Nut Waste Disposal Center. It will add green space and freshen up the lungs of Bangkok residents, with the trees there helping to reduce pollution from PM2.5 dust and absorbing an average of 165 CO₂ equivalent tons. The forest will give rise to an ecosystem and release an average of 120 tons of oxygen into the atmosphere each year.

NOVEMBER 14, 2022



GC performs as a co-host of APEC 2022 by presenting its YOUTURN sustainability platform and showcasing plastic waste management as well as an upcycled home as highlights at the BCG exhibition at the APEC week

GC joined the opening ceremony for the BCG exhibition for the APEC Economic Leaders' Week (AELW) 2022, with Prime Minister Gen. Prayut Chan-o-cha presiding over the ceremony.

Thailand received the honor of hosting the APEC (Asia-Pacific Economic Cooperation) 2022 summit as well as related meetings and the stage for presenting the Bio-Circular-Green (BCG) economy model, which was one of Thailand's national agendas, during November 14-19, 2022. These events transpired at Queen Sirikit National Convention Centre and contributed to trade and investment liberalization and cooperation on social affairs as well as on various aspects of development.

The prime minister and Cabinet ministers viewed GC's exhibits, which were displayed under the theme of Thailand's BCG economy model. GC showcased its YOUTURN Platform for plastic waste management and used it to manage plastic waste at the exhibition. Waste was collected from PTTOR's "Sort, Exchange, Smile" program and re-injected into the system in compliance with the BS 8001:2017 circular economy standard. GC also provided support to the "Plate to Planet" program under the APEC Future Food for Sustainability initiative, which was presented to the 21 leaders of APEC member economies. GC provided its compostable environmentally friendly and biodegradable packaging for this program. GC also gave upcycled shirts made from used plastic bottles to teams that participated in the Plate to Planet competition.

NOVEMBER 16, 2022



GC gives a lecture at the "Net-Zero Transformation: D-emission for Our Sustainable Future" event at the UN Climate Change Pavilion, COP27

GC gave a lecture on the topic "GC Decarbonization: The Path to Net Zero" at the Net-Zero Transformation: D-emission for Our Sustainable Future event. The activity was organized by Thailand Greenhouse Gas Management Organization and took place at the UN Climate Change Pavilion at the COP27 conference in Sharm El Sheikh, Egypt.

In the lecture, GC stressed the importance of having all sectors cooperate in addressing problems caused by climate change, via efforts to bring forth sustainability and Net Zero greenhouse gas emissions. Examples were given about the company's proceedings to achieve its Net Zero objectives, which were set to align with the Paris Agreement. GC aims to cut greenhouse gas emissions by 20% by the year 2030. It also aims to achieve the Net Zero goal by the year 2050. GC has been restructuring toward a low-carbon business while undertaking actions that would reinforce sustainable business expansion in the long term.

NOVEMBER 24, 2022



GC joins with Siam Piwat to create happiness and smiles with "Circular Living X'mas Tree 2022"

GC joined Siam Piwat Co., Ltd. to launch its "Circular Living X'Mas Tree 2022" an environmentally friendly Christmas tree created from various types of used plastics. It was the 5th year of the two companies creating happiness during the Christmas and New Year's festivities.

"Circular Living X'mas Tree 2022" was created under the concept "SIAM SMILEY Celebration Infinite Happiness". This year's event was made special by the participation of the Smiley lifestyle brand from the United Kingdom. "Circular Living X'mas Tree 2022" retains a design concept that focused on the circular economy and the reduction of waste as well as greenhouse gas emissions. Various types of used plastics, such as plastic bottles, boxes, plastic cups, bottle caps, optical discs, and cutlery, were combined into a Christmas tree boasting a spherical design. The tree's form portrays the identity of the Smiley brand, which was celebrating its 50th anniversary. After the event, GC and Siam Piwat were to send the materials to the "YOUTURN" Platform for the comprehensive management of used plastics operated by GC. The materials would be recycled and upcycled into products with added value.

The Christmas tree was on display from November 24, 2022, to January 8, 2023, at Discovery Plaza, Siam Discovery The Exploratorium, Bangkok.



MESSAGE OF THE CHAIRMAN



“

We have also continued to implement the 3 Step Plus strategy, which has been adjusted and reprioritized in line with the changing circumstances, with emphasis on bolstering our business strengths, optimizing process efficiency in all dimensions, and laying the groundwork for sustainable growth that will enable us to operate efficiently under any conditions.

”

Dear Shareholders,

In 2022, the global economy was faced with challenges of unprecedented scale, beginning with the Russia-Ukraine war, which led to the imposition of sanctions on Russia and set off a chain of events that plunged the world into an energy supply crisis, prompting a spike in energy prices and inflation rates across the globe. In response, federal banks in many countries introduced interest rate increases in order to curb inflation, directly affecting economic growth and consumption, and effectively triggering an economic recession. Meanwhile, China continued to maintain its strict zero-COVID policy, which not only impacted its domestic manufacturing sector and economic activities but also had a global ripple effect. Altogether, these factors put pressure on the demand for petrochemicals and chemicals, while feedstock and energy costs saw a significant surge, causing the petrochemicals and chemicals spreads to fall headlong globally, plunging 20-40% below the 2020 levels during the height of the COVID pandemic on average.

In response, we have closely monitored the volatile situations as well as promptly prepared and adjusted our response plans in line with the market situation. In addition, we have taken protective measures by developing the GC Recession Playbook in order to adjust our plant production to a suitable level, tighten cost control, and implement liquidity management. As these steps were taken before the onset of the economic recession, we have been able to significantly mitigate impacts on our operating results and liquidity.

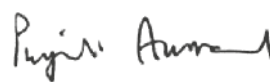
We have also continued to implement the 3 Step Plus strategy, which has been adjusted and reprioritized in line with the changing circumstances, with emphasis on bolstering our business strengths, optimizing process efficiency in all dimensions, and laying the groundwork for sustainable growth that will enable us to operate efficiently under any conditions. To this end, we have continued various initiatives, such as the Max Infinity Project, Map Ta Phut Integration, and FiT Project, as well as restructured the organization to align with our long-term direction and goals. In addition, we have further enhanced synergy by acquiring allnex Holding GmbH as well as restructured GC Group to improve agility and ability towards creation of added value in the target market in line with our strategic direction by jointly establishing AGC Vinythai Public Company Limited (AVT) with our partners and restructuring its shareholding in Thai Tank Terminal Company Limited (TTT) to operate a chemical handling and jetty business.

With regard to sustainability, we have continued to implement our decarbonization pathway to ensure we can accomplish Net-Zero emissions by 2050. Under this action plan, we place emphasis on integration in order to maximize resource and machinery efficiency, complete a clean energy transition, and restructure the business, focusing on specialized green chemical and low-carbon businesses capable of generating

good returns for the company. We have also researched high-efficiency carbon capture technologies and offset the remaining carbon footprint with reforestation efforts to naturally absorb its carbon emissions.

Furthermore, we have continued to operate in adherence with the principles of sustainability to achieve an Environmental, Social, and Governance (ESG) balance, with our robust Governance, Risk Management & Internal Control, and Compliance (GRC) system serving as an immune system. In addition, we prioritize transparent business management, business ethics, and anti-corruption efforts and seek to extend our practice to our business partners. Thanks to our staunch commitment to sustainable business practices, recognized at both national and international levels, we have been placed at the top of the Dow Jones Sustainability Indices (DJSI) in the world's chemicals sector for the fourth successive year, making us the first Asian company to be ranked first for four consecutive years. In addition, we have won an ASEAN CG Scorecard award, given to companies with outstanding compliance with the Southeast Asian corporate governance standards, successfully earning a spot among the top 20 in Southeast Asia and the top 3 in Thailand. We have also been placed on the Thailand Sustainability Investment (THIS) list for the seventh consecutive year, which demonstrates our environmental, social, and governance contributions to internal and external stakeholders, as well as on the 2022 ESG100 Emerging List. Additionally, we have successfully maintained our status as a certified member of the Thai Private Sector Collective Action Against Corruption (CAC) as a result of our business transparency and stance against all forms of corruption as well as our efforts to expand our practices to our partners.

On behalf of the Board of Directors, executives, and all employees, I would like to express my sincerest gratitude to all shareholders and stakeholders for their unwavering trust and support towards GC's operations. I would also like to assure you that our company is well equipped to operate amid economic volatility and changes as well as foster sustainable growth in the future in adherence with corporate governance principles and achieve a social and environmental balance in pursuit of the leadership in the international chemical business in order to deliver maximum value through our products and elevate the quality of life for all stakeholders and the country in a continuous and sustainable manner.



(Mr. Piyasvasti Amranand)
Chairman

01

BUSINESS OPERATION AND PERFORMANCE

GC is relentless in its development of innovative plastic and chemical products. To enhance the quality of life, GC is ready to deliver the best products that are safe for users and the environment to you and your loved ones.





BUSINESS STRUCTURE AND OPERATION

Policy and Business Overview

Business Overview

PTT Global Chemical Public Company Limited (GC) has a combined chemical and petrochemical capacity of approximately **14.23** million tons per year and a combined crude oil and condensate distillation capacity of **280,000** barrels per day.



UPSTREAM



INTERMEDIATES



POLYMERS AND
CHEMICALS

It is considered Thailand's largest integrated petrochemical and refining company, a leader in Asia-Pacific in terms of size and the variety of petrochemical products, and the bio-plastic producer with the largest capacity in the world. At present, it is seeking to expand towards High-Value Businesses (HVBs), which have demonstrated growth, in order to meet customer needs in response to megatrends, with particular focus on coating resins in order to enhance the diversity of its performance chemical portfolio, thus strengthening its competitiveness as a leading global chemical company and helping to shield it from the intense competition in the petrochemical industry. A leading petrochemical company is required to possess

a large production capacity to achieve economies of scale and reduce costs per unit and must be fully integrated to be able to add value to products, especially in the expansion to downstream businesses, which results from the addition of value to existing products and the reduction of costs by maximizing the utilization of existing assets. It must also be equipped with capabilities for production and market optimization. GC consists of five core business groups:

1. Upstream
2. Intermediates
3. Polymers and Chemicals
4. Bio and Circularity
5. Performance Chemicals



BIO AND CIRCULARITY

PERFORMANCE CHEMICALS

BUSINESS STRUCTURE

In 2022, GC, as a Chemical Flagship of PTT Group with a combined chemical and petrochemical capacity of 14.23 million tons per year and crude oil and condensate distillation capacity of 280,000 barrels per day. GC consists of 5 business groups and has other businesses and services which GC invested for supporting, summarized in the diagram as follows:



* Only capacity that GC hold equal to or more than 25% share and calculate proportion by percent share.

** For internal use

Services and Others

- Marketing and Sales of Products and Packaging Market Development**
 - Sales of Products across the region Operated by Dealers authorized by GCM
 - Plastic Packaging Market Development Operated by SPIG, TPBIMS
 - Derivative Product Development & Sales Operated by SUN
- Logistics, Jetty, Utilities, and Infrastructure**
 - Logistics Services Operated by GCL
 - Jetty and Chemical Tank Farm Operated by TTT
 - Pipeline Infrastructure Services Operated by EFT
 - Utility Business Operated by GPSC
 - Land and Property Management Operated by GCEC
 - Information and Communication Technology Services Operated by PTT Digital
- Technical, Engineering, Plant Maintenance, Safety, Occupational Health, Environmental, and Security Businesses**
 - Plant Maintenance and Engineering Services Operated by GCME
 - Safety, Occupational Health, Environmental, and Security Services Operated by NPC and NPCSG
- Social Enterprise**
 - Management Consultancy Operated by PRS Rayong
 - Social Enterprise Operated by SPSE
- Others**
 - GC Group's Liquidity Management and Financing Vehicle Service Operated by GCTC
 - Corporate Venture Capital Investment (CVC) Operated by GCV and GCVA
 - Outsourcing Service Operated by BSA

POLYMERS AND CHEMICALS

BIO AND CIRCULARITY

PERFORMANCE CHEMICALS

POLYMERS

CHEMICALS

BIOPLASTICS AND BIOCHEMICALS

POST-CONSUMER RECYCLED

VALUE ADDED OLEOCHEMICALS

PERFORMANCE CHEMICALS

- High-Density Polyethylene
 - Linear Low-Density Polyethylene
 - Low-Density Polyethylene
 - Polypropylene
 - Polyvinyl Chloride
 - Polyethylene Terephthalate
 - Polystyrene
 - Rotomolding compound
 - Polypropylene compound
- (Hexene-1 is for internal use as feedstock with a capacity of 34 thousand tons per year)

- Ethanolamine
- Polyether Polyols
- Polymer Polyols
- Premix Polyols

- Polylactic Acid
- Polybutylene Succinate

- Post-Consumer Recycled PET
- Post-Consumer Recycled HDPE

- Methyl Ester
- Fatty Alcohol
- Fatty Alcohol Ethoxylate
- Glycerin
- Oleochemicals

- Coating Resins and Additives
- Hexamethylene Diisocyanate (HDI) and HDI Derivatives

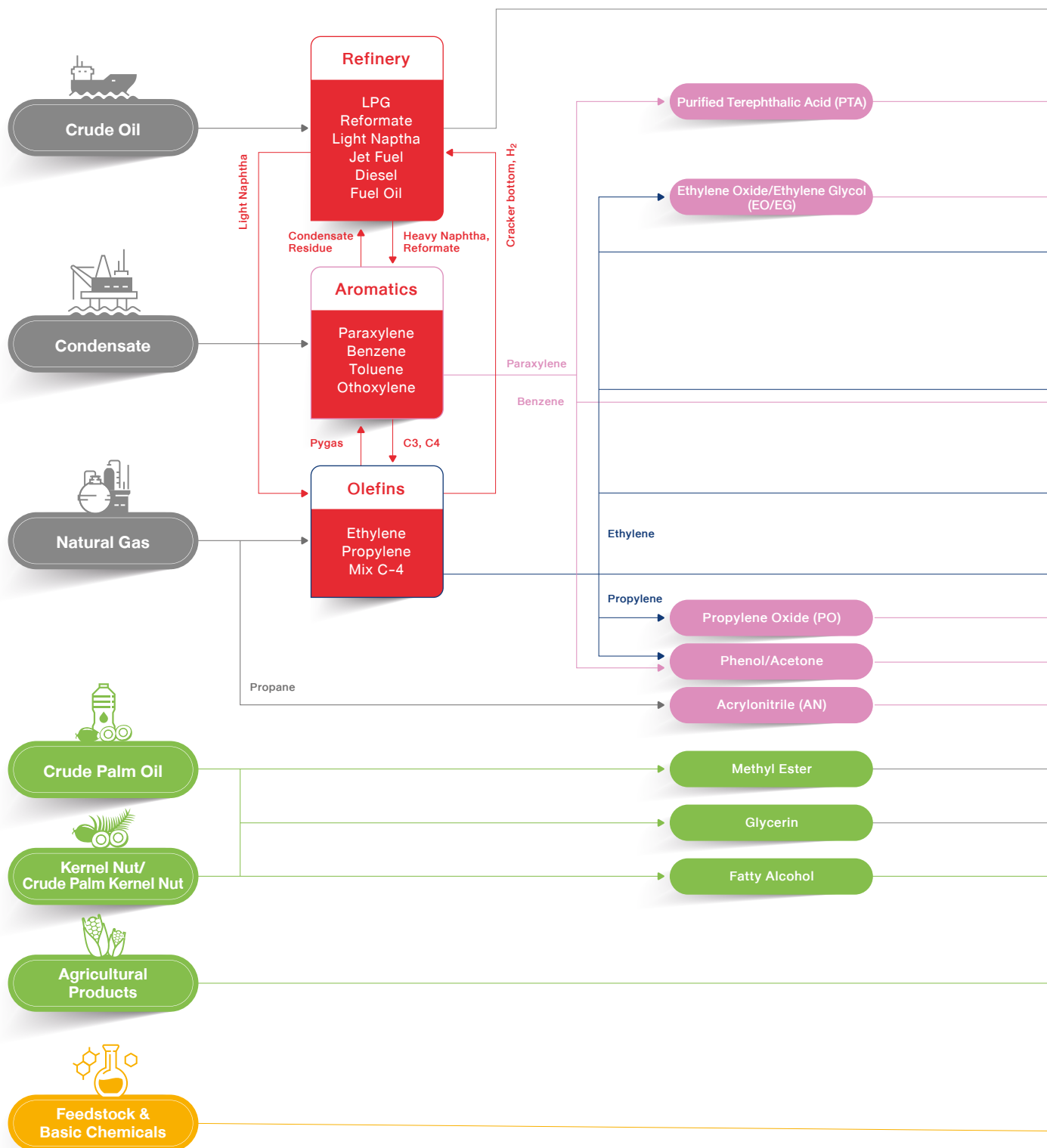
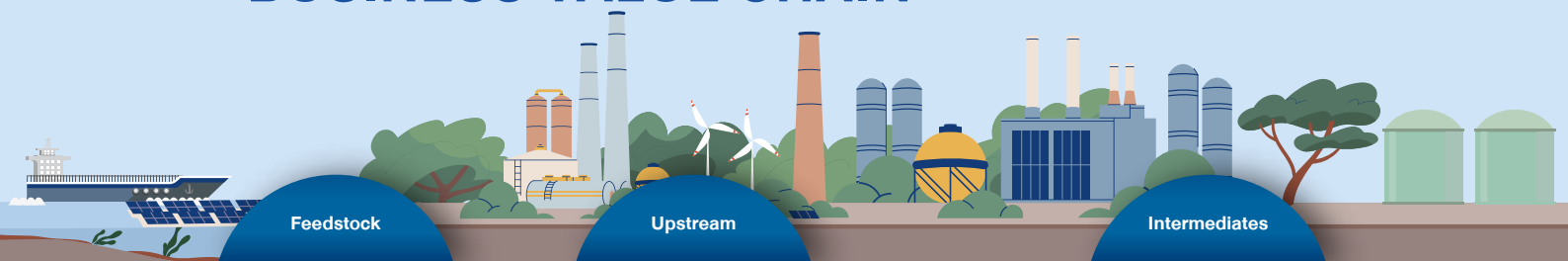
2,842
KTA

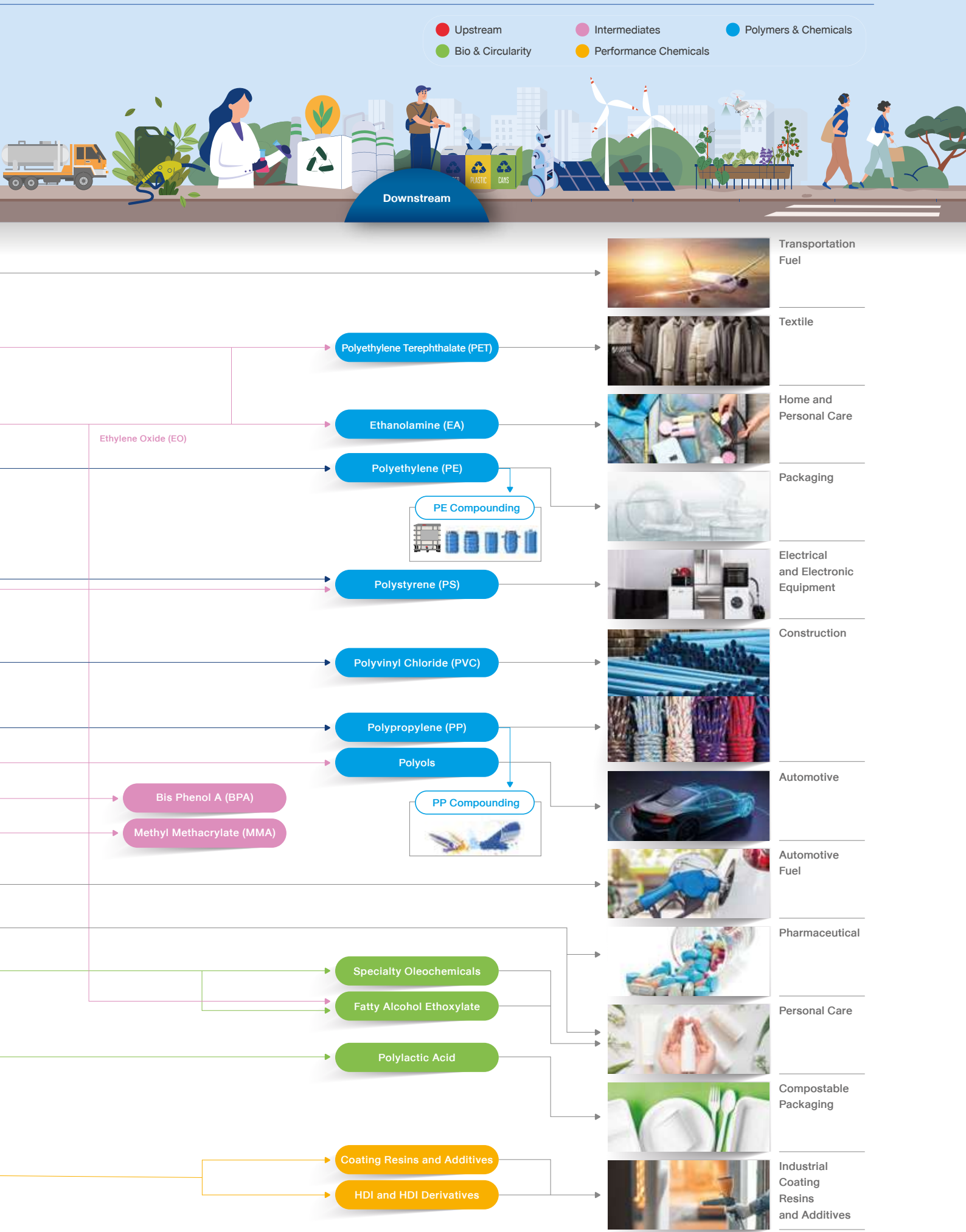
198
KTA

824
KTA

1,424
KTA

BUSINESS VALUE CHAIN





COMPANY INFORMATION

NAME

PTT GLOBAL CHEMICAL PUBLIC COMPANY LIMITED

INITIAL

PTTGC

WEBSITE: www.pttgcgroup.com

REGISTERED NUMBER: 0107554000267

REGISTERED CAPITAL : As at December 31, 2022, the Company's registered share capital was of Baht 45,088,491,170 comprising of 4,508,849,117 common shares at a par value of Baht 10 per share. Paid-up capital was Baht 45,088,491,170

ESTABLISHMENT: October 19, 2011

FIRST DAY TRADE ON THE SET: October 21, 2011



Upstream



Services & Others



Intermediates

Polymers
and Chemicals

Bio and Circularity

Performance
Chemicals

BUSINESS STRUCTURE

NUMBER OF EMPLOYEES: 11,518 as of December 31, 2022

CONTACT

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BRANCH 2 OLEFINS 1

14 I-1 Road, Map Ta Phut Industrial
Estate, Map Ta Phut Sub-District,
Mueang Rayong District,
Rayong Province 21150
Tel: +66 (0) 3899-4000
Fax: +66 (0) 3899-4111

BRANCH 3 OLEFINS 2

9 I-4 Road, Map Ta Phut Industrial
Estate, Map Ta Phut Sub-District,
Mueang Rayong District,
Rayong Province 21150
Tel: +66 (0) 3899-4000
Fax: +66 (0) 3899-4111

BRANCH 4 AROMATICS 1

4 I-2 Road, Map Ta Phut Industrial
Estate, Map Ta Phut Sub-District,
Mueang Rayong District,
Rayong Province 21150
Tel: +66 (0) 3897-1000
Fax: +66 (0) 3899-4111

BRANCH 5 AROMATICS 2

98/9 Rayong Highway Road 3191,
RIL Industrial Estate, Map Ta Phut
Sub-District, Mueang Rayong District,
Rayong Province 21150
Tel: +66 (0) 3897-1000
Fax: +66 (0) 3899-4111

BRANCH 6 REFINERY

8 I-8 Road, Map Ta Phut Industrial
Estate, Map Ta Phut Sub-District,
Mueang Rayong District,
Rayong Province 21150
Tel: +66 (0) 3897-1000
Fax: +66 (0) 3899-4111

BRANCH 7 JETTY AND BUFFER TANK FARM

19 Rong Pui Road, Map Ta Phut
Industrial Estate, Map Ta Phut
Sub-District, Mueang Rayong District,
Rayong Province 21150
Tel: +66 (0) 3899-4000
Fax: +66 (0) 3899-4111

BRANCH 8 AROMATICS TANK FARM

11 I-4 Road, Map Ta Phut Industrial
Estate, Map Ta Phut Sub-District,
Mueang Rayong District,
Rayong Province 21150
Tel: +66 (0) 3897-1000
Fax: +66 (0) 3899-4111

BRANCH 9 LABORATORY SERVICE CENTER

24/9 Pakorn Songkrohraj Road,
Map Ta Phut Sub-District, Mueang
Rayong District, Rayong Province
21150
Tel: +66 (0) 3899-4000
Fax: +66 (0) 3899-4111

BRANCH 10 GC 10

555/1 Energy Complex, Building A,
1st, 9th Floor Vibhavadi Rangsit Road,
Chatuchak Sub-District,
Chatuchak District, Bangkok 10900
Tel: +66 (0) 2265-8400
Fax: +66 (0) 2265-8500

BRANCH 11 OLEFINS 3

8 Pa Daeng Road, Map Ta Phut
Sub-District, Mueang Rayong District,
Rayong Province 21150
Tel: +66 (0) 3899-4000
Fax: +66 (0) 3897-6205

BRANCH 12 POLYETHYLENE

8 I-10 Road, Map Ta Phut Industrial
Estate, Map Ta Phut Sub-District,
Mueang Rayong District,
Rayong Province 21150
Tel: +66 (0) 3899-4000
Fax: +66 (0) 3897-6977

BRANCH 13 INNOPLUS SOLUTION CENTER

83/9-10 Village No, 5, Tup Ma
Sub-District, Mueang Rayong District,
Rayong Province 21000
Tel: +66 (0) 3899-4526
Fax: +66 (0) 3899-4452

BRANCH 14 GC 14

32 Rong Pui Road, Map Ta Phut
Sub-District, Mueang Rayong District,
Rayong Province 21150
Tel: +66 (0) 3897-5000
Fax: +66 (0) 3899-4111

BRANCH 15 GC Thai Petrochemical Learning Center

66 Highway 363 Noen-Phra Sub-District,
Mueang Rayong District,
Rayong Province 21150
Tel: + 66 (0) 3899-0000
Fax: -

BRANCH 16 Glycol Plant

9-9/1 Soi G12,
Pakorn Songkrohraj Road,
Map Ta Phut Sub-District,
Mueang Rayong District,
Rayong Province 21150
Tel: + 66 (0) 3899-7000
Fax: -

BRANCH 17 Polystyrene Plant

7 I-1 Road, Map Ta Phut Industrial
Estate, Map Ta Phut Sub-District,
Mueang Rayong District,
Rayong Province 21150
Tel: + 66 (0) 3897-6000
Fax: -

BRANCH 18 Phenol Plant

9 Soi G9 Pakorn Songkrohraj Road,
Map Ta Phut Sub-District, Mueang
Rayong District, Rayong Province
21150
Tel: + 66 (0) 3864-3000
Fax: -

BRANCH 19 Oxirane Plant

12 Soi G4 Pakorn Songkrohraj Road,
Huai Pong Sub-District, Mueang
Rayong District, Rayong Province
21150
Tel: + 66 (0) 3899-4000
Fax: -

NATURE OF BUSINESS



REVENUE STRUCTURE OF GC AND SUBSIDIARIES CATEGORIZED BY BUSINESS UNIT

Business Group	2020		2021	
	Revenue (Baht Million)	%	Revenue (Baht Million)	%
Refinery and Shared Facilities				
Total	136,155	41.3	176,762	37.7
Aromatics				
Total	34,224	10.4	41,483	8.8
Olefins				
Total	16,744	5.1	24,154	5.2
EO-Based Performance				
Total	8,271	2.5	13,159	2.8
Polymers				
Total	81,232	24.7	123,341	26.3
Green Chemicals				
Total	16,593	5.0	18,982	4.0
Performance Materials and Chemicals				
Total	34,112	10.4	68,721	14.7
Services and Others				
Total	1,961	0.6	2,350	0.5
Net Total after deduction from connected transaction	329,291	100.0	468,953	100.0

In 2022, The Company commenced to report the performance by segment into five new business groups, including Upstream, Intermediates, Polymers & Chemicals, Bio & Circularity, and Performance Chemicals, which aligns to the strategic direction and long-term growth target of the Company. The revenue can be reclassified into new segment format as follow:

Business Group	2021		2022	
	Revenue (Baht Million)	%	Revenue (Baht Million)	%
Upstream				
Total	242,472	51.7	340,162	49.7
Intermediates				
Total	86,336	18.4	87,861	12.8
Polymers and Chemicals				
Total	103,451	22.1	111,542	16.3
Bio and Circularity				
Total	18,982	4.0	22,250	3.3
Performance Chemicals				
Total	15,178	3.2	118,201	17.3
Services and Others				
Total	2,534	0.5	3,939	0.6
Net Total after deduction from connected transaction	468,953	100.0	683,954	100.0

UPSTREAM

The Upstream Business Unit consists of three subcategories: Refinery and Shared Facilities, Aromatics, and Olefins.

REFINERY AND SHARED FACILITIES

As Thailand's leading refiner and distributor of petroleum products, GC owns and operates a modern complex refinery equipped with hydrocracker and visbreaker units, capable of converting low-value fuel oil to more valuable middle-distillate products. GC's average refining capacity stands at 145,000 barrels per day of crude and 135,000 barrels per day of condensate. Additionally, GC's refining process is flexible, ready to be adjusted to accommodate customer demand and volatility in the market. Below is a summary of GC's refined products and their usage:



Petroleum Product		Usage
Light Distillate	Liquefied Petroleum Gas (LPG)	- Fuel - Petrochemical feedstock (Olefins plants)
	Light Naphtha	- Gasoline blending component - Petrochemical feedstock (Olefins plants)
	Reformate	- Gasoline blending component - Petrochemical feedstock (Aromatics plants)
Middle Distillate	Jet Fuel	Aviation fuel
	Diesel	Fuel for industrial and transport sectors
Heavy Distillate	Fuel Oil	Fuel for industrial sector and maritime transport

Policy and Marketing

GC's strategy is to source low-cost feedstock from domestic and overseas sources, prioritizing the sourcing of domestic crude oil due to cost benefits. Petroleum products are sold primarily domestically and to high-value markets, such as the CLMV countries are Cambodia, Laos, Myanmar, and Vietnam market. GC is also the first and only company in Thailand equipped to produce and distribute EURO 5 diesel, which meets the quality standards required by the government by 2024. In addition, GC collaborates with PTT Group to seek opportunities to source crude oil and distribute petroleum products with competitive costs per unit in order to be able to satisfy the market demand at all times.

In 2022, GC sold approximately 53 million barrels of petroleum products from its refinery, which declined from 2021 due to turnarounds. The primary product was diesel, 97% of which was sold domestically, accounting for a 21% market share of the domestic sales. GC's main customer was PTT Oil and Retail Business Public Company Limited (OR), which has long-term purchase agreements with the Company. GC has plans to increase domestic sales to accommodate a rise in demand and expand to CLMV to grow its marketing base continuously.



AROMATICS

GC produces and distributes aromatics products, namely benzene, toluene, paraxylene, orthoxylene, mixed xylene, and cyclohexane. These products are used as feedstock in various industrial processes.

Aside from these products, GC's aromatics plants yield multiple by-products, including liquefied petroleum gas (LPG), light naphtha, heavy aromatics, and condensate residue. LPG and light naphtha are used as feedstock in GC's olefins plants, while heavy aromatics and condensate residue are used as feedstock in the refinery to produce jet fuel, diesel, and fuel oil. GC currently operates two aromatics plants with a combined capacity of 2,419 thousand tons per year. The table below details the nameplate capacity of each product:

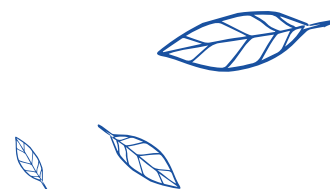
Company	Product	Nameplate Capacity (thousand tons per year)
GC	Benzene	697
	Toluene*	50
	Paraxylene	1,310
	Orthoxylene	86
	Mixed xylene*	76
	Cyclohexane	200

* Toluene and mixed xylene are currently used as feedstock at both aromatics plants.

Policy and Marketing

In sourcing feedstock for its aromatics plants, GC's strategy focuses primarily on procuring domestic condensates, which is cost-effective, and acquiring low-sulfur condensates from new sources in the global market as alternatives in order to reduce production costs. As for its distribution strategies, GC sells its aromatics chiefly to domestic customers while also fostering cooperation within PTT Group to boost global exports and promote collaboration, such as shared transportation.

In 2022, approximately 88% of GC's aromatic products were sold to domestic customers, most of whom were customers with long-term and short-term agreements, accounting for around a 72% market share of total domestic sales. The remaining 12% aromatic products were exported primarily to customers in Asia and Europe.



OLEFINS

Olefins products obtained from GC's olefins plants consist of ethylene, propylene, butadiene, and butene-1. Thanks to their feedstock flexibility, GC's olefins plants can make use of ethane, Propane LPG, and NGL, all of which are natural gas products, as well as LPG and light naphtha from refineries and aromatics plants.

The olefins plants also yield various by-products, such as pyrolysis gasoline, mixed C4, cracker bottom, and hydrogen. GC enriches the values of these by-products through synergy with the refinery and aromatics plants. For example, pyrolysis gasoline is turned into aromatics products; or hydrogen is used in the refinery as

a substitute for hydrogen produced by the Hydrogen Manufacturing Unit (HMU), which otherwise requires a higher production cost; and mixed C4 is turned into butadiene and butene-1 at the by-product value-added plant.

GC also produces utilities (electricity, steam, and industrial water) for its own use, which enhances its production capability and competitiveness. Surplus volumes of the utilities are sold to Electricity Generating Authority of Thailand (EGAT) and neighboring petrochemical plants.

GC has five olefins plants with a nameplate installed capacity of 3,738 thousand tons per year. The details are shown in the table below:

Company	Product	Nameplate Capacity (thousand tons per year)
GC	Ethylene	2,876
	Propylene	762
	Butadiene	75
	Butene-1	25

Policy and Marketing

GC's policy is to build its competitiveness on par with international standards by using diverse feedstocks, controlling costs to a competitive level, and increasing business opportunities from upstream to downstream businesses to give GC stability and management options. GC's domestic and international competitive capabilities have allowed for more agile marketing policies and increased options in selling its products, especially during times of high volatility. In addition, GC seeks to create synergy with companies in PTT Group, such as by sourcing quality feedstock at competitive prices and exchanging knowledge to jointly develop best practices.

To give them added value, olefin products are primarily used to produce downstream petrochemical products, while the rest is sold to companies within PTT Group and domestic customers, such as HMC Polymers

Co., Ltd. (HMC), AGC Vinythai Plc. (AVT), GC Oxirane Co., Ltd., (GCO), and other companies in Map Ta Phut Industrial Estate. GC's domestic market shares for ethylene and propylene are 25% and 49% respectively. The remaining products are exported. GC also seeks new opportunities through collaboration within PTT Group to boost global exports.

Feedstock Sourcing

For the production of upstream products, GC used approximately 42.2 million barrels of imported crude oil and internally produced feedstock from its aromatics plants, equivalent to 75% of its refining capacity due to planned turnarounds from October to December 2022. The aromatic plants used approximately 4.2 million tons of condensates as the primary feedstock for production of aromatics and by-products, consisting of around 2.1 million tons of domestically sourced and 2.1 million tons of imported condensates. For GC's

olefins production, the primary feedstocks were ethane, propane, LPG, and NLG, which are natural gases. In 2022, GC secured 60% of the feedstocks from PTT and used more internally produced feedstocks, namely light naphtha and LPG, which were by-products of GC's refinery and aromatics plants, accounting for the remaining 40%. GC's olefins plants used natural gases and naphtha approximately in a ratio of 64:36. GC secured crude oil, condensates, and natural gases at market prices through a long-term feedstock supply agreement with PTT.

By-products from GC's aromatics and olefins plants are used as primary feedstock for the manufacturing of products in the Intermediates and Polymers & Chemicals Business Units and are sourced through long-term supply agreements with companies within PTT Group. The prices are negotiated and agreed upon based on prices in the regional market. The use and sourcing of primary feedstocks for Intermediates and Polymers & Chemicals is summarized below.

Product Group	Feedstock	Sourcing
Intermediates		
■ Ethylene Oxide and Derivatives	Ethylene	GC
■ Phenols and derivatives	Benzene and Propylene	GC
■ Other intermediates		
■ Purified Terephthalic Acid (PTA)	Paraxylene	GC
■ Propylene Oxide (PO)	Propylene/Cumene	GC/PPCL
■ Acrylonitrile (AN)	Propane	PTT
	Acetone	PPCL
■ Methyl Methacrylate (MMA)	Acetone Cyanohydrin	AN by-product
	Methanol/Sulfuric Acid	Import
Polymers & Chemicals		
■ Polyethylene (PE)	Ethylene	GC
■ Polypropylene (PP)	Propylene	GC/Domestic
■ PVC powder	Ethylene	GC
■ Polyethylene Terephthalate (PET)	Purified Terephthalic Acid/ Mono Ethylene Glycol	GC-M PTA/ GC
■ Polystyrene (PS)	Styrene Monomer	Domestic/Import
■ Rotomolding Compound	Linear Low-Density Polyethylene	GC
■ PP Compound	Polypropylene	GC
■ Ethanolamine (EA)	Ethylene Oxide	GC
■ Polyols	Propylene Oxide/Ethylene Oxide	GCO/GC



INTERMEDIATES

This business unit consists of ethylene oxide and derivatives, phenols, and other intermediate products, namely purified terephthalic acid (PTA), propylene oxide (PO), acrylonitrile (AN), and methyl methacrylate (MMA).

ETHYLENE OXIDE (EO) AND DERIVATIVES

To supplement value to current olefins products and satisfy rising demand of the industrial sector and general consumers, GC recognizes the need to produce high-value products not yet manufactured in Thailand, not only to replace imports but also to raise Thailand's petrochemical competitiveness. To this end, GC has expanded its businesses towards ethylene oxide products and derivatives.



As a downstream product of ethylene, ethylene Oxide (EO) is used as feedstock for ethylene glycol (EG) and other downstream products, namely mono ethylene glycol (MEG), diethylene glycol (DEG), triethylene glycol (TEG), and polyethylene glycol (PEG). Among these products, MEG is the main feedstock and is used in combination with purified terephthalic acid (PTA) for the production of polyester textile or PET bottles.

In 2022, for the production of ethylene oxide (EO) and derivatives, GC commercially operated one plant located in WHA Eastern Industrial Estate, Rayong. The production capacity is detailed in the table below:

Company	Product	Nameplate Capacity (thousand tons per year)
GC	Mono ethylene glycol (MEG)	423

Policy and Marketing

For ethylene oxide and downstream products, the policy is to sell its products to domestic business owners at prices and under trade conditions that are competitive with other manufacturers. As Thailand's first and only producer, GC uses its strengths and business advantages in marketing, such as its position as a domestic producer of high-purity products, and the ability to deliver products continuously from its storage tanks.

In 2022, approximately 64% of the ethylene glycol produced was sold domestically, accounting for a 90% domestic market share, while the remaining amount was sold in international markets where it would yield maximum benefits, such as ASEAN and Australia.

PHENOLS

Phenol is used as feedstock for the production of other downstream products, such as engineering plastics. These products are in high demand in high-growth industries, including automotive, electrical appliance and electronics, and construction. GC Group operates its phenol business through investment in its subsidiary PTT Phenol Company Limited (PPCL). The key products are listed below:

Phenol

Phenol, an intermediate petrochemical derived from benzene and propylene, is a key feedstock for bisphenol A (BPA), phenolic resin, and various derivatives for the plastic, pharmaceuticals, and chemical industries.

Acetone

Acetone, a by-product from phenol production, is a very common solvent in various industries, such as chemical, cosmetics, and medical industries. Acetone is also used as feedstock for bisphenol A and methyl methacrylate, used in plastics and coating industries, among others.

Bis Phenol A

Bisphenol A is an intermediate petrochemical and feedstock for polycarbonate (PC), an engineering plastic used in various industries, such as the automotive



industry, electrical appliance and electronics industry, and construction industry. BPA is also a key feedstock for epoxy resin, which is used in composite materials, coatings, and the paint industry.

In 2022, PPCL operated three commercial plants located in WHA Eastern Industrial Estate Map Ta Phut, Rayong. The nameplate capacities are as detailed in the following table:

Company	Product	Nameplate Capacity (thousand tons per year)
PPCL	Phenol	492
	Acetone	304
	Bisphenol A	158

Policy and Marketing

For phenols, GC's policy is to sell products to manufacturers of derivative products and trade agents both in Thailand and overseas, focusing on boosting the sale of phenol, acetone, and bisphenol A in the domestic market and maintaining the domestic market share. GC also seeks to expand towards niche markets overseas by leveraging its strengths and business advantages, such as its high-quality products, trade partners with marketing networks across every region, stable sources of feedstock, and consistent customer relations activities. In 2022, the domestic market accounted for approximately 42% of the total sales volume, equivalent to a domestic market share of around 60%. The remaining volume was exported to China, India, South Korea, Taiwan, and other countries in Southeast Asia.

OTHER INTERMEDIATES

Purified Terephthalic Acid (PTA)

PTA is an intermediate petroleum product used as the primary feedstock for the manufacturing of polyester fibers for textiles and clothing as well as PET (polyethylene terephthalate) resin for the forming of packaging such as water bottles, gallon bottles, and clear plastic boxes for food storage. In addition, PTA is employed as an auxiliary material in the production of powder colors for coating in the automotive and electronic appliance industries as well as in oil colors for use in the construction industry. PTA is produced by GC-M PTA Co., Ltd. (GC-M PTA), located in WHA Eastern Industrial Estate (Map Ta Phut), Rayong, with the nameplate capacity as shown in the table.

Company	Product	Nameplate Capacity (thousand tons per year)
GC-M PTA	Purified terephthalic acid (PTA)	1,440

Policy and Marketing

GC-M PTA Co., Ltd. has been manufacturing and distributing PTA for over 22 years and has benefitted from technology transfer from its joint venture partner Mitsui Chemicals Inc. in Japan. It has continued to enhance the quality of its products to meet the needs of domestic and international customers at a competitive cost. With respect to marketing and sales, GC-M PTA sales its products both directly to customers and through agents who have been its business partners

since its establishment. Its current sales volume is split into 40% domestic and 60% international. For exports, emphasis is placed on markets where it enjoys geographical advantages, including Southeast Asian countries such as Vietnam, and India, as well as other countries in the Middle East and Africa with demand. Prices are negotiated based on market prices, which are subject to change in accordance with production volumes and regional demand at each specific period of time.

Propylene Oxide (PO)

PO is an intermediate petrochemical used as feedstock primarily in the production of polyols, followed by propylene glycol. GC produces PO through GC Oxirane Co., Ltd., (GCO), with the nameplate capacity as shown in the table below.

Company	Product	Nameplate Capacity (thousand tons per year)
GCO	Propylene oxide (PO)	200

Policy and Marketing

PO is manufactured with production technology from Sumitomo Chemical in Japan and is sold to both domestic and overseas markets. The majority of the products are distributed to GC Polyols Co. Ltd. (GCP), while the remaining volume is exported to China, India, South Korea, Taiwan, and other countries.

Acrylonitrile (AN) and Methyl Methacrylate (MMA)

AN is an intermediate petrochemical widely used as primary feedstock for the production of the following acrylonitrile polymers. (1) Acrylonitrile-butadiene-styrene (ABS) is generally molded into exterior shells of electrical and electronics appliances thanks to its strength and resistance to scratch. (2) Acrylic fibers and other synthetic fibers are used as components in the production of garments, carpets, and other fibers. (3) Acrylamide is used in wastewater treatment and petroleum drilling industries. (4) Nylon 6, 6 is widely used in the automotive industry to produce car parts due to its well-balanced hardness and toughness as

well as good shape retention, which give the material superior resistance to impact, friction, heat, chemicals to regular plastics. (5) Nitrile Butadiene Latex (NBL) is synthetic rubber used in the manufacturing of medical gloves. (6) Carbon fiber compounds are lightweight high-strength material used in the aviation and sports industries and are playing an increasingly significant role in the automotive industry.

MMA is an intermediate petrochemical and the main feedstock for polymethyl methacrylate (PMMA) and PMMA acrylic sheets, which are components of furniture, commercial light boxes, smartphone screens, television screens, and computer screens. They are also an ingredient for emulsion and paint, commonly used in the construction industry as MMA helps improve adhesion and durability and prolong product life.

GC produces AN and MMA through PTT Asahi Chemical Co., Ltd. (PTTAC), which operates a plant in WHA Eastern Industrial Estate, Rayong, with the nameplate capacity as shown in the table below.

Company	Product	Nameplate Capacity (thousand tons per year)
PTTAC	Acrylonitrile (AN)	200
	Methyl methacrylate (MMA)	85

Policy and Marketing

PTT Asahi Chemical Co., Ltd. (PTTAC) is the only AN producer in Southeast Asia and the world's first manufacturing plant to use propane as feedstock for AN production in place of propylene. It also employs acetone cyanohydrin (ACH), which is a by-product from

the AN plant, as the primary feedstock in the production of MMA. AN and MMA are sold both domestically and internationally. PTTAC's main competitors for AN in the region are China, Taiwan, South Korea, and the U.S. On the other hand, there are both domestic and international competitors for MMA; the latter include Singapore, South Korea, and Saudi Arabia.

POLYMERS & CHEMICALS

This business unit comprises polyethylene, polypropylene, polyvinyl chloride, polyethylene terephthalate, polystyrene, rotomolding compound, polypropylene compound, ethanolamine, and polyols.

POLYMERS

Polymers are downstream petrochemicals primarily used as feedstock for the production of components in other downstream industries, such as construction, packaging, agriculture, automotive, and electrical appliances. GC's key polymer products are as follows:

- High-density polyethylene (HDPE)
- Linear low-density polyethylene (LLDPE)
- Low-density polyethylene (LDPE)
- Polypropylene (PP)
- Polyvinyl chloride (PVC)
- Polyethylene terephthalate (PET)
- Polystyrene (PS)
- Rotomolding compound
- PP compound

GC Group currently operates 19 commercial polymer plants in Map Ta Phut Industrial Estate, Pha Daeng Industrial Estate, and WHA Industrial Estate (Map Ta Phut) Rayong. Rotomolding compound plants operate in the UK, Poland, Australia, New Zealand, and

Malaysia. The PP compounding plant is located in the Amata City Chonburi Industrial Estate. GC Group produces and sells its polymers under trademarks through its subsidiaries and joint ventures. The capacities of major polymer products are shown in the table below:

Company	Product	Trademark	Nameplate Capacity (thousand tons per year)
PTT Global Chemical Public Company Limited (GC)	High-density polyethylene (HDPE)	InnoPlus	850
	Linear low-density polyethylene (LLDPE)		800
	Low-density polyethylene (LDPE)		300
	Polystyrene (PS)	DIAREX	90
HMC Polymers Company Limited (HMC)	Polypropylene (PP)	Moplen, Purell, Clyrell, Adstif, Adsyl	1,060
AGC Vinythai Public Company Limited (AVT)	Polyvinyl chloride (PVC)	Siamvic	450
Thai PET Resin Company Limited (TPRC)	Polyethylene terephthalate (PET)	InnoPlus	200
Revolve Group Limited (RGL)	Rotomolding compound	Revolve	64
DynaChisso Thai Company Limited (DYCT)	PP compound	Polypro	30

Remark: Hexene-1 is for internal use as feedstock for LLDPE (metallocene), with a capacity of 34 thousand tons per year.

Policy and Marketing

The Polymers Business Unit operates an integrated production, distribution, and service business. GC enjoys a competitive advantage due to lower costs per unit thanks to effective production cost control as well as consistent technology transfer from and knowledge exchange with technology proprietors. GC also develops its products consistently to meet the needs of its customers and end markets so as to ensure its production efficiency and efficacy. With respect to marketing, GC implements integrated marketing and utilizes marketing analytics tools to predict markets in the future as well as conduct analyses on markets and customers to formulate strategic marketing plans, including market growth analysis, market trend analysis,

marketing driver evaluation and analysis, review of marketing competitiveness enhancement plans, and comprehensive marketing strategies. GC also seeks new technologies in order to enhance its work processes and products in line with the direction of growth specified in the corporate strategic plan. In addition, to successfully deliver value to customers through products and services in accordance with customer expectations, GC has put in place voice-of-customer systems and processes to receive suggestions, requests, and complaints on its products and services in order to further improve its work processes, products, and service quality and satisfy customer needs continuously and efficiently. Through GC Marketing Solutions Company Limited (GCM), GC also has authorized dealers across every region of the world

who distribute products and provide services to customers, with five subsidiaries in Ho Chi Minh City, Vietnam; Dubai, the United Arab Emirates; Jakarta, Indonesia; Yangon, Myanmar; and Shanghai, China; as well as a dealership office in Guangzhou in China. This is in order that GC can adequately cater to the demand for GC's products both domestically and internationally and maximize its trade opportunity, which will in turn elevate its competitiveness in an integrated and efficient manner. In terms of warehousing and transportation, GC has assigned GC Logistics Solutions Company Limited (GCL), a subsidiary of GC Group, to handle warehouse, storage, inventory, and transportation management for all its polymer products to ensure agility in the integrated logistics management as well as to enable GC to manage distribution and transportation costs to competitive levels and efficiently distribute its products to over 1,000 plastic forming manufacturers nationwide and overseas customers in over 80 countries across the world.

In 2022, approximately 56% of PE products and 41% of PS products were exported. The focus was on markets in countries where GC enjoyed geographical advantages, such as Cambodia, Laos, Myanmar and Vietnam. GC also sought to develop markets for high value products (HVPs), with emphasis on flexible packaging, rigid packaging, construction products, and emerging products, as well as to improve and develop commodity products to retain its domestic customer base.

The prices of polymers and by-products are based on market prices. Domestic prices are based on the announced prices in Thailand as well as the reference market prices in Southeast Asia under the international CFR Southeast Asia trade conditions, and vary according to economic and political circumstances as well as demand and supply in the region. On the other hand, overseas prices are based on market prices of each specific region or country.

GC has also built upon and add value to its linear low density polyethylene (LLDPE) and PP compounds, such as by developing polymers for the production of rotomolding compounds through the UK's Revolve Group Limited (RGL), a rotomolding compound

producer with production bases in the UK, Poland, Australia, New Zealand, and Malaysia. RGL works closely with rotomolders and end users to develop products to meet specific requirements and is able to promptly troubleshoot technical problems for customers, in line with GC's marketing strategy to enhance its products to deliver to more value to customers and markets as well as to develop PP compounds to create added value for products and PP customers, thus enabling an expansion towards the automotive, electrical appliance, and electronic industries. GC also seeks to foster business growth through marketing in downstream industries to accommodate expansion in four major target industries: construction, packaging, agriculture, and automotive.

GC has always been committed to environmentally responsible business practices and giving back to communities and society for sustainable development. Since 2018, it has been driving its business with the concept of circular economy and set a goal to become a model of resource efficiency, product design for recyclability, and sustainable waste management through various projects. These include awareness building projects, such as the ThinkCycle Bank Project, which educates students across 21 schools on how circular waste management can change the world. In the project, students deposit properly sorted waste into waste banks at school and transform waste into savings. GC also organizes waste collection and recycling activities for its customers, suppliers, and business partners. Examples include the YOUTURN Project, which invites the general public to drop off their waste to over 120 collection points nationwide, and the establishment of Recycle Hubs in seven local communities across Rayong and Nakhon Pathom, namely Wat Chak Luk Ya, Khao Phai, Wat Chak Daeng, Nong Bua Daeng, Wang Wa, Rayong Municipality, and Lam Hoei Sub-district. Both projects have collected and processed as much as 192 tons of community waste combined. In 2022, GC conducted the Plastic Reborn project in collaboration with OR and the Big Little Things project with a leading cosmetics brand to sort and deliver waste to ENVICCO's plant, which manufactured high-quality post-consumer recycled resin for GC Group, and to other partner recycling plants that met standards. As a result of these initiatives,

GC was able to add value to and upcycle over 23 tons of plastic waste into fashion items, such as clothes, bags, and shoes, which are then sold through Sarn Palung Social Enterprise Company Limited. Part of the proceeds was donated to various charitable organizations. GC also developed upcycled products in collaboration with the underprivileged consistently throughout the year.

CHEMICALS

Ethanolamine (EA)

Derived from EO, EA primarily comes in the form of either monoethanolamine (MEA), diethanolamine (DEA), or triethanolamine (TEA). EA products are used as ingredients for the production of shampoos, hair conditioners, fabric softeners, and cosmetic products, as well as in pharmaceutical and cement industries, among others. The nameplate capacity of EA is as shown in the table below.

Company	Product	Nameplate Capacity (thousand tons per year)
GC	Ethanolamine (EA)	50

Policy and Marketing

For EA, the policy is to sell its products to domestic business owners at prices and under trade conditions that are competitive with other manufacturers, focusing on creating maximum added value from EO products. In 2022, approximately 40% of the EA products were sold domestically, accounting for around a 36% share in the domestic market. The remaining volume was exported to markets in countries yielding maximum benefits in each region, such as Southeast Asia and Australia.

Polyols

Polyols are downstream petrochemicals used as feedstock for the production of polyurethane (PU). They

are sold both in the form of feedstock and as Premix Polyols – a mixture of various polyols and additives co-developed with customers to achieve desired properties, such as the softness of PU foam during molding. GC produces polyols through GC Polyols Co. Ltd. (GCP), a joint venture between GC, Sanyo Chemical Industries, and Toyota Tsusho Corporation. The main strategy is to become an integrated manufacturer of feedstock for PU and cater to the rising demand in the market.

In 2022, GC commercially operated a plant located in WHA Eastern Industrial Estate, Rayong. The nameplate capacity is shown in the table below:

Company	Product	Nameplate Capacity (thousand tons per year)
GCP	Polyether polyols (PPG)	130
	Polymer polyols (POP)	30
	Premix polyols (PM)	20

Policy and Marketing

GCP is a polyol producer that has received production technology and formulation from Sanyo Chemical Industries, a joint venture partner. It seeks to create customer bases both domestically and internationally through the sale of standard-grade products and

high-grade R&D products. GC has exported its polyols to 19 countries worldwide, namely India, Vietnam, Indonesia, Malaysia, China, Peru, Brazil, Bangladesh, the Philippines, Turkey, Singapore, Sri Lanka, Nepal, Pakistan, Taiwan, Nigeria, Japan, Australia, and the United Arab Emirates.

BIO & CIRCULARITY

The Bio & Circularity Business Unit consist of products manufactured from natural feedstocks such as palm oil, palm kernel oil, vegetable oil, animal fat, corn, sugar made from sugarcane, and cassava. These products can be used in various downstream industries, such as personal care, pharmaceuticals, food, biochemicals, and bioplastics industries. These products are divided into three key categories as follows:

BIOPLASTICS AND BIOCHEMICALS

Bioplastics and biochemicals are derived from natural feedstock, including sugar from sugarcane, cassava, and corn. The feedstock is fermented to produce chemicals, such as lactic and succinic acids. These two chemicals are used in the production of bioplastics, such as polylactic acid (PLA), and polyesters, such as polybutylene succinate (PBS), respectively.



GC operates its PLA business through NatureWorks LLC (NatureWorks), a joint venture between GC's GC International Corporation ("GCI") and Cargill, Incorporated ("Cargill") of the U.S., and the proprietor of the polylactic acid (PLA) production technology with a commercial capacity of 150,000 tons per year. To expand its production capacity, NatureWorks has decided to construct a second plant in Nakhon Sawan Biocomplex in Thailand, which will be an integrated polylactide and PLA manufacturing plant with a capacity

of 75,000 tons per year. Construction of the new plant is expected to reach completion and begin commercial operation in late 2024. As for PBS, GC operates its business through PTTMCC Biochem Co., Ltd., which is the world's sole producer of bio-PBS and a joint venture with Mitsubishi Chemical Corporation (MCC), established for the production and distribution of bio-PBS, an environment-friendly product composable in ambient temperature. PTTMCC operates a plant in Rayong with a capacity of 20,000 tons per year.

Company	Product	Nameplate Capacity (thousand tons per year)
NatureWorks	Polylactic acid (PLA)	150
PTTMCC	Polybutylene succinate (PBS)	20

Policy and Marketing

Bioplastic and biochemical markets have seen significant growth in line with a surge in environmental conservation, plastic ban and reduction measures, and public awareness of plastic waste issues, and there has been a significant rise in global demand for compostable plastics for as substitutes for single-use plastics. NatureWorks' PLA can be used to produce food-grade products, such as cold drink cups, spoons, forks, drinking straws, coffee capsules, and tea bags. It is also used to manufacture products in the computer industry, such as 3D printing filaments. With respect to sales and marketing strategies, NatureWorks focuses on catering to specialized needs by researching and developing products in collaboration with major international manufacturers whose policy is to use bioplastics in their products. As such, NatureWorks has been successful in responding to specific needs and adding value to the products of its customers. GC has also been expanding its bio-product customer base in support of the rising global demand for bioplastics through NatureWorks LLC and dealerships. On the other hand, PBS is mixed with PLA or other bioplastics to enhance the properties and functionalities for use in the production of packaging, food-grade cling film, bioplastic carry bags, and mulch films and as a coating in paper food containers or cups for hot

and cold drinks. PBS is sold directly to customers and through dealers, with the major markets being mostly in Europe, the U.S. and China.

Feedstock Sourcing

NatureWorks' PLA is primarily made from lactic acid sourced from Cargill, a shareholder of NatureWorks, who uses their proprietary lactic acid production technology. This lactic acid is produced by fermenting corn-derived dextrose with specific microbes, which is then transformed into PLA. NatureWorks has signed a lactic acid management agreement with Cargill to ensure a sufficient supply for production, while Cargill supports NatureWorks in lactic acid price management by putting in place preventive measures against global corn prices risks. As for feedstock management for its second plant in Nakhon Sawan Biocomplex in Thailand, NatureWorks procures sugar, which is its primary feedstock, from within the biocomplex and uses similar price risk management strategies as it does for corn prices in the U.S.

The primary feedstocks for the production of BioPBS are bio succinic acid (BSA) and 1, 4 butanediol (BDO), both of which must be imported as there is no domestic manufacturer yet. PTTMC enters into both short- and long-term agreements to secure its supply.

As Southeast Asia's largest producer of high-quality post-consumer recycled plastics, GC promotes resource efficiency optimization in accordance with circular economy principles, placing emphasis on by breathing new life into and transforming used plastics into high-quality post-consumer recycled resin.

POST-CONSUMER RECYCLED (PCR)

PCR resin is produced from used plastic packaging that has been recycled with cutting-edge technology. The properties and functional safety of GC's high-quality PCR are on par with virgin resin, allowing it to be formed into food-grade packaging as well as packaging

for home and personal care products. GC operates its PCR business through ENVICCO Co., Ltd. (ENVICCO), with two major products:

PCR PET

This food-grade resin has mechanical properties comparable to virgin PET and has been certified to international safety standards for food and drink packaging.

PCR HDPE

This packaging-grade resin has mechanical properties comparable to virgin HDPE. Thanks to its strength and durability, it is well-suited for containers of home and personal care products, such as washing detergent, shampoo, and soap bottles.

Company	Product	Nameplate Capacity (thousand tons per year)
ENVICCO	PCR PET	30
	PCR HDPE	15

Policy and Marketing

The adoption of PCR among manufacturers of commodity goods in Southeast Asia is only in the initial phase. However, it is expected that the global market for it will expand significantly in the next 3-5 years in accordance with growing needs to respond to sustainability policies, efforts to mitigate environmental issues, sustainability targets among manufacturers, as well as national targets. In terms of sales and marketing, ENVICCO sells its PCR products through GC, which is its dealer, and partly directly to ALPLA for the production of plastic packaging within its own business group. Its main strategy is to drive market demand through major domestic and international manufacturers in the food and beverage and household product industries that have sustainability policies and clear targets to increase the use of PCR. PCR products are also exported to countries where manufacturers are required to use PCR, such as those in the European Unions and the U.S.

Feedstock Sourcing

GC's PCR products are produced from used plastic packaging domestically sourced from recyclers nationwide through long-term agreements to secure the procurement of feedstock that meets the company's requirements. In addition, GC collaborates with partners and suppliers in the supply chain, including communities, end-product manufacturers, logistics operators, and digital platform developers to advance waste separation and management projects in order to additionally collect post-consumer plastics from other sources.

VALUE ADDED OLEOCHEMICALS (VAO)

Methyl Ester

Methyl ester is a basic oleochemical. Also known as B100, it can be blended into diesel to make biodiesel that meets EN14214 European standards for diesel engines. Methyl ester helps augment the efficiency of

diesel, for both lubrication and combustion. It also increases an engine's lifespan as well as minimizes the environmental impacts of conventional diesel and, more importantly, reduces PM2.5 emissions.

Fatty Alcohol

Fatty alcohol is a basic oleochemical used as a feedstock in a number of different processes in the personal care industry. It is also used as an ingredient or a component of many other products, including surfactants, plasticizers, solvents, aroma compounds for perfumes, detergents, foam stabilizers, lubricants, cosmetics, plastic intermediates, shampoos, as well as paints and coating products. They are also found in leatherwear and ink.

Fatty Alcohol Ethoxylate

Derived from fatty alcohol and EO, fatty alcohol ethoxylate is used as feedstock for shampoo, personal care, and home care products. In textiles, it is used as a scouring agent, which is part of the preparation process, and as a softener, which is the last step in fiber preparation.

Glycerin

Glycerin, a by-product of methyl ester and fatty alcohol production, is used in pharmaceuticals, food, and personal care and other industries.

Fatty Acid

Fatty acid is a basic oleochemical product used for personal care production, such as soap and cosmetics, also used as a feedstock in specialty oleochemicals downstream production.

Specialty Oleochemicals

Specialty oleochemicals are produced through a chemical process that involves treating basic oleochemicals obtained from a downstream process. These specialty products are used in multiple industries, including cleaning products, personal care products, plastic additives, construction, and oil well drilling. Examples of specialty oleochemicals are ozone acid, bio-lubricants, green polymer additives, agro-green solutions, and eco-friendly polyols.

GC produces VAO through Global Green Chemical Public Company Limited (GGC) and EMERY Oleochemicals UK Limited (EOUK). A joint venture between PTTGC International Private Limited (GC Inter), which is a subsidiary of GC, and Sime Darby Plantation (M) Sdn. Bhd. (SDP), Malaysia, EOUK is headquartered in the United Kingdom and operates plants in two countries, namely Germany and the U.S. EMERY is a world-class producer and distributor of oleochemicals with a worldwide network of subsidiaries to support trading and marketing. Its distribution agents are also present in all geographical regions. The nameplate capacities of the domestic and overseas commercial plants for each product are as shown in the table below.

Company	Product	Nameplate Capacity (thousand tons per year)
GGC	Methyl ester	500
	Fatty alcohol	100
	Fatty alcohol ethoxylate	124
	Glycerin	51
EMERY	Basic oleochemicals in US	291
	Specialty oleochemicals in US	48
	Specialty oleochemicals in EU	46

Policy and Marketing

The demand for eco-friendly products has been rising thanks to greater environmental awareness and campaigns. In addition, it is expected that green technologies and chemicals will replace current ones in the sphere of health and personal care products. As a result, many countries are actively seeking alternative energy, reducing the use of synthetic chemicals, and looking for substitutes that consist of or are made of natural ingredients, while customer demand across the world for commodity goods featuring or produced from renewable natural feedstock has shown an upward trend. GC recognizes the significance of the value addition to agricultural products and the sustainable growth of the green chemical industry and strives to become a world-class green chemical operator that stands out in every market it operates in.

GGC's main product is methyl ester, almost all of which is sold to domestic high-speed diesel manufacturers and blenders. GGC directly sells methyl ester to customers through purchase agreements with clearly specified terms. Fatty alcohol is sold both domestically and internationally, with primary customers being commodity product manufacturers, oleochemical operators, as well as traders and distributors who subsequently sell fatty alcohol to their customers. The principal domestic customer is Thai Ethoxylate Co., Ltd.

(TEX), while international customers are based on various countries in Asia, Europe, South Africa, and South America. Glycerin is sold to manufacturers and distributors of health and personal care products and in other industries both domestically and internationally both via distributors and direct sale. Customers include multinational corporations (MNC) in the domestic medical supply and hygiene industry and large pharmaceutical companies in South Asia.

Products manufactured by EMERY, which has sales offices and production bases in various countries, are distributed both by its national sales offices directly to customers and through dealerships.

Feedstock Sourcing

GGC's primary feedstocks for the production of ethyl ester, fatty alcohol, and glycerin are palm oil and palm kernel oil. These are generally sourced domestically to support Thailand's agriculture and related industries.

The main feedstock used by EMERY's plants in the U.S. is tallow. As a major operator, EMERY enjoys a procurement advantage and sources its feedstock mostly domestically. However, the flexibility of EMERY's plants means that other feedstocks, such as palm oil, can be used as substitutes or mixed with tallow. This serves as a key cost management strategy when tallow prices are higher than those of other feedstocks.



PERFORMANCE CHEMICALS

Performance chemicals are major components in burgeoning downstream industries, such as the automotive, construction, and engineering plastic industries. Products under the business unit consist of the following.

INDUSTRIAL COATING RESINS AND ADDITIVES

are polymers that bind all the other components of the coating to a surface into a film with desired properties. Various additives can also be added to give the film specific properties, such as erosion resistance and UV resistance, while crosslinking agents can be introduced to enhance the strength of the network between the resin molecules to strengthen the film. Utilized in various downstream industries, such as automotive, packaging, printing ink, electronic devices, industrial wood, metal production, construction, as well as ship and aircraft, these products impart different properties, such as durability, flexibility, color retention, resistance to scratches, chemical corrosion, water, and sunlight, and aesthetic quality. allnex Holding GmbH ("allnex"), a wholly owned subsidiary of PTTGC International (Netherlands) B.V., produces four major categories of products: 1) liquid resins and additives (LRA), 2) radcure (RAD), 3) crosslinkers (XLR), and 4) powder coating resins (PCR). allnex has 34 production bases across 18 countries worldwide.

PERFORMANCE CHEMICALS ALSO INCLUDE HEXAMETHYLENE DIISOCYANATE (HDI) AND HDI DERIVATIVES

HDI is an intermediate petrochemical used in the production of PU coating, which plays a prominent role in construction and automotive industries. PU coating can also be applied to wood, metals, plastics, furniture, and vehicles to enhance their glossy and scratch-resistant properties. GC produces HDI and HDI derivatives through Vencorex Holding SAS (Vencorex), in which PTTGC International (Netherlands) B.V. increased its shareholding to 100% on June 30, 2022. Vencorex has three production bases in France, the U.S., and Thailand. The nameplate capacities for performance chemicals are as shown in the table below.



Company	Product	Nameplate Capacity (thousand tons per year)
allnex	Coating resins and additives	1,297
Vencorex	HDI and HDI derivatives	127

Policy and Marketing

allnex is the world's leading industrial coating producer widely recognized for its development of innovative products and technologies and access to customers and markets worldwide thanks to its 23 research and development centers across the world and over 1,000 patents on coatings. The company is also a technology leader in various areas, such as high-end waterborne, high-solid solventborne, powder coating resins, and UV-curable resins. allnex focuses primarily on industrial coatings and inks resins and manufactures its products using environmentally friendly technology.

allnex operates 34 plants worldwide across three regions, with 10 plants in Europe, 8 in the U.S., and 16 in Asia and the regional production capacities of 547,000, 290,000, and 459,000 tons per year, respectively. The company's customers are distributed across Europe, the U.S., and Asia.

Vencorex is the world's second largest producer of aliphatic isocyanates. Its policy is to sell HDI and HDI derivatives primarily to its key account customers and dealerships. Vencorex has three production plants in France, the U.S., and Thailand, and has customer bases in every region across the world. Its core marketing strategy is to leverage its strength of having production bases in three regions across the world to access customers and cater to their needs promptly. In addition, Vencorex places importance on customer relations and has a research and development unit that specializes in developing new products and applications. The company also strives to provide technical services that meet customer needs.

Vencorex's main customers are in Europe, Middle East, Africa, and the U.S. However, after the commercial operation of its Thai plant, Vencorex has expanded further to HDI and HDI derivative markets to Asia in response to the rapidly growing demand in Asia, especially in China, India, and South Korea.

Feedstock Sourcing

The feedstocks for coating resins and additives vary depending on formulations and functional purposes. Primary feedstocks include purified terephthalic acid (PTA), epoxy resin, neopentyl glycol, purified isophthalic acid, styrene, methyl methacrylate, acrylic acid, butyl acrylate, melamine, and formaldehyde. allnex sources its feedstocks through its global procurement system, which gives it more leverage in price negotiation.

The primary feedstock for HDI is hexamethylenediamine (HMDA), all of which Vencorex sources from producers through both short-term and long-term purchase agreements.

SERVICES AND OTHERS

In addition to the five major groups, GC values businesses and activities that support business stability and the comprehensiveness of the business chain. Its key services are listed below:

Marketing and Sales of Products and Packaging Market Development

GC produces and sells a comprehensive range of products and consistently develops products to meet customer needs, with dealers authorized by GC Marketing Solutions Co., Ltd. (GCM) in many regions to distribute products and provide services to customers. GC also develops plastic packaging markets through S.P. Petpack Inter Group Co., Ltd. (SPIG) and TPBI & Myanmar Star Company Limited (TPBIMS) as well as develops and distributes new derivatives through Solution Creation Co., Ltd. (SUN).

Logistics, Jetty, Utilities, and Infrastructure

Logistics Services: GC Logistics Solutions Co., Ltd. (GCL) is in charge of providing integrated logistics services for producers of polymers under GC Group.

Jetty and Chemical Tank Farm: Thai Tank Terminal Limited (TTT) provides terminals and liquid chemical storage for industrial customers in Map Ta Phut Industrial Estate as specified by its concession.

Pipeline Infrastructure Services: Eastern Fluid Transport Co., Ltd. (EFT) provides pipeline infrastructure services for petroleum and petrochemical operators in Map Ta Phut Industrial Estate and nearby areas.

Utility Business: GC makes investments in this business through its shareholding in Global Power Synergy Public Company Limited (GPSC). GPSC produces and supplies electricity, steam, and industrial water to companies under PTT Group and other industrial plants.

Land and Property Management: GC Estate Co., Ltd. (GCEC) manages land and property such as pipeline structure, industrial water plant, office area, plantation for carbon credit to support the Company's investment, strategic joint ventures as well as other partners.

Information and Communication Technology Services: PTT Digital Solutions Co., Ltd. (PTT Digital) provides integrated ICT and communication services, including the design, development, and maintenance of ICT systems as per corporate requirements.

Technical, Engineering, Plant Maintenance, Safety, Occupational Health, Environmental, and Security Businesses

Plant Maintenance and Engineering Services: GC Maintenance and Engineering Co., Ltd. (GCME) provides multiple services, including plant maintenance, turnaround management, plant inspection, design, construction, and project management to oil & gas, petrochemical, chemical, as well as other industries both in Thailand and Asia.

Quality Safety, Occupational Health, Environmental, and Security Services: NPC Safety and Environmental Service Co., Ltd. (NPC) provides integrated services concerning training & system up for quality safety, occupational health, and environmental. Law & regulation compliance audit services, product certification on environmentally save and carbon footprint, defensive driving training, crisis management service are provided in Map Ta Phut Industrial Estate and Security Services via NPC S&E Security Guard Co.,Ltd. (NPCSG).

Social Enterprises

Management Consultancy: Pracharath Rak Samakkee Rayong (Social Enterprise) Co., Ltd. (PRS RAYONG) offers consultation on business administration in various areas, such as agriculture and trading.

Social Enterprise: Sarn Palang Social Enterprise Co., Ltd. (SPSE), produces, purchases, and sells products and/or provides services that benefit communities, society, and the environment.

Others

GC Group's Liquidity Management and Financing Vehicle Services: GC Treasury Center Co., Ltd. (GCTC) manages financial affairs and fund acquisition for companies under GC Group.

Corporate Venture Capital Investment (CVC): GC Ventures Co., Ltd. (GCV) and GC Ventures America Corporation (GCVA) invest both directly and indirectly in the form of corporate venture capital.

Outsourcing Service: Business Services Alliance Co., Ltd. (BSA) supplies manpower and contractors to PTT Group.

MARKET AND COMPETITION

ECONOMIC OVERVIEW

The global economy in 2022 was impacted by the Russia-Ukraine conflict, which prompted leading powers, led by the U.S. and European countries, to issue sanctions against Russia, causing a decline in global oil demand to tumble and a spike in prices of energy and commodity goods and a sharp rise of inflation. In response, central banks in various countries implemented stricter financial policies to curb the inflation rate, which would directly affect their national growth. At the same time, China continued its stringent zero-COVID policy, disrupting the global supply for a prolonged period of time and affecting the manufacturing sector across the globe. These factors combined triggered an onset of a recession in the second half of 2022, with IMF adjusting its projected global economic growth down to 3.2% (Source: IMF – October 2022).

MARKET OVERVIEW – UPSTREAM

Refinery and Shared Facilities

Market Overview in 2022

In 2022, crude oil prices experienced an overall increase compared to 2021, primarily driven by the Russia-Ukraine conflict. The prices saw a surge in Q1 and reached their peak in Q2, as the market grew apprehensive about Russia's missing energy supply. However, the prices fell in Q3, which can be attributed to China's stringent COVID-19 measures that restricted travels and curbed activities in major cities, impeding the economic recovery of the world's second-largest consumer of crude oil after the U.S. In tandem, as the market anticipated a recession and a drop in oil demand, crude oil prices further declined in Q3 and Q4, respectively.

With respect to output, OPEC and OPEC+ announced a major output cut for the first time in two years,

reducing its production by 2 million barrels per day in November 2022 to maintain a pricing balance, thus tightening the supply. At the same time, the EU resolved to halt imports of oil by ship from Russia by the end of 2022, causing the crude oil prices to remain in the range of US\$ 85-90 per barrel in Q3 and Q4. The Dubai crude oil spot price in 2022 averaged US\$ 96.3 per barrel, a US\$ 27.1 increase from 2021.

Petroleum prices and spreads saw a significant surge, primarily attributable to a ban on imports of Russian petroleum implemented by the U.S. and the majority of European countries and, effective March 2022 and February 2023, respectively. In 2021, the U.S. and the E.U. imported 285,000 and 1,060,000 barrels of petroleum products per day from Russia. In addition, with the general public having been mostly vaccinated, many countries began to fully reopen and shift their policy towards living with COVID-19, prompting an economic recovery, with the exception of China, which maintained its strict zero-COVID measures. However, the prices were depressed by an interest hike by the U.S. Federal Bank, which strengthened the U.S. dollar and in turn drove up the prices of petroleum products traded in the U.S. dollar, putting pressure on the demand. In addition, China announced its fifth petroleum export quota in October 2022, resulting in a significant surge in Q4 demand that further strained the prices of all petroleum products. The prices and spreads of each product are detailed below.

The gasoline (ULG 95) - Dubai crude oil spread in 2022 was positively affected by a shift in COVID-19 policies in many countries from virus containment to mass vaccination, which positively influenced demand. The spread was US\$ 18.8 per barrel, a US\$ 7.8 per barrel increase compared to 2021.

The jet/kerosene - Dubai crude oil spread in 2022 was US\$ 30.3 per barrel, a US\$ 24.5 per barrel hike from 2021 thanks to a positive effect from increased demand due to upticks in domestic and international travels.

The diesel 10 PPM - Dubai crude oil spread in 2022 was buoyed up by rising global demand of approximately 400,000 barrels per day due to gas-to-oil switching, prompted by Russia's decision to halt its natural gas exports to the E.U., which imported as much as 700,000 barrels of diesel from Russia in 2021. As a result, the average TTF gas price in Europe from January to October 2022 soared to US\$ 41.6 per MMBTU – a US\$ 16.3 per MMBTU or over 155% increase, causing the diesel and Dubai crude oil spread in 2022 to rise by US\$ 30.5 per barrel from 2021 to US\$ 38.9 per barrel in 2022.

As for the high-sulfur fuel oil - Dubai crude oil spread in 2022, the demand in the electricity sector of Bangladesh, Pakistan, and Sri Lanka, saw a sharp drop due to severe inflation, with the inflation rates of 9.52%, 27.26%, and 70.20% recorded in August 2022, respectively. In addition, the supply experienced pressure as Russia shifted its previous trade flow of 550,000 barrels per day to the U.S. and Europe in 2021 to the Middle East and Asia in response to U.S. and European import ban. As a result, the high-sulfur fuel oil and Dubai crude oil spread in 2022 was at US\$ -14.1 per barrel, dropping US\$ 9.2 relative to 2021.

The low-sulfur fuel oil - Dubai crude oil spread in 2022 enjoyed a positive impact from refineries' attempt to maximize diesel output to take advantage of its high prices, which in turn diminished demand for vacuum gasoil (VGO), a key component in low-sulfur fuel oil, and caused demand for low-sulfur fuel oil to dip as well. However, the Chinese government continued to give VAT exemption to domestic refineries to spur low-sulfur fuel oil production to feed a new port in Zhoushan, which China hoped to establish as North Asia's new marine fuel hub, as well as increased the low-sulfur fuel oil export quota for 2022 by 47% to 16.75 million tons compared to 2021. Consequently, the low-sulfur fuel oil - Dubai crude oil spread in 2022 stood at US\$ 22.5 per barrel, a US\$ 9.8 per barrel rise from 2021.

Market Forecast for 2023

Crude oil prices will be pressured by the recession, which will continue from 2022 into Q2/2023 but will likely benefit from China's easing lockdown. While OPEC+ will maintain its restricted output and concerns over supply due to the Russia-EU conflict are expected to persist. As a result, crude oil prices are projected to remain elevated. In addition, as Iran and Venezuela's output will not likely significantly impact the market, it is anticipated that crude oil prices will trend downward relative to 2022 due primarily to economic pressures.

The prices and spreads of petroleum products in 2023 are expected to decline relative to 2022 but will remain elevated thanks to tight supply due to conflict in Europe. They will also be affected by falling demand due to a possible recession, inflation, and the U.S. interest rate increases, which have rapidly strengthened the U.S. dollar. Recession will be more likely in Europe and small economies with low international reserves, such as Sri Lanka, Pakistan, and Myanmar. However, positive factors will include supply tightness brought on by the likely prolonged Russia-Ukraine war and the E.U. ban on imports of Russian petroleum, set to come into effect in February 2023. Therefore, the 2023 gross refining margin (GRM) is expected to fall compared to 2022 chiefly as a result of economic pressures, much like crude oil prices.

Aromatics

Market Overview in 2022

Demand for paraxylene and benzene in downstream industries was adversely affected and dampened by the economic slowdown, particularly in the textile industry, which accounted for the largest portion of paraxylene consumption. However, the paraxylene market was buoyed by increased demand for PET resin for the production of single-use food and beverage packaging and a decline in packaging reusing due to health concerns among consumers and was positively influenced by travels as many countries began to reopen (except China). With regard to benzene-related industries, many styrene monomer (SM) plants in Europe cut their production as it was no longer

cost-effective, causing benzene demand to fall, while more consumers plagued by economic concerns, decided to economize and prioritize essential products, leading to a drop in demand for electric appliances and electronics, such as air conditioners, refrigerators, and computers, as well as construction and automotive products.

In terms of supply, the global paraxylene production capacity in 2022 was 73.2 million tons, increased by 7 million tons compared to 2021, while the global production capacity of benzene in 2022 was 75 million tons, a 3-million-ton increase from 2021. The added capacities were attributable mostly to China, due to its policy to increase domestic production and reduce reliance on imports. In the first half of 2022, the paraxylene market was pressured by high inventory levels carried over from 2021 as demand in the downstream polyester industries fell due to economic concerns. However, in June and July 2022, the paraxylene market enjoyed a positive effect from the gasoline market as U.S. demand for mixed xylene, a feedstock for paraxylene used in gasoline blending, saw a surge, leading to a mixed xylene shortage and a spike in paraxylene prices. As a result, the paraxylene-naphtha spread in 2022 was US\$ 320 per ton, a jump of US\$ 110 per ton from 2021. On the other hand, the benzene market continued to enjoy a positive impact of low inventory levels, and as a result, the benzene-naphtha spread in 2022 remained high despite a drop from that of 2021, which was elevated to an extraordinary level due to a polar vortex. The benzene-naphtha spread in 2022 was US\$ 244 per ton, falling US\$ 24 per tons compared to 2021.

Market Forecast for 2023

For the aromatics market in 2023, it is expected that demand for paraxylene, used in downstream textile industries, and benzene will continue to be dampened by a global economic slowdown and changing consumer behavior, such as a drop in purchases of fashion items and work clothes in response to a shift to hybrid work in many businesses.

In terms of supply, due to a new paraxylene production capacity of 7 million tons in 2023, the paraxylene-naphtha spread will shrink slightly relative in 2022,

while benzene will see an added capacity of 3 million tons. However, it is projected that the global economy will rally in the second half of 2023 thanks to the relaxation of China's zero-COVID policy and the economic stimulus measures carried over from 2022, such as state infrastructure construction projects, tax deduction, and promotion of EVs. As a result of all these factors, the overall benzene market in 2023 is projected to be at a similar level as in 2022.

Olefins

Market Overview in 2022

The ethylene and propylene market in Q1/2022 was buoyed by the steady rise in crude oil and naphtha prices as well as feedstock shortages in Europe, which reduced European supply and greatly tightened global supply. However, the market in Q2 faced pressure from an additional production capacity of 1.2 million tons for ethylene and 2.8 million tons for propylene from Asia. When coupled with China's disease control measure, the demand in the end market as well as ethylene and propylene prices dropped significantly towards the end of Q2.

In Q3 and Q4, the ethylene and propylene market continued to face pressure. An expanded capacity of approximately 5 million tons by manufacturers in Asia led to a further price dip, especially in the propylene market, which struggled with a slow growth in demand in the automotive industry due to the ongoing issue of semiconductor chip shortage. At the same time, various propane dehydrogenation process (PDH) units in several countries in Asia amped up production in response to falling propane prices, expanding supply in Asia.

However, high feedstock prices and production costs, coupled with the low ethylene/propylene-naphtha spread, prompted producers in Asia to reduce output and control production, causing the average ethylene and propylene prices in Southeast Asia in 2022 to rise to US\$ 1,054 and US\$ 1,008 per ton, respectively, while the ethylene-naphtha and propylene-naphtha spreads dropped to US\$ 269 and US\$ 223 per ton, respectively.

Market Forecast for 2023

The global ethylene production capacity is set to increase by 11.2 million tons per year, consisting of 6.9 million tons per year from China, 2 million tons per year from the U.S., 1 million tons per year from Vietnam, and 1.3 tons per year from other countries. On the other hand, 12.5 million tons per year will be added to propylene production capacity, with 9.1 million tons per year coming from China and 1 million tons per year from the U.S. The demand will continue to be depressed by an expected economic slowdown. Despite this, the demand in the end markets will be positively influenced by the anticipated easing of COVID-19 concerns worldwide, while economic stimulus measures to be introduced by various countries and the potential end to the semiconductor ship shortage in 2023 are expected to boost the overall market this year.

In summary, despite pressure due to continuous production capacity expansion, the olefins market will see a gradual rise in demand thanks to economic stimulus measures. As a result, the overall olefins-naphtha spread will likely be higher than in 2022.

MARKET OVERVIEW – INTERMEDIATES

Ethylene Oxide and Derivatives

Market Overview in 2022

The mono ethylene glycol (MEG) in 2022 was negatively affected by China and concerns over a potential recession. Concurrently, a series of new MEG production units were constructed, especially in China, which was the major market, resulting in approximately 7.2 million tons per year of increased capacity, or 13% of the existing capacity, putting further pressure on the market. The reference price in China for MEG in 2022 was US\$ 575 per tons, a drop of US\$ 100 per tons from 2021.

Market Forecast for 2023

The MEG market in 2023 will continue to see added production units. The postponement of commercial operation of certain plants from 2022 and China's disease control policy, which upheld until 2023, will also exert pressure on MEG prices. However, China's anticipated relaxation of its COVID policy in the second half of the year to spur economic growth is likely to gradually lift MEG prices and eventually lead to an increase.

Phenol

Market Overview in 2022

In Q1, planned turnarounds of phenol producers in Asia had a positive impact on the phenol and acetone (phenol by-product) market by reducing the supplies of these products and keeping their prices elevated. However, acetone prices remained lower than 2020-2021 levels due to falling demand for alcohol-based hand sanitizers, which led to a drop in demand for isopropanol, an acetone product.

In Q2 and Q3, the phenol and acetone market was negatively affected by an economic slump, which reduced the demand for end products from phenolic resin and lower phenol/acetone prices. This prompted phenol producers in Asia to cut production in Q4, causing the prices to stabilize. The prices were also buoyed by plan and unplanned shutdowns among phenol manufacturers in Asia. Despite economic concerns and apprehension over China's added capacity that dampened the market towards the end of 2022, the overall market in 2022 enjoyed a positive impact from high crude oil and energy prices. As a result of these factors, the average phenol price in 2022 was US\$ 1,309 per ton, representing a US\$ 131 per ton increase compared to 2021, while the phenol-benzene spread was US\$ 281 per ton, rising by US\$ 18 per ton relative to the year before. The average acetone price in 2022 was US\$ 696 per ton, dropping US\$ 166 per ton from 2021.

The bisphenol A (BPA) market was likewise pressured due to a drop in demand for polycarbonate and epoxy resin products coupled with China's additional production capacity. Consequently, BPA prices saw a significant decline in 2022, dropping by US\$ 1,029 per ton to US\$ 1,860 per ton relative to 2021, while the BPA-phenol spread was US\$ 551 per ton, falling by US\$ 1,161 per ton compared to 2021.

Market Forecast for 2023

The phenol market in 2023 is expected to enjoy a positive impact of an economic recovery in the second half of 2023 and China's economic stimulus measures carried on from 2022. However, phenol, acetone, and BPA demand will likely face mounting pressure from China's added production capacity of 1.7 million, 1 million, and 2 million tons per year for phenols, acetone, and BPA, respectively. The price spreads for phenol products in 2023 are thus projected to decline from 2022.

Other Intermediates

Market Overview in 2022

The purified terephthalic acid (PTA) market in 2022 saw a gradual demand recovery rate of under 4% compared to the year earlier, while economic activities were periodically disrupted throughout most of the year. Despite the additional annual production capacity of 6 million tons, the average price of PTA continued to climb on the back of the rising feedstock price to US\$ 845 per ton, representing an increase of US\$ 176 per ton compared to 2021.

The propylene oxide (PO) market in 2022 slid further from 2021 following an announcement of a major player to commence commercial operation and increase production output by 620,000 tons per year during late 2021 to early 2022. Concurrently, the demand from end product markets was disrupted by the economic condition, causing the PO prices to drop to the point that many producers announced a production cut, leading to a slight price lift in Q3. Q4 saw an additional production capacity of 650,000 tons per year from China due to postponed commercial operations, along

with a positive impact on the demand due to China's added polyols production of 100,000 tons per year. However, as the supply continued to surpass the demand, the average PO price was US\$ 1,230 per ton.

For the acrylonitrile (AN) market, the global demand stood at approximately 4.2 million tons, dipping 31% compared to 5.5 million tons in 2021 due to the economic slowdown. In addition, there was an upswing in AN supply as many producers in China expanded their production capacity from mid-2022 onwards in line with the country's self-reliance policy, resulting in an additional output of 1.1 million tons. This led to an oversupply and steadily drove down AN prices. As China enjoyed superior production costs and competitive advantage, other manufacturers in the region, such as South Korean, Taiwan, Japan, and Thailand saw their profit margins shrink and were forced to reduce their production from Q2 onwards. Similarly, the demand for downstream products such as acrylonitrile butadiene styrene (ABS) and acrylonitrile butadiene rubber latex (NBL) also declined in the face of the economic slump. The acrylic fiber (AF) industry, on the other hand, showed signs of stability. The average AN price in 2022 was US\$ 1,706 per ton, falling by US\$ 533 per ton from 2021.

The methyl methacrylate (MMA) market saw a global demand of approximately 3.6 million tons, representing a 1% decline from 2021, due to the same factors as the AN market. The MMA demand declined in downstream industries, such as electronics and automotive, due to a semiconductor chip shortage, but stabilized in the construction and furniture industries compared to 2021. On the supply side, the MMA supply increased 6% or 0.35 million tons from 2021 due to output increase in China, while the plant in the U.K., with a capacity of 0.2 million tons per year, stopped production throughout 2022 due to high production costs. The average MMA price in 2022 was US\$ 1,874 per ton, decreasing by US\$ 111 per ton from 2021.

Market Forecast for 2023

The PTA market in 2023 is expected to see the demand rally thanks to China's relaxation of its zero-COVID policy. However, the recovery may be limited due to

the presence of economic risk factors that will likely dampen the overall demand. China's additional output will continue to be northward of 10 million tons. However, due to the structure of the PTA industry and the limited number of major players in China, the spread between PTA and its feedstock is projected to remain at the same level as in 2022.

For the PO market in 2023, the demand will be buoyed by an increased annual polyols production of 690,000 tons, equivalent to PO demand of 552,000 tons per year. The stunted demand in 2022 is also expected to rise to the normal level, spiking in the second half of the year and eventually stabilizing to a suitable level. The PO production capacity is also projected to see a significant surge of 1,970,000 tons per year from China, the U.S., and Hungary, with approximately 1,300,000 tons per year coming from China. As 75% of the added capacity from China and the U.S. is non-integrated capacity, competition will likely continue to grow fiercer. However, no new capacity expansion has been announced for 2024-2025.

The AN market in 2023 is expected to experience several economic risk factors that will negatively affect the recovery of downstream products, such as ABS, NBL, and AF, and may cause producers to continue to lower their production level to cushion the decline in the operating results of the manufacturers. On the supply side, without the presence of new supplies, the issue of oversupply is projected to improve, leading to an increase in AN products and, in turn, AN prices in comparison to 2022.

In 2023, MMA products in downstream industries, such as PMMA, T-plastic, cast sheet production, will not yet see a rebound, and manufacturers might be required to consider keeping their output restricted to maintain the suitable level of profitability. The supply is expected to face pressure from an increase in production capacity from several players in China, which will amount to as much as 0.85 million tons per year combined, negatively impacting MMA prices. As a result, MMA prices are projected to weaken.

MARKET OVERVIEW – POLYMERS & CHEMICALS

Polymers

Market Overview in 2022

The overall polymer market was positively affected by the gradual decline of the COVID-19 pandemic relative to 2021 as well as the lifting of travel restrictions and the full reopening of many countries, which contributed to higher polymer demand. However, added production led to an oversupply, especially in Asia.

The polyethylene (PE) market in 2022 experienced a greater slowdown than 2021 due to various economic factors. Global PE demand saw a slight increase of 3.1 million tons to 116.9 million tons, a mere 2.7% rise compared to 2021, as China's demand was severely impacted by the government's COVID policy. PE production capacity rose by 8.8 million tons to 141.9 million tons, a 6.6% upswing from 2021. As a result of these factors, the spreads between HDPE, LLDPE, LDPE and naphtha in 2022 were US\$ 418, 423, and 643 per ton, weakening by US\$ 118, 131, and 227 per ton in 2021, respectively.

The polypropylene (PP) market underwent a slump in 2022 due to economic factors, particularly a significant increase in output in China, which led to an oversupply in Asia. As a result of these factors, coupled with various uncertainties, PP prices were extremely volatile, with the average PP Homo Injection CFR SEA price per ton standing at US\$ 1,276 in January before swinging up to US\$ 1,430 in March and continuously plunging to US\$ 950 in December. In addition, the price of the primary feedstock was driven up by rising crude oil and energy prices. Therefore, the average PP-naphtha spread in 2022 was US\$ 422 per ton, dropping from the average of US\$ 675 per ton in 2021.

The polyethylene terephthalate (PET) market in 2022 saw a decent annual growth rate of 3.6% in demand, which rose approximately 1 million tons to 26.7 million tons. The production capacity increased by 0.9 million tons to 35 million tons. In the first three quarters, the

PET P2F remained elevated at an average of US\$ 199 per ton, while the average PET price was US\$ 1,158 per ton. This could be attributed to a global slowdown in new capacity due to the economic condition as well as production cut by plants in the U.S. and Europe while demand grew in the summer and in response to the reopening of countries across the world, all of which caused both the demand and supply to tightened significantly. However, in Q4, PET demand dropped with the coming of winter and a supply surge due to added output, depressing the overall P2F spread in 2022. The average PET price was US\$ 1,097 per ton, rising by US\$ 122 per ton compared to 2021. The average P2F spread was US\$ 174 per ton, stable from the previous year.

The polystyrene (PS) market in 2022 slumped further than in 2021. General purpose polystyrene (GPPS), used in food packaging, continued to see steady demand as consumers turned more towards take-home meals and food deliveries. However, demand for high-impact polystyrene (HIPS), used in electrical appliances and electronic devices, experienced a slowdown due to diminishing purchasing power among consumers. Overall, global PS demand grew only 0.04 million tons to 11.33 million tons, or a mere 0.4%, while PS production capacity surged by 1.9 million tons to 15.9 million tons, or 13.6%. However, as integrated styrene players were unable to produce at full capacity due to the low margin, particularly with regard to styrene monomer (SM) and acrylonitrile-butadiene-styrene (ABS), the spread between PS and styrene monomer, its feedstock, in 2022 was US\$ 245 per ton, dropping by US\$ 2 per ton. The GPPS price per ton in 2022 rose by US\$ 17 to US\$ 1,472, while the HIPS price weakened from 2021 by US\$ 182 per ton to US\$ 1,566 per ton.

Market Forecast for 2023

PE demand is expected to surge by approximately 4 million tons to 120.9 million tons, or 3.4%, driven by economic recovery and stimulus measures introduced by various countries worldwide. However, concerns over the economy will continue to impact both production and demand in the PE market. An additional 6.2 million tons of output is also expected from China,

India, the U.S., and Southeast Asian countries. However, as the global economy is projected to rebound in the second half in half of 2022, the PE-naphtha spread will likely widen compared to 2022.

PP demand will likely benefit from the economic recovery and China's easing of its zero-COVID policy as well as economic stimulus measures introduced by each country, all of which will lift regional PP demand. As such, the PP-naphtha spread in 2023 will likely improve compared to 2022.

Global PET demand is projected to rise by approximately 1 million tons from 2022 to 27.6 million tons in 2023. PET will continue to play a vital role in daily food and beverage packaging. Despite signs of an economic slowdown, PE will see an increase in output of 2.5 million tons, pushing the total production capacity to 37.5 million tons, which will likely shrink the PET over feedstock spread (P2F) in 2023 compared to the previous year.

Global PS demand is anticipated to rise by approximately 0.13 million tons to 11.4 million tons per year, while the output is expected to increase primarily due to China to about 0.9 million tons per year from 15.9 million tons in 2022. As supply is projected to outstrip demand, coupled with an economic recession, the spread between PS and styrene monomer, its feedstock, will likely shrink relative to 2022.

Chemicals

Market Overview in 2022

The ethanolamine (EA) market was pressured by economic factors that negatively impacted its demand. The tightening of supply in the first half of 2022 due to the turnarounds of various plants in Asia and the Middle East served as the main factor enabling sellers to increase their offer prices, in turn pushing up EA prices. However, as a result of the economic condition and as the plants resumed their operation, the resulting price competition continuously drove down the EA price. The reference market price in China for EA in 2022 was US\$ 1,216 per ton, rising US\$ 50 per ton from 2021.

The polyether polyols (PPG) market in 2022 saw global demand dip from 2021 by approximately 3% to 8.7 million tons, while the production capacity rose 1.09 million tons per year in total. Demand for PPG, used in the production of polyurethane for use in downstream industries, such as automotive, construction, and household appliances, fell as a result of the global economic condition and was adversely affected by China's zero-COVID policy, prompting PPG producers with lower production costs to direct their products to India and countries in Southeast Asia. As a result, the average PPG price in 2022 was US\$ 1,657 per ton, weakening by US\$ 808 per ton compared to 2021.

Market Forecast for 2023

EA demand in 2023 will likely surge in response to China's relaxation of COVID measures but will likely continue to face pressure from new production units in China and Europe that will commence commercial operation in 2023, which will lead to fiercer price competition among buyers. The reference market price in China is thus expected to drop from 2022.

PPG demand in 2023 is projected to experience a slump still in the first half of 2023 and will show signs of rebounding in mid to late 2023 thanks to the recovery of the economy, which will drive up the demand in the automotive, bedding, furniture, electrical appliance, and electronics industries. In 2023, an increase of 0.2 million tons relative to 2022 is projected to PPG demand. On the other hand, commercial operations scheduled to commence in 2023 will add 0.69 million tons to the production capacity. Overall, the average PPG price is expected to increase slightly compared to 2022.

MARKET OVERVIEW – BIO & CIRCULARITY

Bioplastics and Biochemicals

Market Overview in 2022

PLA demand saw a slight dip due to surging feedstock prices, supply chain disruption, as well as an economic slowdown, which prompted some customers to cut

their production output and implement management policies to maintain suitable inventory levels.

The BioPBS market in 2022 experienced a slowdown due to the economic condition, which caused brand owners to defer their decision to adopt BioPBS. At the same time, more producers of PBS and other substitute products from China were beginning to market their products among BioPBS customers.

Market Forecast for 2023

In 2023, the market will continue to face several challenges brought on by the recession. However, the global bioplastic market will show growth in the long term due to the rise of emerging markets with high economic growth; measures and regulations introduced states around the world to promote and advocate a transition from petroleum-based plastics to bioplastics; as well as greater environmental consciousness among consumers. These factors will thus lead to an upward trend in PLA and BioPBS demand in 2023.

Value Added Oleochemicals (VAO)

Market Overview in 2022

The methyl ester (ME) market in 2022 shrank from the previous year, with the demand dwindling by 0.27 million tons to approximately 1.18 million tons per year. The decrease could be attributed primarily to the government's policy to reduce the biodiesel blending ratio from B7 to B5 from early to mid-2022 and increase the biodiesel blending proportion in three high-speed diesels, namely B7, B10, and B20, after crude palm oil (CPO) prices began to fall to the normal level in Q4. The production capacity in 2022 saw a surge due to an addition of approximately 100,000 tons per year in output by other players, intensifying the competition. The overall utilization rate of the industry in 2022 was adjusted down to approximately 39% as the domestic ME price dropped to 40.95 Baht per kilogram, a 6.48 Baht per kilogram decrease, due to falling CPO prices and the restructured ME price scheme stipulated by the Energy Policy and Planning Office (EPPO), the Ministry of Energy, which came into effect on October 3, 2022.

The fatty alcohols (FA) demand in 2022 stabilized relative to the previous year. The supply in the market tightened as a result of the domestic market obligation (DMO) policy of Indonesia, a major player. Due to this policy, which involved palm oil sale restrictions and suspension, exporters were forced to sell at least 20-30% of their FA products domestically first before they could export the remaining amount, thus restricting the exported volume. This was further compounded by the fact that many major producers were faced with production issues that forced them to temporarily reduce their output, driving up the prices of FA products in 2022 compared to the previous year. The price of mid-cut fatty alcohol per ton rose by US\$ 347, or 17%, to US\$ 2,330, while the price of short-chain fatty alcohol shot by US\$ 1,900 per ton, or 82%, to US\$ 4,209 per ton. Long-chain fatty alcohol saw a similar surge in price per ton, which soared by US\$ 1,480, or 99%, to US\$ 2,972.

As for the fatty alcohol ethoxylate market, the demand significantly slumped compared to the previous year, while demand in other industries, especially home and personal care (HPC) and paper chemicals, showed signs to sliding. In the first half of 2022, as fatty alcohol ethoxylate underwent price adjustment, concerns over feedstock costs triggered a short burst in demand. However, in the second half of 2022, the demand began to drop continuously as the prices of its feedstocks – fatty alcohols and ethylene oxide – showed signs of weakening. On the supply side, most manufacturers continued to produce at capacity. However, as supply chain disruption began to abate, the price of fatty alcohol ethoxylate in 2022 saw a surge and oscillated within a range of US\$ 1,500-2,000 per ton in accordance with the price of fatty alcohols, which was characterized by extreme volatility and saw a prolonged headlong fall beginning in Q2. The fatty alcohol ethoxylate price normally follows the same trend as the price of fatty alcohols.

In the first half of 2022, basic oleochemicals, consisting of fatty acids and glycerin, were in high demand in North America as customers and industrial manufacturers began to stock up on inventory to shield themselves from feedstock shortage resulting from logistic issues in the region. In addition, in the first half of 2022, the

price of palm oil, a key feedstock for oleochemicals, saw a substantial spike, significantly driving up the prices of these products. However, in the second half of the year, demand declined due to an economic slowdown. In addition, thanks to the inventory they had stocked up on the first half of the year, customers slowed their procurement to reduce risks arising from economic uncertainties and to maintain their liquidity.

The special oleochemicals market benefited from the growth of the packaging, automotive, oil drilling, and construction industries in the first half of 2022. However, in the second half of the year, the demand for such products was adversely impacted by an economic slowdown and the prolonged war, which drove up feedstock and energy prices. In addition, the high inflation rate depressed the purchasing power, particularly in Europe, while demand in the U.S., which was not significantly affected, showed signs of declining in the last quarter of the year.

Market Forecast for 2023

The ME market in 2022 is expected to see a 40% increase in demand, attributable primarily to state policies and the recovery of the tourism sector, much like in 2022, which will lift the overall demand. The supply, on the other hand, will likely remain stable as no planned capacity expansion by existing or new manufacturers has been announced. However, the CPO price prescribed by the Department of Internal Trade (DIT) will drop compared to the average price in 2022 as the global supply will likely grow with major players like Indonesia and Malaysia resuming their normal production. As a result, the ME price in 2023 is projected to drop in line with the CPO price and ME price restructuring.

Demand for fatty alcohols in 2023 is expected to stabilize or improve slightly. However, as a result of the recession, the overall demand will not yet be restored to the previous level of robustness. The supply across the industry, on the other hand, is likely to increase as major players previous struggling with production issues will be able to resume their normal production and because Indonesia has no plans yet to reintroduce the DMO measure for oleochemicals.

As a result, the price of fatty alcohols in 2023 will likely experience a significant decline in line with palm kernel oil prices, which will echo the trend of the reference price of the Malaysian Palm Oil Board (MPOB) in 2023, which is expected to dip below the average price of 2022 due to an increase in domestic and overseas supply and fierce competition in the market.

As for the fatty alcohol ethoxylate market, demand for personal care products will likely drop as the COVID-19 pandemic abates further, while the recovery of the tourism industry will boost demand for cleaning agents in hotels, hospitals, and public places. As such, it is projected that the growth in the demand for derivatives for home and personal care (HPC) products will either slow or stabilize. On the other hand, demand for derivatives for textile chemicals, paper chemicals, and construction chemicals is anticipated to decrease as an economic recession sets in. However, demand for products made from natural and renewable materials will drive down the demand for products from petroleum sources and fill in its place with demand for natural material-based products, which will contribute to an increase in fatty alcohol ethoxylate demand.

Demand for basic oleochemicals is expected to stabilize as production costs, such as power, natural gas, and labor costs, show signs of increasing, while demand for special oleochemicals, particularly for green polymer additives and bio-lubricants, will likely see an upswing.

MARKET OVERVIEW – PERFORMANCE CHEMICALS

Market Overview in 2022

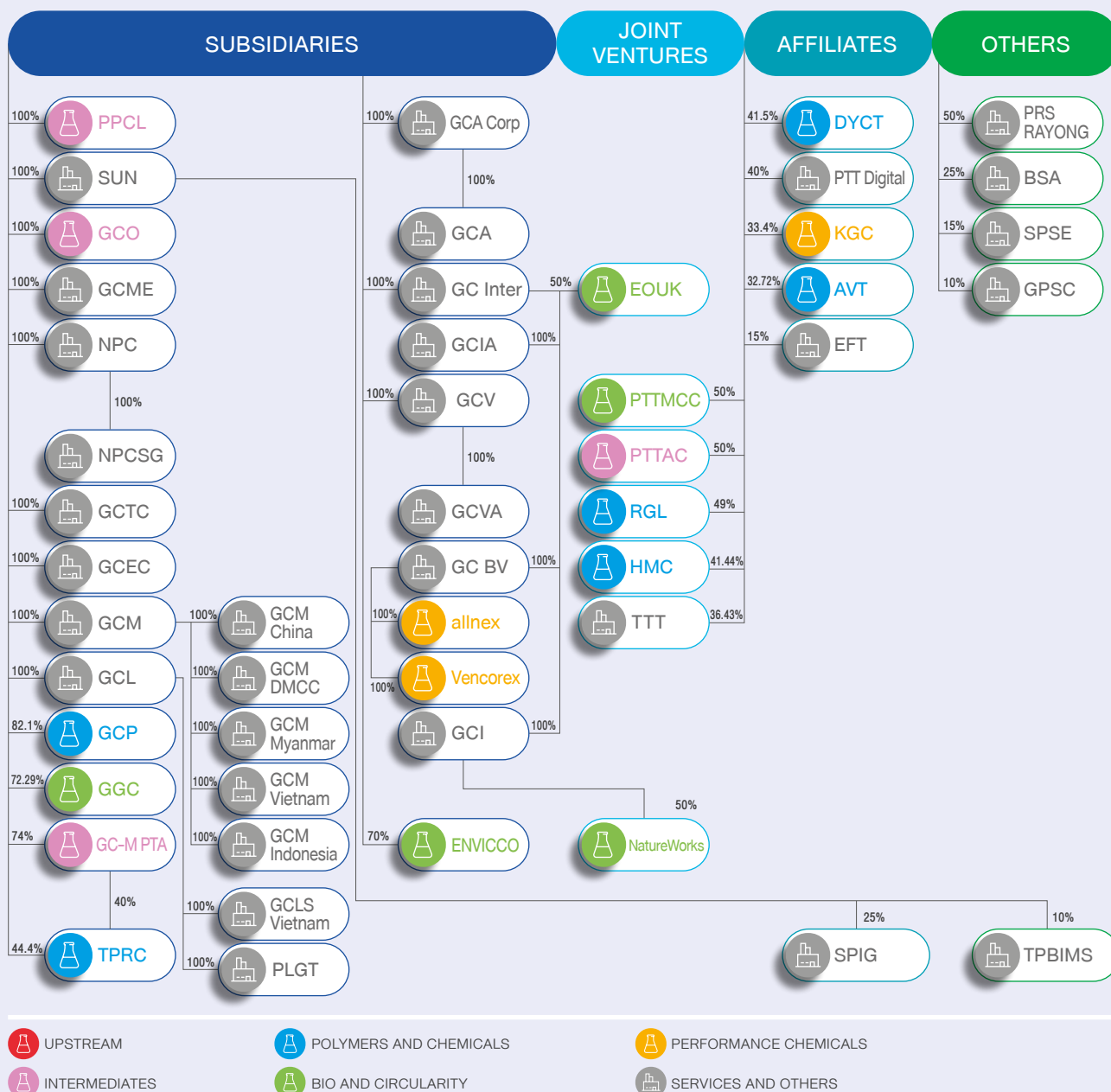
Demand for coating resins, hexamethylene diisocyanate (HDI), and HDI derivatives remained elevated in Q1/2022 as the economic recovery, beginning in the previous year, continued into the year. However, in Q2/2022, the demand experienced a slowdown as a result of an economic slump and the war as well as China's border closure, which directly impacted demand in Asia. In Q3-Q4/2022, the same factors not only continued to exert their influence but also adversely impacted the energy price in Europe, thus depressing the purchasing power in the market in line with the economic slowdown and the trends in other industries.

Market Forecast for 2023

The economic slowdown will continue to impact demand for coating resins, hexamethylene diisocyanate (HDI), and HDI derivatives. However, the demand growth is projected to exceed the overall GDP. The adverse impact is expected to begin dissipating in the second half of 2023. The recovery rate of the business will depend on the recovery rate of the downstream industries, such as the automotive industry.



SHAREHOLDING STRUCTURE IN SUBSIDIARIES AND AFFILIATES



Remarks : Significant change in the shareholding structure in subsidiaries and affiliates from 1 January 2022 to 31 December 2022

- (1) June 30th, 2022 : PTTGC International (Netherlands) B.V. (GC BV) purchase additional ordinary share of Vencorex Holding (Vencorex). As a result, GC BV currently holds 100% of Vencorex shares.
- (2) July 1st, 2022 : AGC Vinythai Public Company Limited (AVT) was established by the amalgamation between Vinythai Public Company Limited (VNT) and AGC Chemicals (Thailand) Co., Ltd. (AGC-TH). After the shares allocation of AVT, GC effectively holds 27.32% of AVT shares.
- (3) July 1st, 2022 : GC restructured the group business by means of entire business transfer from GC Glycol Co.,Ltd. (Glycol) and GC Styrenics Co.,Ltd. (GCS) to GC. As a result, GC directly and indirectly holds 74% of GC-M PTA and TPRC shares.
- (4) August 31st, 2022 : GC Glycol Co., Ltd. (Glycol) and GC Styrenics Co., Ltd. (GCS) have already registered their dissolutions.
- (5) September 1st, 2022 : The company received the share transfer of Dynachisso Thai Co. Ltd. (DYCT) and Revolve Group Limited (RGL) from Solution Creation Co., Ltd (SUN).
- (6) September 1st, 2022 : The company received the 1% share transfer of GC Marketing Solutions Company Limited (GCM) and the 1% share transfer of GC Logistics Solutions Company Limited (GCL) from Solution Creation Co., Ltd (SUN). As a result, GC currently holds 100% of GCM and GCL shares.
- (7) September 30th, 2022 : GC Marketing Solutions Company Limited (GCM) purchased additional ordinary share of PT GCM Marketing Solutions Indonesia (GCM Indonesia) from PT. Cipta Aneka Air. As a result, GCM currently holds 100% of PT GCM Marketing Solutions Indonesia shares.
- (8) December 9th, 2022 : The company changed proportion of shareholding in Thai Tank Terminal Company Limited (TTT) to 36.43% and resulted to the change in investment of TTT from subsidiary company to joint venture company.
- (9) December 15th, 2022 : The company subscribed new ordinary shares in AGC Vinythai Public Company Limited (AVT). As a result, GC currently holds 32.72% of AVT shares.
- (10) December 29th, 2022 : PTT Energy Solutions Company Limited (PTTES) has already registered its dissolution.

SUBSIDIARIES

allnex	allnex Holding GmbH
GCO	GC Oxirane Company Limited
PPCL	PTT Phenol Company Limited
Vencorex	Vencorex Holding
GCP	GC Polyols Company Limited
GC-M PTA	GC-M PTA Company Limited
TPRC	Thai PET Resin Company Limited
GGC	Global Green Chemicals Public Company Limited
ENVICCO	ENVICCO Limited
GCEC	GC Estate Company Limited
GCI	GC International Corporation
GCL	GC Logistics Solutions Company Limited
GCLS	GC Logistic Solutions (Vietnam) Company Limited
GCM	GC Marketing Solutions Company Limited
GCM China	GC Marketing Solutions (Shanghai) Company Limited
GCM DMCC	GCM Polymer Trading DMCC
GCM Indonesia	PT GCM Marketing Solutions Indonesia
GCM Myanmar	GC Marketing Solutions Myanmar Company Limited
GCM Vietnam	GC Marketing Solutions Vietnam Company Limited
GCME	GC Maintenance and Engineering Company Limited
GCTC	GC Treasury Center Company Limited
NPC	NPC Safety and Environmental Service Company Limited
NPCSG	NPC S&E Security Guard Company Limited
PLGT	PL Global Transport Company Limited
GC BV	PTTGC International (Netherlands) B.V.
GC Inter	PTTGC International Private Limited
GCA	PTTGC America LLC
GCA Crop	PTTGC America Corporation
GCI	PTTGC Innovation America Corporation
GCV	GC Ventures Company Limited
GCVA	GC Ventures America Corporation
SUN	Solution Creation Company Limited

JOINT VENTURES

EOUK	Emery Oleochemicals UK Limited
HMC	HMC Polymers Company Limited
NatureWorks	NatureWorks LLC
PTTAC	PTT Asahi Chemical Company Limited
PTTMCC	PTT MCC Biochem Company Limited
RGL	Revolve Group Limited
TTT	Thai Tank Terminal Limited

AFFILIATES

AVT	AGC Vinythai Public Company Limited
DYCT	Dynachisso Thai Co. Ltd
EFT	Eastern Fluid Transport Company Limited
KGC	Kuraray GC Advanced Materials Company Limited
PTT Digital	PTT Digital Solutions Company Limited
SPIG	S. P. Petpack Inter Group Company Limited

OTHERS

BSA	Business Services Alliance Company Limited
GPSC	Global Power Synergy Public Company Limited
PRS RAYONG	Pracharath Rak Samakkee Rayong (Social Enterprise) Company Limited
SPSE	Sarn Palung Social Enterprise Company Limited
TPBIMS	TPBI & Myanmar Star Company Limited

Policy on Investment in Subsidiaries, Joint Ventures, Affiliates, and Other Companies

As a policy, GC invests in subsidiaries, joint ventures, affiliates, and others to support and promote business growth. To ensure governance, GC appoints its Executives to the board of subsidiaries and assigns its representatives to serve as Directors in subsidiaries, ventures, affiliates, and others.

The presence of GC's representatives as Directors or Executives in subsidiaries, ventures, affiliates, and others enables it to participate in policymaking, stay informed, and periodically monitor performance. Any activity that may have a significant impact on GC must be approved by the Board of Directors first.

Relations with the Major Shareholder's Business Groups

GC is part of the Petrochemicals and Refining Business Group under the Downstream Petroleum Business Group of PTT Public Company Limited, as shown in the charts below.

PTT's Management Structure



PTT is a fully integrated national petroleum and petrochemical company with the mission to ensure national energy security, economic prosperity, and organization sustainability in parallel with socio-environmental stewardship.

PTT operates its own businesses as well as operates through its subsidiaries. Its business structure and relations are as detailed below.

PTT GROUP'S SUBSIDIARIES AND SHAREHOLDING BY BUSINESS UNIT

Upstream Petroleum and Gas Business Group

Gas Business Unit

- Supply and Distribution
- Gas Separation Plant
- Distribution Pipeline
- NGV
- Commercial and Marketing Management

Gas Transmission Business Unit

PTT LNG Co., Ltd. (PTTLNG)	100.00%
PTT Exploration and Production Plc. ^{1/} (PTTEP)	63.79%
PTT Natural Gas Distribution Co., Ltd. (PTTNGD) ^{3/}	58.00%
Trans Thai-Malaysia (Thailand) Co., Ltd. (TTM(T))	50.00%
Trans Thai-Malaysia (Malaysia) Sdn. Bhd. TTM(M) ^{3/}	50.00%
Map Ta Phut Air Products Co., Ltd. (MAP) ^{3/}	49.00%

International Investment Business

PTT Energy Resources Co., Ltd. (PTTER)	100.00%
PTT Green Energy Pte. Ltd. (PTTGE)	100.00%
PTT Global Management Co., Ltd. (PTTGM)	100.00%

Own Operations

Investment in PTT Group

Downstream Petroleum Business Group

International Trading Business

- Oil and Condensate Trading
- Petroleum Products and LNG Trading
- Petrochemical, Chemicals and Solvents Product Trading
- Other Product Trading
- Derivatives Trading
- International Chartering

PTT International Trading Pte. Ltd. (PTTT)	100.00%
PTT International Trading London Ltd. (PTTT LDN)	100.00%
PTT International Trading USA Inc. (PTTT USA)	100.00%

Petrochemical and Refining Business

PTT Global Chemical Plc. (GC) ^{1/}	45.18%
Thai Oil Plc. (TOP) ^{1/}	45.03%
IRPC Plc. (IRPC) ^{1/}	45.05%
PTT Tank Terminal Co., Ltd. (PTT TANK)	100.00%

Oil and Retail Business

PTT Oil and Retail Business Plc. (OR) ^{1/}	75.00%
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New Business and Infrastructure Business Group

- Innovation and Digital
- Engineering and Project Management

Energy Complex Co., Ltd. (EnCo)	50.00%
PTT Energy Solutions Co., Ltd. (PTTES)	40.00%
Global Power Synergy Plc. (GPSC) ^{1/}	47.27%
District Cooling System and Power Plant Co., Ltd. (DCAP)	35.00%
PTT Digital Solutions Co., Ltd. (PTT DIGITAL)	20.00%
InnoSpace (Thailand) Co., Ltd. (InnoSpace)	13.61%
HG Robotics Co., Ltd. (HG ROBOTICS)	9.47%
Baania (Thailand) Co., Ltd. (Baania)	2.73%
Sunfolding, Inc. (Sunfolding)	5.81%
Luminar Technologies, Inc. (Luminar)	0.07%
Ample, Inc. (Ample)	1.13%
Shenzhen Immotor Technology Co., Ltd. (Immotor)	3.05%
NTG Holdings Pte. Ltd. (NT)	14.51%

Other Businesses

PTT Treasury Center Co., Ltd. (PTT TCC)	100.00%
Business Services Alliance Co., Ltd. (BSA) ^{2/}	25.00%
Sarn Palung Social Enterprise Co., Ltd. (SPSE)	20.00%
Dhipaya Group Holdings Plc. (TIPH) ^{1/}	13.46%
Veolia Sustainable Solution (VSS) (Thailand) Co., Ltd.	40.00%

Remarks:

Information as of December 31, 2022. (All figures are presented by PTT's portion.)

^{1/} These 7 listed companies registered in The Stock Exchange of Thailand.

^{2/} BSA is a wholly owned subsidiary as PTT holds all common shares of BSA.

^{3/} Shareholding in these subsidiaries is a joint investment in other businesses. Details are in Supplementary of 56-1 One Report of year 2022, PTT Public Company Limited.

The chart below shows major relations between GC and other companies under PTT Group with significant connection to GC's main businesses.



PTT

PTT sells primary feedstock to GC (crude oil, condensate, natural gases).



IRPC REFINERY

IRPC sells certain feedstock to GC (diesel and high-sulfur kerosene).



GPSC

GPSC sells certain utilities to GC (water, steam, electricity).



PTT OIL AND RETAIL BUSINESS

GC sells certain products to OR (petroleum products).



PTT INTERNATIONAL TRADING

GC sells certain products to PTTT (petroleum products, aromatics, etc.).



IRPC REFINERY

GC sells certain products to IRPC (Euro IV diesel and jet fuel).



Shareholder Structure

(a) The list of top 10 major shareholders as at the book closure date of September 5, 2022 is as follows:

No.	Shareholder	Number of shares	Percentage
1.	PTT Public Company Limited ⁽¹⁾	2,037,220,915	45.18
2.	Thai NVDR Company Limited ⁽²⁾	392,116,551	8.70
3.	Siam Management Holding Company Limited	135,240,000	3.00
4.	SOUTH EAST ASIA UK (TYPE C) NOMINEES LIMITED	91,646,727	2.03
5.	HMC Polymers Company Limited ⁽³⁾	83,427,636	1.85
6.	STATE STREET EUROPE LIMITED	58,857,969	1.31
7.	THE BANK OF NEW YORK MELLON	58,039,682	1.29
8.	NORTRUST NOMINEES LIMITED-NT0 SEC LENDING THAILAND CL AC	57,204,882	1.27
9.	Social Security Office	49,763,151	1.10
10.	STATE STREET BANK AND TRUST COMPANY	48,405,033	1.07

Remarks:

⁽¹⁾ Majority shareholder of PTT Public Company Limited is Ministry of Finance.

⁽²⁾ Shareholders of Thai NVDR Company Limited holding Non-Voting Depository Receipt (NVDR) are ineligible to vote at shareholders' meeting except when exercising their voting right on delisting the shares from the Stock Exchange of Thailand.

⁽³⁾ GC holds 41.44% of shares of HMC Polymers Company Limited.

(b) As of December 30, 2022, the major shareholders with significant influence on GC's policy establishment or operations are PTT Group, holding 48.18% of shares of GC.

(c) Foreign Shareholders

As of December 30, 2022, there are 18 foreign shareholders of GC, holding a combined of 515,665,350 shares of GC or 11.44% of GC's paid-up capital.

GC has a restriction on foreign shareholding as specified in Article 8 of GC's Articles of Association, which states that "GC's shares can be transferred without any restriction, except in the case where the said transfer would result in more than thirty-seven (37) percent of the Company's total paid-up shares being held by foreigners."

SECURITIES

As of December 31, 2022, GC's registered capital totaled Baht 45,088,491,170, consisting of 4,508,849,117 common shares at the par value of Baht 10. GC's paid-up capital totaled Baht 45,088,491,170.

ISSUANCE OF OTHER SECURITIES

Bonds

GC issued the following long-term bonds:

1. US Dollar Debentures

- On March 18, 2021, GC Treasury Center Co., Ltd., a subsidiary of GC, issued and offered unsubordinated and unsecured debentures in US dollar, consisting of:
 - 10-year debenture due March 18, 2031, with a fixed coupon rate of Baht 2.98 per year, paid every six months throughout the term, worth USD 700 million
 - 30-year debenture due March 18, 2051, with a fixed coupon rate of Baht 4.30 per year, paid every six months throughout the term, worth USD 550 million
- On March 30, 2022, GC Treasury Center Co., Ltd., a subsidiary of GC, issued and offered unsubordinated and unsecured debentures in US dollar, consisting of:
 - 10-year debenture due March 30, 2032, with a fixed coupon rate of Baht 4.40 per year, paid every six months throughout the term, worth USD 1,000 million
 - 30-year debenture due March 30, 2052, with a fixed coupon rate of Baht 5.20 per year, paid every six months throughout the term, worth USD 300 million

2. Baht Debentures

GC has 15 series of unredeemed, unsecured, unsubordinated domestic debentures, with the total issue amount of Baht 90,000 million, as detailed below.

Symbol	Unredeemed Amount (Million Baht)	Annual Coupon Rate (%)	Maturity Date	Maturity (Year)	Credit Rating (Fitch Ratings)
PTTGC248A PO	10,000	2.90	August 22, 2024	5 years	AA(thai)
PTTGC249A II	1,500	2.20	September 5, 2024	5 years	AA(thai)
PTTGC269A II	7,000	2.43	September 5, 2026	7 years	AA(thai)
PTTGC299A II	1,500	2.75	September 5, 2029	10 years	AA(thai)
PTTGC274A II/HNW	1,530	2.60	April 8, 2027	7 years	AA(thai)
PTTGC304A II/HNW	3,310	2.99	April 8, 2030	10 years	AA(thai)
PTTGC324A II/HNW	4,360	3.29	April 8, 2032	12 years	AA(thai)
PTTGC354A II/HNW	5,800	3.50	April 8, 2035	15 years	AA(thai)
PTTGC271A II/HNW	14,000	2.13	January 25, 2027	5 years	AA(thai)
PTTGC291A II/HNW	2,000	2.65	January 25, 2029	7 years	AA(thai)
PTTGC321A II/HNW	2,000	3.05	January 25, 2032	10 years	AA(thai)
PTTGC341A II/HNW	12,000	3.29	January 25, 2034	12 years	AA(thai)
PTTGC276A II/HNW	5,000	3.21	June 15, 2027	5 years	AA(thai)
PTTGC346A II/HNW	3,000	4.00	June 15, 2034	12 years	AA(thai)
PTTGC296A PO	17,000	3.50	June 30, 2029	7 years	AA(thai)

The following are ratings from various credit rating agencies.

Credit Rating Agency		S&P Global	FitchRatings
Credit Rating	Baa2	BBB	AA (thai)
Latest Date of Credit Rating Review	February 23, 2023	June 29, 2022	July 25, 2022

DIVIDEND PAYMENT POLICY

PTT Global Chemical Public Company Limited

The Board of Directors Meeting No. 1/2011, held on October 19, 2011, resolved that the dividend payment policy of the Company is "to pay dividend at a rate of no less than 30% of net profit after tax and allocation to all reserve funds of the Company. Such dividend payment, however, is subject to the investment plan, other necessary and appropriate considerations in the future."

Dividend Payment

Subsidiaries' Dividend Payment Policy

The dividend payment policy for GC's subsidiaries shall be considered and proposed by the Board of Directors of each subsidiary for approval at the Annual General Meeting of each subsidiary. The dividend payment of subsidiaries shall be calculated based on the investment plans and other requirements and considerations, such as the adequacy of cash flow of each subsidiary after deducting reserve funds in accordance with the law.

Year	Dividend Payout (Baht/Share)			Earning per Share (Baht/Share)	Dividend Payout Ratio (%)
	1 st half	2 nd half	Full Year		
2022 ⁽¹⁾	0.75	0.25	1.00	(1.94)	N/A
2021	2.00	1.75	3.75	10.01	37%
2020	-	1.00	1.00	0.04	>200%
2019	1.00	1.00	2.00	2.59	77%

Remark:

⁽¹⁾ The Board of Directors' Meeting No. 2/2023 held on February 13, 2023, agreed to propose the Annual General Meeting of Shareholders to consider and approve on the dividend payment for the year 2022 operating performance of Baht 1.00 per share, of which Baht 0.75 per share was paid as interim dividend on September 21, 2022. The remaining dividend of Baht 0.25 per share is to be proposed to the 2023 Annual General Meeting of Shareholders for approval.

RISK MANAGEMENT

RISK MANAGEMENT AND RISK FACTORS

Risk Management

In 2022, GC faced challenges amid rapid changes in various external factors, such as the Russia-Ukraine conflict; the COVID-19 pandemic; China's zero-COVID policy; the price volatility of energy, raw materials, and petrochemical products; and concerns over an economic recession. These factors placed both supply and demand under pressure, resulting in lower overall profit margins for petrochemical products, even lower than during the height of the COVID-19 pandemic. To address this, GC initiated the GC Recession Playbook for use as guidelines and measures to mitigate the aforementioned factors' impact on its performance and to increase liquidity. The measures include cost reduction, investment prioritization, adjustment of production and sales plans as well as the product portfolio to suit a volatile market, loan financing and debt restructuring to increase liquidity, and opportunity analysis for accelerating or decelerating projects in the event of a prolonged economic downturn. GC also adjusted the human resource management policy to ensure that it will be able to cope with various challenges promptly and effectively, reduce the damage that might occur from risk factors, and secure opportunities that would increase its competitiveness and create sustainable value.

In the year 2022, GC was ranked number 1 in risk and crisis management on the Dow Jones Sustainability Indices (DJSI), scoring a full 100 points, indicating that its risk management met internationally accepted standards. GC's risk management is based on the Committee of Sponsoring Organizations of the Treadway Commission (COSO)'s Enterprise Risk Management Framework, or ERM COSO (2017), the International Organization for Standardization (ISO)'s guidelines, or ISO 31000:2018, the Thai Corporate

Governance Code for Listed Companies 2017, and its anti-corruption guidelines and commitment as a certified member of the Private Sector Collective Action Coalition Against Corruption (CAC). Furthermore, GC integrates its enterprise risk management system with policies, laws, regulations, and operational standards, encompassing governance, risk management and internal control, and compliance, or GRC for short, to ensure that GC has suitable risk management as well as adequate and effective enterprise-wide control systems, thus enabling the organization to achieve its strategic goals and various key objectives.

Risk Management Structure

GC's risk management is organized into three levels: corporate, business units, and operations. At the corporate level, the Board-appointed Risk Management Committee (RMC) is responsible for defining the direction of risk management guided by the risk appetite, risk policy, and five risk management frameworks: corporate, foreign exchange, price-and-spread, subsidiaries, and investment. It is also tasked with monitoring and providing recommendations on the management of risks towards the achievement of GC's strategic and business goals. The Enterprise Risk Management Committee (ERMC) is comprised of executive officers from each function responsible for regularly monitoring risk management progress to ensure the alignment with the policies and risk management frameworks approved by the Risk Management Committee. In addition, GC requires all units to perform self-assessment of the adequacy of the internal control system using the Control Self-Assessment (CSA) and Operational Risk Management (ORM) tools for operational or process risk management to ensure the compliance with the policies, objectives, risk appetite, and risk management frameworks approved by the Risk Management Committee.

For business-specific risks, GC has instituted either risk management at the business unit/function level or appointed special purpose committees to facilitate direct management and close monitoring of situations, including:

- **The Value Chain Management (VCM) Committee** is responsible for closely monitoring the market situation on a weekly basis and providing guidelines for managing risks related to product price and spread as well as exchange rate volatility in accordance with the risk management framework approved by the Risk Management Committee.
- **GC Group's Sustainable Development Committee (SDC)** is responsible for monitoring GC's sustainable development performance and management to ensure that GC has in place sustainability risk management guidelines that are sufficient and appropriate for both current and future business operations to achieve the goal of net zero carbon emission in the short, medium, and long term by 2050.
- **The Investment Committee (IC)** is responsible for overseeing and reviewing investment projects to ensure strategic alignment as well as risk assessment and the establishment of measures to manage project risks to ensure efficient investment management and maximize yield.
- **Other key committees and working groups** include the GC Operational Excellence Committee, the Safety, Health, and Environment Governance Committee, the Digital and Information Technology Governance Committee, and Water Management Working Group.

Risk Management Tools

GC has adopted a variety of risk management tools to perform risk analysis, assessment, and monitoring, such as risk appetite, risk map, mitigation plan, and key risk indicators (KRI). Moreover, GC has applied sensitivity analysis, scenario planning and stress testing to assess the impact of risks under various potential circumstances

and establish response measures. A process has also been put in place to continuously monitor the current status and trends of external factors, comprising six aspects in accordance with the PESTEL Analysis Framework. GC also places importance on emerging risks that may affect the business in the short, medium, and long term so as to establish proactive risk management measures.

Risk Management Culture

GC strives to foster a risk management culture throughout the organization and expand outcomes towards integrated GRC management (Governance, Risk Management & Internal Control, and Compliance) through the following six components: governance, leadership, risk management structure, risk management techniques, and risk management communication and education. To this end, GC has developed a risk management structure that encompasses all levels and includes the monitoring and regular reporting of risk management performance to the management and the Board of Directors. Additionally, the roles and responsibilities and guidelines pertaining to the risk management activities of the Board of Directors, top executives, and employees are clearly determined to ensure suitability.

In 2022, GC held training for employees at all levels to continuously enhance knowledge about and foster the culture of GRC through lessons on its online learning platform, or UP Learning Platform. To promote GRC culture and awareness, GC also held road shows attended by Vice Presidents (VPs), Division Managers (DMs), and other interested employees, who participated in the training and exchanged ideas with the GRC team. Additionally, sessions led by internal and external experts were also held for related parties at all levels to provide updates on business situations, future trends, and emerging risks in order to develop their ability to identify and assess risks as well as determine risk management measures.

Risk Factors

GC is aware of both internal and external risk factors that may impact the business and has established risk management measures to mitigate potential effects and ensure that it is able to achieve its strategic goals. Corporate risk factors are categorized into three groups, as summarized in the table below.

Business-as-Usual Risk

Risk Factor	Key Risk Management Measures
 Operational and Safety Risk As GC's core business is in large-scale chemical plants and refineries, occupational health and safety, as well as a plant's production stability, is of the utmost importance. GC is committed to enhancing its operational excellence with the goal of placing itself in the 1st quartile in terms of the safety and production stability of its plants to ensure reliability, continuity, and the prevention or mitigation of unplanned	■ Improve Process Safety Management (PSM) to meet international standards by requiring safety risk assessment using bow-tie assessment and bow-tie barrier validation; and monitoring PSM leading indicators on a regular basis to verify the readiness of major accident prevention and control systems in all plants as well as processes to promote manufacturing safety, such as Field Risk Assessment (FRA), Incident Investigation (II), MOC-personnel, process safety information (PSI), first line breaking, Pre-Startup Safety Review (PSSR), Process Hazard Analysis (PHA). ■ Prescribe PSM auditing by internal and external auditors as follows: 1. Audit by auditors from the Industrial Estate Authority of Thailand (IEAT) 2. Assess and monitor the efficiency of machinery/equipment on a monthly basis to achieve 100% compliance with equipment inspection standards 3. Perform assessments of the operational management performance of public utility service providers to assess the risks and identify joint risk management methods 4. Assess the operation risk management system through the GC Management System (GCMS) ■ Utilize digital technology to enhance the management and monitoring of machine reliability and integrity. ■ Foster good operational discipline among employees through the Operational Discipline (OD) program to ensure that employees at all levels comply with operating procedures ■ Organize programs to promote personal safety culture among employees and contractors and actively emphasize implementation of measures at work sites through contractor partnership, such as Effective Toolbox Talk, Life Saving Rule and Work Permit Compliance, and Excellent House Keeping. ■ Nurture experts and develop personnel, using the knowledge jointly developed with consultants, and promote knowledge management between business units so as to transfer standards and knowledge to all business units and across GC Group. ■ Establish a Business Continuity Management System (BCMS) and regularly conduct the Business Continuity Plan (BCP) drills for emergencies and crises that may result in business interruption to mitigate the effects of such events and/or shorten the rehabilitation period. ■ GC Group has necessary insurances in place to limit any potential damage from unforeseen circumstances.

Risk Factor	Key Risk Management Measures
 Price Volatility Risk As most of its products are commodity products, GC is highly vulnerable to price volatility risk. In the 2022, GC faced pressure from uncertain recovery of the global economy and concern over economic recession: the strict measures against the spread of COVID-19 in some countries, especially China; geopolitical conflicts, such as between Russia and Ukraine and China and Taiwan; and new petrochemical production capacity.	■ Closely monitor the economic outlook, feedstock prices, and product prices and assess their impacts on a weekly basis to revise production and sales plans across the value chain to ensure compatibility with the rapidly changing market ■ Implement commercial hedging to reduce the impact of price volatility in accordance with the policy, targets, and commodity price risk management framework approved by the Risk Management Committee, with the Value Chain Management Committee (VCM) reviewing the market outlook and approving the level, cost, and volume of risk management on a weekly basis. ■ Implement additional measures to improve hedging gain/loss from the unprecedented volatility of the petroleum market: 1. Inventory Hedging Restructuring by adjusting the risk management pricing framework to be consistent with the current market and price estimates 2. A partial prepayment for hedging gain/loss, for which the company receives a discount 3. Collaboration with PTT International Trading Pte Ltd. on dynamic forward trading (DFT) to take advantage of market volatility through futures trading along with GC's risk management 4. Adjusting hedging strategies for Gasoil/Dubai to be in line with the changing market. ■ Enhance the customer relationship management (CRM) to retain GC's existing customer base and increase the number of new customers through efficient product development and market development processes. ■ Seek opportunities to create footprints and conduct market studies in other export markets beyond China and India, which have high risks and competition, such as Europe, Africa, and Latin-America to increase sales agility and expand customer base. ■ Create the GC Recession Playbook to serve as a framework and guidelines for operations in response to the protracted recession and in order to reduce its overall impact on GC's performance. ■ Formulate long term strategy in developing high value products to reduce commodity price volatility risk.



Risk Factor	Key Risk Management Measures
 COVID-19 Pandemic Risk Although the COVID-19 pandemic has decreased in severity, the number of vaccinated people is increasing, and measures to control the spread of disease have been relaxed, the virus's mutation, coupled with the vaccine's efficacy in suppressing mutant strains, remains a major risk to employees' health and safety and must be managed to prevent any impacts that may occur on GC's key activities.	■ Monitor outbreaks in order to determine appropriate guidelines and preventive measures in accordance with the situation and report the progress of the implementation of various measures to the Committee on the Prevention and Control of Corona Virus Disease (COVID-19). ■ Utilize digital technology to report and track employee health risks for screening, monitoring, and establishing prevention measures to ensure that action can be taken in a timely matter. ■ Work-from-home (WFH) measures are still in place. Office staffs who are able to WFH without negatively affecting GC's operation do so on a rotating basis, with no more than 30% of the total number of employees working at the office per day. Employees are required to take an Antigen Test Kit (ATK) before entering the workplace, wear face masks, maintain social distancing, eat separately, and wash their hands frequently. ■ Put in place screening and preventive measures for visitors, such as ATK testing prior to entering facilities, face masks, and social distancing. ■ Put in place a process for monitoring infections among employees and tighten the preventive measures and implement relevant control measures promptly when the outbreak escalates.
 Cyber Threat At present, cyber crime comes in the form of a variety of attacks and threats, and new methods or technologies are being used to launch attacks through various channels more and more. This, coupled with the changing nature of the business and competition, has spurred GC to adopt digital technology for enhanced work efficiency and competitiveness. Use of digital technology, however, poses a risk and makes GC vulnerable to cyber attacks.	■ Enforce policies on Information Technology (IT) and Operational Technology (OT) security policies, and data governance as guidelines for GC Group. ■ Monitor new threats, assess risks in both office and factory systems, test IT security measures, and perform system assessments and internal audits to ensure strict compliance with the relevant safety standards. ■ Study and develop a cyberattack detection and monitoring system using deception technology. ■ Conduct cyberattack response drills and IT and plant systems recovery plan on a regular basis and make improvements to ensure suitable and timely response in order to mitigate any potential damage. ■ Prepare work systems and increase IT security measures to support working from home, as well as install various protection systems, such as mobile device management, endpoint security protection, mail security gateway, secure access service edge, and two-factor authentication. ■ Foster cybersecurity awareness among employees at all levels, such as by providing information on guidelines and practices for IT management as well as relevant laws, and conducting phishing tests to assess employee knowledge and understanding on how to deal with threats. ■ Put in place measures for maintaining the security of both corporate and personal information, data protection, and information leakage monitoring, as well as measures for violations and personal information leakage.

Risk Factor	Key Risk Management Measures
 Financial Risk Economic turmoil, geopolitical unrest, concerns over economic risk, interest rates and inflation, and the volatility of major currencies and the Thai baht are important factors affecting both the profitability and cost of GC as it operates in many countries around the world.	■ Closely monitor GC's projected profits and financial ratios and subsidiaries on a quarterly basis and perform stress testing to determine potential risk to the performance and establish response measures, and report the results to GC's executives and directors for acknowledgment. ■ Manage foreign exchange rate risk through enhanced natural hedging to reduce impact on operating results. ■ Manage interest rate risk by engaging in interest rate swap (IRS) to mitigate the impact of rising interest rates. ■ Create and implement the GC Recession Playbook to establish measures to mitigate impact on operating results and maintain liquidity.

Strategic Risk

The rapidly changing of complex business environment may affect the successful implementation of the business strategy. GC has, therefore, set the following measures to manage various risks related to the achievement of its business objectives.

Risk Factor	Key Risk Management Measures
 Sustainable Feedstock Supply Risk In addition to taking action to increase feedstock flexibility for olefins production, GC must also maintain its cost competitiveness at a level no lower than the 2nd quartile. Thus, it is necessary for GC to have long-term feedstock security strategy to ensure feedstock availability, quality, and cost competitiveness.	■ Closely monitor the quantity and quality of natural gas in collaboration with companies in PTT Group during regular working group meetings. ■ Perform feedstock optimization based on the market and a cost-benefit analysis. ■ Test the quality of condensate by measuring the arsenic levels in samples and take corrective action if the level is higher than the control value before feeding it into the production process. ■ Implement feedstock flexibility strategies to increase flexibility in feedstock sourcing and consumption. ■ Utilize PTT Group's network in the United States to seek opportunities and enhance the sustainability of the procurement of low-cost feedstocks to Thailand.

Risk Factor	Key Risk Management Measures
 Sustainable Water Management Risk Readiness and efficiency in sustainable water management is an important factor affecting GC's competitiveness and ability to conduct business according to sustainability guidelines. Thus, it has formulated strategies to advance sustainable water management at the national level, sought alternative water sources, and utilized technology to increase efficiency and reduce water consumption. This is to ensure sufficient water supply for it to operate existing plants as well as support future projects.	■ Continuously assess risk, monitor drought conditions, and formulate a risk management plan as well as a business continuity management plan in the case of drought. ■ Enhance water efficiency in the production process with the 3Rs principle (Reduce, Reuse, Recycle), support investment in technology, improve production processes, and seek backup water supplies through projects, such as sea water reverse osmosis (SWRO) and waste water reverse osmosis (WWRO). ■ Report on the water situation, the risk of drought, and the progress of related projects via the Sustainable Water Management Working Group, the Safety, Health & Environment (SHE) Steering Committee, and the Sustainability Development Committee (SDC). ■ Participate in the PTT Central Water Management Working Group to exchange information and knowledge on PTT Group's overall water management in order to improve efficiency. ■ Promote and support policies and guidelines for sustainable integrated water management at the national level by networking with government, private, and industrial sectors.
 Investment Risk Strategic investment helps to increase competitiveness, drive growth, and create sustainability for the business in the long term. However, there are risk factors that GC must monitor and manage closely. In addition to ability to finance investment projects while maintaining investment-grade credit rating, GC must also consider efficient management and allocation of investments budget to achieve future growth and increase returns in parallel with achieving balance in sustainability.	■ Institute a stage gate process for prudent and thorough consideration of investments, encompassing opportunity seeking all the way to investment approval according to Corporate Investment Management (CIM) process by the Investment Committee. ■ For significant investment projects involving high capital budgets or encumbered securities which may significantly affect GC's reputation or stakeholders, the Risk Management Committee examines and comments on the risk assessment performed, the sufficiency thereof, and the risk management measures to be implemented. This information is then submitted as part of the investment proposal for approval by the Board of Directors. ■ Conduct analysis, review, and project prioritization with due circumspection to ensure alignment with various trends and economic volatility. ■ Institute sustainability perspective as an investment criterion. ■ Conduct look-back analysis to follow up on and evaluate completed projects in order to enhance GC's project management and increase the chances of success for future projects. ■ Make preparations for financing as well as maintain GC's liquidity according to its financial policy to support future investments.

Risk Factor	Key Risk Management Measures
 Climate Action Towards Net Zero Risk To advance global leadership in sustainability, GC has announced its net zero goal, with the medium term target of reducing emission 20% by 2030 and achieving net-zero emissions by 2050. As such, the risk that must be managed in order to achieve this goal includes the challenges of carrying out projects under GC's three decarbonization pathways: efficiency-driven, portfolio-driven, and compensation-driven as well as uncertainty from unclear government policies in related matters.	■ Monitor sustainability operations of the private sector as well as keep track of government measures, laws, and regulations related to greenhouse gas management through the proceedings of the Sustainability Development Committee (SDC). ■ Advance decarbonization through the operations of ad hoc working groups in five areas: (1) asset and efficiency improvement, (2) low carbon power and heat, (3) portfolio evolution, (4) new technology and CVC implementation, and (5) offsetting. ■ Optimize all processes to reduce resource and energy consumption, introduce new innovations, and discover new low-carbon technology that transcends the limitations of current technology. ■ Support and monitor the progress of energy consumption reduction projects and specify energy reduction as a corporate key performance indicator (KPI). ■ Adjust portfolio towards low-carbon products and businesses by investing in high value businesses, businesses related to bio-products, environmental friendly products, and products made from renewable materials. ■ Include internal carbon pricing as part of its investment considerations and establish special criteria for projects that reduce greenhouse gas emissions. ■ Seek new efficient and low-cost green technology and encourage technological cooperation among companies in PTT Group. ■ Coordinate with the government to suggest and push relevant laws, regulations, and policies.
 People and Organization Risk GC must ensure that its people, organization, and culture are adaptable to changes in the business and work model in order to strengthen its competitiveness and foster sustainable growth.	People ■ Define new skill sets compatible with new work processes and models, assess the knowledge and ability of employees in order to design training programs that can enhance their knowledge and skills, and regularly evaluate the outcomes. ■ Conduct personnel development initiatives, focusing on competency that will aid the successful implementation of each unit's strategies, and promote upskilling/reskilling to prepare employees for future changes in the business. Organization ■ Enhance the flexibility, speed, and efficiency of the operations to keep up with the evolving business and situation, such as by encouraging cross function collaboration. ■ Implement the FiT project for end-to-end lean process improvement and drive digital transformation, with goals, plans, and actions that correspond with one another to ensure maximum efficiency of business operations. ■ Normalize working from home for office workers to create flexibility and accommodate the current situation as well as respond to the needs of the new generation of employees.

Risk Factor	Key Risk Management Measures
	Culture ■ Foster the corporate culture by promoting awareness, understanding, and implementation of GC SPIRIT values among employees at all levels, so that they consistently exhibit the four Core Behaviors. ■ Conduct employee surveys periodically, such as the Work from Home Survey, the results of which are used to make improvements to ensure that employees can work from home efficiently; as well as conduct an Employee Engagement Survey covering a variety of factors comparable to those of world-class companies to improve various work systems in order to make GC a more desirable place to work.

Emerging Risk

GC has analyzed emerging risks that could have significant impacts on business operations in the next three to five years and has established effective risk management measures to ensure responsiveness to emerging situations and enable GC to achieve its defined strategic goals and directions.

Risk Factor	Key Risk Management Measures
 Climate Risk Drastic global climate change has resulted in more severe and frequent natural disasters, leading to a common goal among different countries to reduce greenhouse gas emissions. The Thai government has set a goal to become a carbon neutral country by 2050 and to achieve net zero emissions by 2065. This has resulted in the issuance of policies and amendments in laws and regulations to address environmental issues more actively. In addition, concerns about environmental issues have resulted in a significant shift in consumer behavior as both consumers and entrepreneurs are directing their interests towards environmentally friendly products.	GC has analyzed internal and external risk factors to identify significant impacts of climate change on business operations by performing qualitative and quantitative climate-related scenario analysis on models such as RCP 2.6, IEA 2DS, and IEA B2DS. The results are used to project hypothetical scenarios, establish goals, and formulate business strategies and direction to ensure adaptability and properly respond to stakeholder expectations. This is done in accordance with the guidelines of the Task Force on Climate-Related Financial Disclosures (TCFD). Risk management measures and relevant opportunities are detailed below: Physical Risks ■ Prepare and conduct drills of business continuity management plans for different scenarios at the corporate and business unit levels as well as among companies within GC Group to ensure that measures or plans to mitigate impacts on customers and stakeholders are adequate and practical; and inform the management and relevant employees of their roles, duties, and protocol in the event of an incident as well as preemptively identify and rectify any shortcomings in the contingency plan. ■ Work with consultants to assess the likelihood of natural disasters and estimate their impacts on both GC's assets and business operations in order to monitor and prepare for any potential disaster.

Risk Factor	Key Risk Management Measures
	Transition Risks Laws, Regulations, and Policies ■ Track and assess both the short-term and long-term impacts and opportunities created by climate change policies, as well as continuously review and monitor the outcomes of GHG emission reduction strategies in accordance with policies and regulations. ■ Conduct greenhouse gas emission accounting in accordance with ISO 14064-1:2018, the Greenhouse Gas Protocol, American Petroleum Institute (API 2009), the Intergovernmental Panel on Climate Change (IPCC) 2006, and Thailand Greenhouse Gas Management Organization (Public Organization), or TGO, to establish guidelines for GC's greenhouse gas management. Technology ■ Enhance efficiency and improve current production processes by introducing new technologies and innovations for GHG emission reduction. ■ Study and seek opportunities to invest in new efficient and low-cost green technology. Market ■ Reduce the production of plastic resin for single-use plastic products and increase the production of plastic resin for durable or semi-durable goods instead. ■ Adjust GC's investment portfolio towards low-carbon businesses to meet evolving consumer needs, such as high value businesses (HVB), high value products (HVP), bioplastics, and recycled plastic, etc. Reputation and Corporate Image ■ Carry out education and public relations projects, such as Upcycling the Oceans, ThinkCycle Bank, and Thailand Public-Private Partnership for Plastic and Waste Management, and GC Circular Living Symposium 2022 to reinforce its image as a leader in sustainability. Opportunities Resource Efficiency and Energy Source ■ Carry out various environmental projects, such as Map Ta Phut Integration (MTPI) and energy-saving projects, to improve operational efficiency and reduce resource and energy consumption, greenhouse gas emissions, and production costs. Products and Services ■ Establish a Customer Solution Center (CSC) to learn about and address consumer needs through cooperation with customers and partners in designing and adding value to products made from plastic waste in order to expand business opportunities. ■ Collaborate with global tech startups and venture capital (VC) to upgrade the capability to develop low-carbon and environmentally friendly products that are safe for consumers.

Risk Factor	Key Risk Management Measures
	Market ■ Increase investment in the development of low-carbon products with the goal of raising investment in this business unit to 35% by 2030, particularly in low-carbon production technology and green products, such as biofuel and bioplastics, as well as recycled, high performance, and upcycled products in order to create shared value for users and comply with the sustainability framework. ■ Advance the business towards sustainability by working with the allnex team to drive growth and elevate GC's technology to advanced green innovation, as well as seek continuous growth in new markets and develop coatings that meet environmental requirements. ■ Study and keep abreast of emerging businesses resulting from the trend towards low-carbon businesses in order to create sustainable growth for the business in the future. Resilience ■ Escalate investment in high value businesses (HVB) through mergers and acquisitions (M&A), focusing on products with high growth rates and profitability, low price volatility, and low carbon emissions.
 Consumer Trends Risk Environmental awareness trends among consumers, accelerating energy transition, advances in electric vehicle and battery technology, and government policies and support for the development of low-carbon technology, to maximize the efficiency of resource utilization and reduce environmental impact have resulted in the lowering of future demand for GC's petroleum and petrochemical products, such as fuels and single-use plastic resin.	GC monitors and analyzes future product demand according to megatrends to inform its strategies and business plans and has discovered that its chemical products are still in line with these megatrends. However, GC has carried out various initiatives to seek new business opportunities and prepare for changes in consumer demand in the future, as detailed below: ■ Increase the production of plastic resin for durable or semi-durable goods to replace the production of plastic resin for single-use plastics. ■ Create opportunities to expand into the recycled plastic product and green products market by setting an investment strategy towards the rPET and rHDPE recycled plastic business. ■ Appoint working groups to study the feasibility and investment details of green business projects to expand into environmentally friendly businesses, seize opportunities arising from the increasing demand for green products, and achieve sustainability leadership position. ■ Implement strategies to expand its investment portfolio towards low-carbon emission businesses, such as high value businesses (HVB) and high value products (HVP). ■ Explore possibility to reduce the proportion of its high carbon emissions businesses by adjusting the business model and seeking partners whose interests are in line with GC's objectives. ■ Collaborate with global tech startups and venture capital (VC) to upgrade the capability to develop low-carbon environmentally friendly products that are safe for consumers.

Risk Factor	Key Risk Management Measures
 Goeconomic Confrontations Competition and polarization among superpowers, global warming and resource scarcity, political tensions in different regions, and the risk of international military conflicts have left countries to face more challenges in economic cooperation. This may affect the economy and GC's business operations in terms of decreased demand for products, supply bottlenecks, investment uncertainty, non-tariff trade barriers, or foreign exchange rate intervention.	■ Closely monitoring and analyzing political tension due to both the war and the possibility of the polarization of the global economy and politics as well as other economic risk factors that may affect its investments and operating results. The company has identified four possible scenarios and assessed their impacts on its business plan and long-term strategy. The relevant situations and factors are monitored, reviewed, and updated regularly. ■ Establish measures that enhance market and product flexibility and optionality, thus enabling GC to adjust its business with ease amid uncertainties and ensure stability in sales and profits. ■ Undertake efficient supply chain management by analyzing the market and forecasting risks in collaboration with suppliers, building relationships with key suppliers, increasing the number of potential suppliers within the region, and entering into long-term contracts to ensure that GC will not face feedstock or spare part shortage. ■ Keep abreast of product standard announcements and trade protection measures of various countries to determine guidelines for coping with government agencies and other relevant agencies. ■ Institute a development plan for human resources through upskilling/reskilling to enhance the capabilities of personnel, prepare them for competition and rapid changes.
 Debt Crises The World Economic Forum (WEF) has forecast that the financial health of both governments and businesses may be faced with risks from higher debt volume due to the economic impact during the COVID-19 pandemic, which may affect liquidity, affordability ratio, financing, and economic growth.	■ Performs sensitivity analysis and stress test on key risk factors that can affect its financial performance, using financial models to evaluate impact on net profit resulting from fluctuations in key factors, such as foreign exchange rates, crude oil prices, and main product prices, in order to identify support measures to alleviate or mitigate potential losses. ■ Identify four possible scenarios and assess their impacts on its business plans and long-term strategies. The relevant situations and factors are monitored, reviewed, and updated regularly. ■ Establish risk management measures covering three main areas, namely price volatility risk, sales and marketing risk, and counterparty risk. ■ Increase competitiveness by reducing the impact of economic factors through various measures covering six areas: feedstocks, production, sales, project investment, cost control, and communication. ■ Push forward its strategy to evolve its business portfolio towards high value performance products and explore opportunities to expand sales to other export markets in order to reduce the impact of volatility as well as increase sales flexibility amid lack of economic liquidity. ■ Put in place a process for reviewing and auditing the risks of key suppliers, using the ESG Assessment and financial health assessment prior to registering a supplier on the vendor list; and assess and monitor liquidity risks on a regular basis. ■ Put in place a process for reviewing and prioritizing investment projects based on various possible economic scenarios, with emphasis on alternative financing options that will not affect GC's credit rating and financial discipline.

GC is confident that the implementation of the above risk management measures can reduce risks and increase business opportunities for sustainable growth. It will also enable GC to achieve its business goals according to the established direction and strategies.

DRIVING BUSINESS TOWARDS SUSTAINABILITY

SUSTAINABILITY MANAGEMENT POLICY AND GOALS

GC continues to pursue our aspiration “to be a leading global chemical company for better living”. We fully support the United Nations Sustainable Development Goals (SDGs) and apply them to all company activities.

GC has also manifested our intent to be a global leader in sustainability. Accordingly, we have integrated Circular Economy and the Environmental, Social, and Governance (ESG) Framework as an integral part of our business operations. In addition, GC has announced the Net Zero Target for scope 1 and 2 emissions by 2050. The company strives to convert our established plans into actions through the four following strategies:

Strategy 1 Efficiency-driven: Enhancing process efficiency, switching to alternative energy, and developing and implementing new low-carbon technology in the production process in order to reduce greenhouse gas emissions with more efficiency.

Strategy 2 Portfolio-driven: Transforming portfolio to low-carbon business in line with the demands of more environmentally conscious consumers through investments in the High Value Business (HVB) group which includes high-performance specialty chemicals, bioplastics, recycled plastics, among others. Furthermore, GC has established product circularity to support our goal to become a low-carbon business and to provide diversified solutions to customers and consumers. By creating product circularity, GC has enabled circular economy through the YOUTURN Platform.

Strategy 3 Compensation-driven: Employing high-efficiency Carbon Capture, Utilization and Storage (CCUS) technology, nature-based solutions, such as reforestation, soil and ocean sequestration, etc., and carbon credit management to deal with excess carbon from production processes and business operations according to the Net Zero Target.

Strategy 4 ESG Leadership: GC emphasizes on adopting international-standard sustainability practices in the Environmental, Social and Governance (ESG) dimensions with balance, delivering sustainable value to the society and extending our success to relevant stakeholders.

- **Environmental:** Focusing on compliance with the Decarbonization Roadmap in order to achieve the Net Zero Target in 2050 through efforts to reduce greenhouse gas emissions, application of Circular Economy principles and sustainable water management.
- **Social:** Emphasizing on continuous value creation for a sustainable society by increasing the proportion of Social Enterprise (SE) to reduce inequality. GC also carries out Corporate Social Responsibility (CSR) projects to promote contributions to the society and support the achievement of the Net Zero Target while raising safety level in operations throughout the value chain. Additionally, GC also plans to conduct an assessment of the social impact/value of these projects and activities to analyze their cost-effectiveness and enhance their efficiency.
- **Governance:** Raising the level of governance and monitoring sustainability performance by expanding the scope of responsibility of sub-committees and extending sustainability practices to subsidiaries. Furthermore, GC plans to promote a sustainability culture within the organization through tangible actions.

GC has uninterruptedly worked on improving our sustainability management performance. As a result, GC has been internationally and nationally rated by credible ranking institutions. At the international level, GC has been ranked No.1 in the Chemical Industry of the Dow Jones Sustainability Indices (DJSI) for the fourth consecutive year, and scored an “A” (Leadership Level), which is the highest ranking, in Climate Change and Water Security based on the assessment framework of the Carbon Disclosure Project (CDP), a globally trusted assessment institute. In terms of our

accomplishments at the national level, GC has been listed on the Thailand Sustainability Investment (THSI) for the eight consecutive year. These awards are a reflection of our sustainable growth that is based on the balance of all three dimensions, namely economic growth, value creation for the society, and excellent environmental management, which are carried out under the principles of Good Governance.

IMPACT MANAGEMENT FOR STAKEHOLDERS

The opinions of our stakeholders are vital to the improvement of our performance and efficiency. Therefore, GC prioritizes reviewing and developing our stakeholder engagement activities and channels annually to ensure that our stakeholders can fully engage by expressing their opinions. In turn, GC addresses these feedbacks with suitability and transparency in order to create shared values between businesses and stakeholders. GC categorizes our key stakeholders into four groups:



1) Shareholder

Expectation	Action and Response
- Conduct business in accordance with Corporate Governance principles, adding value and creating business value. - Prevent and reduce environmental impact from business operations to strengthen capabilities in the business value chain. - Green investments, investments and business activities that promote ESG in line with changing international and national trends to accommodate future risks.	- Comply with laws and regulations of relevant regulatory bodies, create understanding, ensure communication across the Group, and build confidence by disclosing GC's corporate governance performance via various channels. - Continuously review sustainability strategies, integrate business operations with sustainable development that covers ESG, and focus on key business issues that correspond with megatrends, low-carbon society or climate change under the implementation of a clear roadmap according to GC's Net Zero Target. - Plan investments to reduce greenhouse gas emissions, develop and design high-quality, safe, and eco-friendly products, reduce the use of natural resources, add value to products with standards or certifications to create difference and business capability to deliver 'high value, low-carbon products'.



2) Business Partner

Expectation	Action and Response
- Innovative products and services that respond to current market demands and future needs/behaviors of customers/consumers. - Employment of digital technology to provide services to suppliers, business partners and customers to offer maximum convenience and satisfaction. - Products from standardized production and procurement processes with responsibility for the environment and society across the value chain.	- Analyze and monitor customer demands, expectations and satisfaction regularly. Conduct customer satisfaction survey on all product groups in tandem with establishing a seminar to customer covering market analysis, forecasts, and management of current and future risks to develop products, services and solutions as well as encourage customer engagement to meet customer/consumer needs and transition into an eco-friendly business. - Build customer engagement using online platforms, online seminars, Line Official Account with customers, websites and applications. Customers can access and exchange information via secure digital two-way communication channels. - The Supplier Codes of Conduct cover the procurement system as well as business continuity process in order to avoid negative impacts on the economy, society and environment, ensuring customers that GC operates in accordance with standards throughout the value chain.



3) Community, Society, Government, Non-Profit Organization and Press

Expectation	Action and Response
■ Community: Provide assistance to communities, revitalize local economies, create jobs, and share values and growth with communities. ■ Society: Consider environmental impacts, conserve natural resources and conduct business in accordance with ethical principles and in compliance with legal and regulatory requirements. ■ Government/regulatory bodies: Cooperate with the government to take part in promoting the national economic policy (BCG Model) as well as in rehabilitating the country from economic, social and environmental impacts to create sustainability. ■ Non-profit organizations: Business processes and products that yield public benefits and positive impacts on the world and the country. ■ Press: Transparent disclosure of information and performance according to business ethics to create benefits for the society as a whole.	■ Distribute assistance measures, specifically measures dealing with the country's urgent crises, to communities across the country, revitalize local economies by establishing social enterprises, share the values of growth, consider reactions based on community/society satisfaction survey results on an annual basis, and use the Social Return on Investment (SROI) indicator to review CSR projects, covering ESG (Environmental – Social – Governance) dimensions. ■ Form a public-private-civil partnership network through third-party entities, i.e., the Joint Standing Committee on Commerce, Industry and Banking (JSCCIB), the Federation of Thai Industries (FTI), the Thai Chamber of Commerce (TCC), and the Thai Bankers' Association, to discuss significant issues and offer comments, leading to national regulatory/promotional policies that are beneficial for the overall economy and industry. In addition, GC has also collaborated with our partner network to take part in driving national policies. ■ Integrate sustainability issues into business processes, consider sustainability factors in investment management and design products that promote the economy, care for the environment and create value for the society in line with the United Nations Sustainable Development Goals. ■ Share information, news and progress via GC's channels in an accurate and timely manner using a two-way communication system to develop, improve and receive suggestions on our issues/projects.



4) Employee

Expectation	Action and Response
■ Employee physical and mental safety to empower work efficiency. ■ Activities that create engagement with the organization. ■ Employee development, welfare, remuneration, working conditions, fairness and transparency. ■ Conduct business with balanced, stable and sustainable.	■ Measures to care for employee physical and mental health, providing them with the confidence to fulfill their duties with safety and engagement for the organization, specifically focusing on physical health and stress throughout the work from home period during the recent COVID-19 crisis. GC prioritizes and manages employee safety as a key issue using the GC Management System – Process Safety Management Framework. ■ Communicate corporate policies and directions covering issues of importance to employees, provide opportunities for employees to express constructive opinions and change activity formats to coincide more with current circumstances and new way of working. ■ Modify human resources management, prepare employees, and develop skills to accommodate growth and business expansion using the Digital Learning & In-house Training, the Individual Development Plan, and upskilling-reskilling employees through a digital system called DEX Spark – Data Science & Engineering Program. ■ Implement GRC (Governance, Risk Management & Internal Control and Compliance) principles in management according to Good Governance. Manage, monitor and assess performance using Performance Management System tools. ■ Set risk management strategy to accommodate future trends, build strong business ecosystem by driving business to enable growth and generate stable profits on the basis of being a sustainable organization.

SUSTAINABILITY MANAGEMENT IN THE ENVIRONMENTAL DIMENSION



Climate Change Management

GC reaffirms our stance to partake in the Paris Agreement under the United Nations Framework Convention on Climate Change. We have, thereby, set the target to reduce greenhouse gas emissions (scope 1 & 2) by 20 percent within 2030 and achieve the Net Zero Target as well as halving scope 3 emissions by 2050. The company has assessed and disclosed information on risks and opportunities relating to climate change in line with the guidelines of the Task Force on Climate-related Financial Disclosures (TCFD). Furthermore, we have clearly defined short-term, medium-term and long-term policies and strategies pertaining to energy and climate change management. In doing so, the Sustainable Development Committee (SDC) has been appointed to drive these strategies and determine business directions to correspond with the Low Carbon Transition Framework:

- **Efficiency-driven** highlights the implementation of diverse greenhouse gas reduction and energy enhancement projects, such as Energy Conservation, Maptaphut Integration (MTPi), Greenhouse Gas Reduction through Alternative Energy, etc. We stress on energy and utilities management for maximum efficiency, loss reduction during transportation, greenhouse gas emissions reduction, and integrated waste management in order to lower greenhouse gas emissions according to GC's "Together to Net Zero" goal.
- **Portfolio-driven** features investment in the High Value Business (HVB) group and businesses that correspond to the Circular Economy principles. GC also explores opportunities to leverage synergy in order to yield maximum value from current businesses, markets and technologies, such as the acquisition of "allnex" which has high profitability and can respond to consumer needs based on

megatrends. Additionally, ENVICCO, a joint venture between GC and ALPLA, has commenced the full commercial operation of its high-quality recycled plastic resin production plant in 2022. The plant's operations promote the concept of product circularity by reintroducing used plastic into an end-to-end waste management process. This is carried out in tandem with the development of the "YOUTURN Platform" as well as the collaboration with networks and third parties in order to achieve the Net Zero Target while preserving competitiveness and enabling continuous growth.

- **Compensation-driven** covers the continuous implementation of projects to restore and reinforce the balance of forest ecosystems in collaboration with the government, the private sector, the society and communities since 2013, spanning across a total area of 2,500 rai. These projects include the 80-rai Eco-Forest Rayong Wanarom which follows the Eco Forest principle and has been registered in the Thailand Voluntary Emission Reduction Program (T-VER), and the Khao Huai Mahat Forest Restoration and Water Conservation Project. Additionally, GC has also built cooperation with our partner network and made Corporate Venture Capital (CVC) investments in order to gain access to Carbon Capture, Utilization and Storage (CCUS) technology and innovation. Accordingly, GC has invested in Econic Technologies, or ECONIC, which specializes in the development and implementation of advanced carbon capture technology and the efficient transformation of carbon dioxide into raw materials for polymer production process and other products in the polyurethane industry. At the same time, we continue to make investments in other breakthrough technologies with the aim to accomplish the Net Zero Target.



For more information on GC's ESG performance indicators is available at:
Additional information is available in the 2022 Integrated Sustainability Report.
Energy and Climate Change management Page 141-145



For more information on energy management goals is available at:
Additional information is available in the 2022 Integrated Sustainability Report.
Overall Performance of Energy Conservation Projects in 2022 Page 155

Environmental Management

GC has defined a sustainable and eco-friendly business strategy through the establishment of the Quality, Security, Safety, Occupational Health, Environment, and Business Continuity (QSHEB) Policy. GC has also implemented an environmental management system that integrates energy, air, water and waste and efficient resource use.



Sustainable Water Management

GC's One Water Strategy emphasizes on water management governance, water stewardship, and the establishment of a water management network (resilience). The company also promotes an integrated approach in water management and concentrates on optimizing water efficiency in production processes, planning water consumption based on the 3Rs principles and using renewable water through projects, such as Wastewater Reverse Osmosis (WWRO), technological investments, and Second Source Water Project, i.e., Sea Water Reverse Osmosis (SWRO).

Furthermore, GC has built networks with the public, private and industrial sectors, such as the Water and Environment Institute for Sustainability (WEIS), the Federation of Thai Industries, the Water War Room, and the Maptaphut Plant Manager Club (PMC), etc. GC also plays a key role in both local and national water management and planning to drive sustainable water management.



Air Quality Control

GC places priority on air quality management both within our factory and surrounding areas. In doing so, we are continuously developing an air quality control system and setting a management plan to control air quality within the standard criteria during business as usual and turnaround activities. Furthermore, we have also implemented the Green Turnaround measure. In 2022, GC has conducted numerous projects relating to air pollution efficiency, such as developing a plan to eliminate the use of ozone depleting substances by replacing the use of R-22 with non-CFC coolant within 2030, and limit VOCs emissions and leakage by implementing the Code of Practice (CoP) in tandem with collaborating with third-party agencies to minimize benzene and 1, 3-Butadiene emissions from industrial plants. In addition, we have installed a system to collect vent gas from the cumene storage tank for treatment by flaring. This controls the amount of cumene in the atmosphere around the factory within the legal requirement while cumene concentration in the storage area is Non-Detectable (ND).



For more information on water resource management goals is available at:

Additional information is available in GC website
<https://sustainability.pttggroup.com/en/home>



For more information on management of greenhouse gas from production is available at:

Additional information is available in GC website
<https://sustainability.pttggroup.com/en/home>

As a result of GC's continuous implementation of air quality control projects, air pollution emission intensity is continuously declining. Meanwhile, there had been no complaints regarding air pollution from neighboring communities.



Waste Management

GC has developed a waste management policy which incorporates the principles of Circular Economy coupled with the 5Rs principles, comprising Reduce, Reuse, Recycle, Renewable, and Refuse.

In 2022, GC has executed diversified waste management efforts including reusing solid waste as fuel which has contributed to GC's accomplishment of the Zero Industrial Waste to Landfill goal for the eighth consecutive year. The success of this project was further extended to address non-hazardous and solid waste under the Refuse Derived Fuel (RDF) Project which collected over 92 tons of solid waste for RDF. Furthermore, GC also performed the Green Turnaround Project which efficiently contributed to lowering resource consumption and decreasing hazardous and non-hazardous waste from turnaround activities. Besides achieving the Zero Waste to Landfill Goal for eight consecutive years, GC has been invited by the Department of Industrial Works to partake in the enhancement of the national Zero Waste to Landfill standards according to global practices for industrial establishments.



For more information on waste management goals is available at:

Additional information is available in GC website

<https://sustainability.pttgcgroup.com/en/home>

SUSTAINABILITY MANAGEMENT IN THE SOCIAL DIMENSION



Organization Transformation

GC strives to attract high performance employees in tandem with developing their skills and capabilities. We also focus on building a corporate culture and promoting the well-being of employees to cope with the volatility of today's highly competitive and challenging businesses. GC also supports our business strategy to grow sustainably and to position ourselves as one of the leading organizations in the chemicals industry that attract top talents. GC emphasizes on three areas of resource management, namely people, organization, and culture.

People

GC targets to enhance employee efficiency, performance and capabilities which contribute towards the organization's achievement of both current and future business goals. We also focus on recruiting new talents that can empower our business growth. GC has laid out suitable workforce frameworks and control plans, such as the Lean Process Improvement, Digitalization, and Upskilling/Reskilling to enhance employee knowledge and skills in line with the company's directions. In the meantime, we also support all employees in self-education. Additionally, GC places importance on providing care to our employees in all aspects to ensure good experience throughout their life cycle in the organization.

Organization

Adhering to the “Fit, Fast, Flexible & Effective” approach, GC has reviewed and designed a long-term transformation plan to permit faster decision-making. This supports both domestic and overseas business expansion, drive high value businesses and products, and respond to customer needs in a rapid and efficient manner. Additionally, GC has implemented a “Work Anywhere” approach by employing digital technology and other tools to transform the work process to allow employees to “Work from Anywhere” with efficiency. Furthermore, GC has implemented the Smart Office concept and a modern work process in response to the new way of working.

Culture

GC continues to foster a corporate culture that is in line with the GC SPIRIT 4 Core Behaviors through projects and activities with employees at all levels to prepare them for business changes in the long run so that they are capable of providing support to the company’s business strategies, achieve goals and grow sustainably.



Safety and Reliability

GC has established the Quality, Security, Safety, Occupational Health, Environmental, and Business Continuity (QSHEB) Policy and developed a safety management structure and guidelines based on the GC Management System (GCMS), Process Safety Management (PSM) and ISO 45001. We have also raised awareness of safety culture among employees, contractors and key suppliers through activities based

on the B-CAREs concept to upgrade safety operations and achieve our ultimate goal to become a Zero Accident Organization.

Process Safety Management (PSM)

GC has established the Process Safety Management (PSM) Group & Subsidiary Taskforce as a guideline in process safety management for subsidiaries. We have also shared the PSM Good Practice to subsidiaries, enabling them to upgrade their PSM performance through exchange of knowledge, experience and practices in PSM. Additionally, GC has required that all operating sites (21 sites) should conduct projects to improve or correct problems relating to operational discipline or the B-CAREs safety culture. In 2022, outstanding PSM projects include OD/B-CAREs Project Implementation, OD Baseline Assessment, and PSM Self Internal Audit and Bowtie Barrier Validation.

Personal Safety

GC stresses on the safe working behavior of all operators and contractors. We have established the Management Safety Leadership Commitment for each level of the management, strengthened safety culture through the B-CAREs Strengthen scheme and encouraged operators’ engagement in safety. We have converted the OD Characteristics of employees and contractors into practice according to their roles and duties at each level of the project, leading to the achievement of the Zero Incident, Zero Complaint, Zero Unplanned Shutdown (Zero ICU) Target. In 2022, GC has carried out projects such as “B-CAREs in Action by OD” to communicate and share knowledge to employees and contractors, instill shared values within the organization, promote a safety culture, enable self-monitoring and control of safety, “Pre-Task Planning Checkpoint” which details the “Dos and Don’ts” of each type of work that involves high risks or frequent accidents as well as other projects to strengthen personal safety.

Human Rights Management along the Value Chain

GC’s human rights management policy has been conceived in accordance with the UN Guiding Principles on Business and Human Rights (UNGPR).

It has been applied across the value chain to prevent human rights violation within the Group, relevant businesses (joint ventures, mergers & acquisitions), business partners (suppliers, contractors, customers), and local communities.

GC conducts Human Rights Due Diligence (HRDD) and assesses human rights risks in all activities across the supply chain covering all six aspects of human rights, namely labor rights, community rights, supply chain, safety, environment, and consumer rights. Upon preparing impact control and mitigation measures, GC performed an assessment on the residual risks and found one high residual risk, namely vehicle accidents in the operating sites, and six residual risks at a medium level as follows:

1. Turnaround-related issues
2. Wastewater pollution in Maptaphut area
3. Direct and indirect illegal forms of labor in the procurement of raw materials, products and services
4. Discrimination against suppliers providing products and other services
5. Oil leakage/spill
6. Possibility of customer data leakage

Such risks have obliged GC to execute measures and guidelines for effective control and mitigation, requiring strict compliance from relevant departments and parties to ensure that none of our business activities across the supply chain is in violation of human rights.

Contribution to Society

GC is committed to conducting business with responsibility in adherence to the principle of Social Enterprise (SE) by implementing the organization's innovations and expertise as well as optimizing the utilization of current resources according to Circular Economy (CE). Concurrently, GC focuses on generating and returning income to the communities and the society, improving the quality of life, solving environmental problems, and managing plastic waste, which will lead to a sustainable and low-carbon society. GC also places importance on building relationships and engagement with all sectors. Our CSR projects are prioritized based on three key components, namely Better Living, Sharing and Ecology, covering the economic, social and environmental dimensions.

Better Living

GC has conducted the Community Waste Model project to promote end-to-end waste management in communities under the YOUTURN Platform, beginning with the establishment of a Recycle Hub at Wat Chak luk ya Community, which is the model community in end-to-end waste management founded in 2020. The model has been applied to four other locations in Rayong and Nakhon Pathom provinces. Consequently, the project collected over 70 tons of used plastic bottles and more than 80 tons of other recyclable waste for recycling at GC's international standard recycling plant, ENVICCO. This has promoted employment, created jobs for the community and generated an income of more than 67,000 baht per month per hub for the Social Enterprise, with a Social Return on Investment (SROI) of 0.86. GC plans to further continue extending this model to other communities and targets to set up a total of 50 Recycle Hubs by 2027.

Sharing

GC shares ideas and innovations to create value for communities and the society so that they may grow sustainably alongside industries. Highlight actions include the collaboration with Maptaphut Community Enterprise for Biological Utilization to resolve air pollution due to the burning of branches by the community. Under this project, GC encourages employees to volunteer in the development and design of effective charcoal kilns that render lower combustion period and release less smoke when compared with conventional methods. Furthermore, the smoke can be used to repel insects in the farms. GC also held trainings to educate the community on the use of the charcoal kilns as well as other necessary knowledge. The community is provided with a burning log book to record the use of the kilns and calculate post-burning carbon emission rates. In 2022, GC delivered three 200-liter kilns to farmers in the community and expects to hand over seven more to the social enterprise. Additionally, GC collaborated with the Luffala Community Enterprise, the Nong Fab Community, the Hom Mahad Group, and the Khao Phu Don-Khao Huai Mahat Community to develop eco-friendly and healthy products under the Rayong Organic Living Project, such as LUFFALA Skincare, LUFFALA Room Diffuser: Recreation Series, aromatic essential oils, and LUFFALA

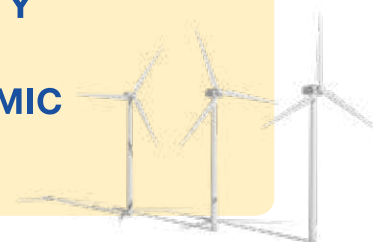
Hygiene liquid hand soap. This collaboration takes into account the concept of sustainability and connects the environment, community, society and economy from upstream to downstream. The project employs the Smart Farming concept to control cultivation quality in order to promote high-quality organic herbs. The Social Return on Investment (SROI) of this project is 4.02, generating an income of 3.5 million baht per year for the communities and community enterprises in Rayong province.

Ecology

GC has joined forces with our partners, including government agencies, academic institutions and local communities in Rayong province to carry out the “GC Community-based Water Management” project since 2017. The project aims to alleviate floods and droughts, contribute to the provision of adequate clean water for consumption, and raise local awareness about conserving water sources and using water wisely through various activities. Under the project, check dams have been constructed using GC’s innovative plastic flapped sacks while improvements have been carried out on local weirs. Furthermore, GC has also conducted the Groundwater Bank Project which creates a water catchment area to allow more rainwater to seep through the soil layer at a faster pace. This adds water to both surface and underground wells. The Groundwater Bank Project won the Communitas Awards 2022 from USA in the category of Excellence in Corporate Social Responsibility for Ethical and Environmental Responsibility (Sustainability). GC is the only company in Thailand and stands among one of the five Asian countries to have received this award. Furthermore, the project also won the Provincial Government Model in Systematic Water Management Award for the fiscal year 2022.

In this regard, GC has developed a five-year CSR Transformation to Social Enterprise Plan (2021-2025) to transform CSR operations by focusing 70 percent of the effort on social development in creating business value and 30 percent on donations to the society. Ultimately, we aim towards becoming the Partner of Choice by 2025.

SUSTAINABILITY MANAGEMENT IN THE ECONOMIC DIMENSION



Innovation Management

GC emphasizes on innovation investment and development to strengthen our competitiveness and support the achievement of our Net Zero Target under the Innovation Management Strategy which comprises 1) New Technology Uplift, 2) Market-focused Innovation, and 3) Technology Integration.

Furthermore, GC also enhances employee capacity and capabilities in support of our innovation development endeavors. Accordingly, we encourage cooperation in innovation research and development with networks and third-party agencies or experts as well as direct and indirect investment in innovation. This year, GC has signed a Memorandum of Understanding to conduct a feasibility study on the application of Carbon Capture and Storage (CCS), or CCS Hub Model, with PTT Group in an effort to achieve the Carbon Neutrality Target and the Net Zero Target. In addition, we have made investments in the form of corporate venture capital (CVC).





Sustainable Product and Service and Product Stewardship

GC strives to research and develop products to meet the needs of our customers. Accordingly, we welcome feedbacks and in-depth demands from our customers through the Customer Solution Center (CSC) and other channels of communication, such as Voice of Customer (VoC) and CRM Mobile Application, to accommodate the changing needs of consumers. We focus on developing innovation, Circular Economy and implementing the product stewardship practice which emphasizes on the value-added applications of products in tandem with the reduction of carbon footprint of end-products. In doing so, we rely on an Eco-design Guideline coupled with the Life Cycle Assessment (LCA) and the control of hazardous chemicals throughout a product's life cycle in line with the International Council of Chemicals Association (ICCA). Furthermore, we support the creation of product circularity and net zero business operations to lessen impact on the environment and society throughout a product's value chain.



Highlight examples of GC's innovations in 2022 include the upcycling of used plastic from the YOUTURN Platform to create eco-designs in collaboration with 8 "Experts of Style" in Fashion & Lifestyle, Adventure & Traveling, and Home & Living; Bioplastics Toothbrush which are bio-based products under the brand Venture; and Post-Consumer Recycled Resin (PCR Resin) which features transforming plastic waste into plastic resins and delivering them to customers for further production under the concept of Circular Economy. They can replace ordinary plastic resins in the molding of packaging. Besides supporting Circular Economy, the PCR resins also contribute to decreasing resource and energy consumption as well as waste generation. The packaging of "Mistine" body lotion is an example and the first product in Thailand to be manufactured from the PCR resins.

GC has also adopted customer suggestions to streamline the efficiency of our customer relationship management operations. We have conducted customer satisfaction surveys using the eQTM Index based on international standards in monitoring performance. The survey indicated that customer satisfaction remains higher than the average of other companies in the same industry group at 93 percent.



Additional information on GC's sustainable operations is available in the 2022 Integrated Sustainability Report.



MANAGEMENT DISCUSSION AND ANALYSIS

EXECUTIVE SUMMARY

In 2022, The Company commenced to report the performance by segment into five new business groups, including Upstream, Intermediates, Polymers & Chemicals, Bio & Circularity, and Performance Chemicals, which aligns to the strategic direction and long-term growth target of the Company.

In 2022, the Company had total sales revenue of Baht 678,267 million, increased by 46% from previous year due to several factors such as the global economic recovery with the economy now re-opened and demand increased. Another factor was the Russia-Ukraine conflict has triggered a global energy crisis. This led to a surge in both Petroleum products price and Petrochemical products, in line with the rise in oil price. In 2022, the Company also started the consolidation of allnex's financial performance. In 2022, the Company had Adjusted EBITDA of Baht 49,134 million, decreased by 13% from previous year. Overall performance of Upstream Business remained strong, however the spreads weakened for all major petrochemical products, especially in Intermediate and Polymers & Chemicals businesses. The main reasons were the higher production costs, China's zero-COVID policy's adverse impacts on the demand, the oversupply situation, and the concerns over a global recession. The Company had Net Operating Profit Recurring (excluding Stock Loss Net NRV, Foreign Exchange Loss and Gain from financial derivative, Loss from commodity hedging, and Extraordinary items) of Baht 18,984 million. However, the Russia-Ukraine war caused a surge in oil price and push up the spread of Petroleum products, especially in Q2/2022. As a result, the Company had Loss from commodity hedging of Baht 23,057 million as the market product spreads were higher than the hedged price especially during the first half of 2022 when Russia-Ukraine tension started. The Company recorded Stock Loss Net NRV of Baht 3,657 million, Net loss from Foreign Exchange and financial derivatives of Baht 313 million. Additionally, the Company had Share of Profit from Investments at Baht 2,908 million, decreased from previous year due

to a slowdown in Petrochemical business. The Company had extraordinary items totaling to Baht 893 million. Consequently, the Company recorded Net loss in 2022 at Baht 8,752 million (Baht -1.94/share).

In 2022, Upstream Business performance remain stable compared to the previous year. This was mainly from the improvement in the Refining business's performance from the increase in GRM, which offset with the decline in the Olefins & Aromatics business's performance due to lower product spread from the higher production cost and the weaker downstream demand. Moreover, this year the Company has planned maintenance shutdowns at Upstream business including Refinery, Aromatics plant 1 and Olefins plant 3.

Intermediates Business performance decreased from previous year. The end use markets of Intermediate business, which includes automotive industry, construction industry, electrical industry, and electronics industry, mainly in China, were impacted by weak demand followed China's zero-COVID policy and the concerns over a global recession. On the supply side, the oversupply situation continued to persist. Additionally, the Company has planned maintenance shutdowns at Intermediates Business including, Phenol plant 2, BPA Plant, Monoethylene Glycol plant, and Propylene Oxide plant.

Polymers & Chemicals Business performance decreased from previous year. Plastic resins prices increased with the upward feedstock trend. However, product spreads were still under pressure from China's zero-COVID policy, concerns over a recession, along with the oversupply situation.

Bio & Circularity Business performance increased compared to previous year due to the increased in sales and fatty alcohols spread, in line with the upward demand trend as the economy has recovered. In addition, Performance Chemicals Business performance increased from previous year mainly due to the start of the consolidation of allnex Holding GmbH (allnex) in 2022.

Performance Summary

(Unit : MB)	2021	2022	YoY % +/(-)
Sales Revenue	465,128	678,267	46%
EBITDA	61,141	22,420	-63%
EBITDA Margin (%)	13%	3%	-10%
Share of profit /(loss) of investments in JV and Associates	6,993	2,908	-58%
Net Profit/(Loss)	44,982	(8,752)	-119%
EPS (Baht/Share)	10.01	(1.94)	-119%
Adjusted EBITDA*	56,627	49,134	-13%
Adjusted EBITDA Margin (%)	12%	7%	-5%

Note: * Adjusted EBITDA refers to EBITDA excluding Stock gain/(loss), NRV, Gain/(loss) from commodity hedging, and Extra item.

Adjusted EBITDA by Business Unit

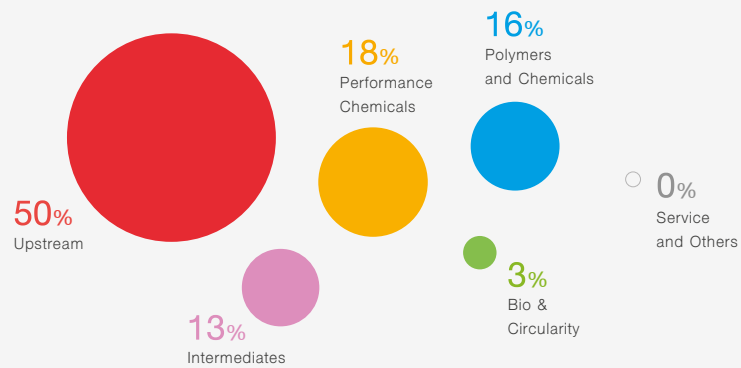
Adjusted EBITDA Margin by Business Unit	2021	2022	YoY % +/(-)
Adjusted EBITDA (MB)			
Upstream	22,826	21,616	-5%
Intermediates	19,029	5,049	-73%
Polymers & Chemicals	11,819	7,580	-36%
Bio & Circularity	1,497	1,579	5%
Performance Chemicals	1,779	10,667	>200%
Service and Others	(323)	2,643	>200%
total	56,627	49,134	-13%
Adjusted EBITDA margin (%)			
Upstream	9	6	(3)
Intermediates	22	6	(16)
Polymers & Chemicals	11	7	(4)
Bio & Circularity	8	7	(1)
Performance Chemicals	13	9	(4)
Average	12	7	(5)

Note: Adjusted EBITDA refers to EBITDA excluding Stock gain/(loss), NRV, Gain/(loss) from commodity hedging, and Extra item.

FY 2022

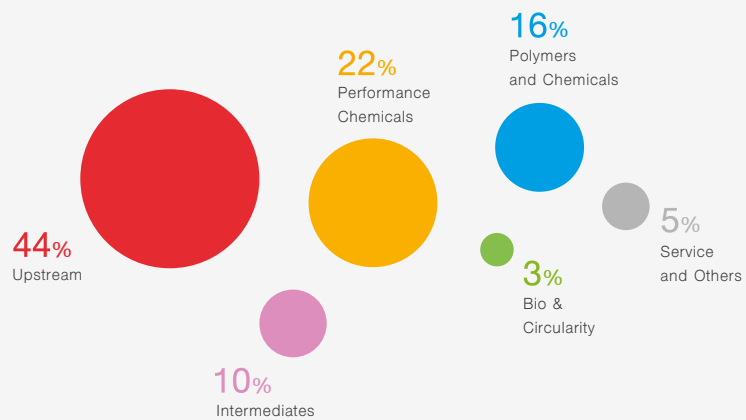
SALES REVENUE

678,267 MB



ADJUSTED EBITDA

49,134 MB



PERFORMANCE ANALYSIS BY BUSINESS UNIT

Upstream

Price, Product Spreads and Performance of Upstream

	2021	2022	YoY % +/-
Dubai Crude Oil (\$/bbl)	69.2	96.3	39%
Diesel-Dubai (\$/bbl)	6.7	34.3	>200%
LSFO-Dubai (\$/bbl)	12.6	22.5	78%
Gasoline-Dubai (\$/bbl)	11.0	18.8	72%
Jet-Dubai (\$/bbl)	5.8	30.3	>200%
Market GRM (\$/bbl)	3.8	12.1	>200%
Condensate (\$/ton)	596	830	39%
Paraxylene (FECF)-Condensate (\$/ton)	259	275	6%
Benzene-Condensate (\$/ton)	318	198	-38%
BTX P2F (\$/ton)	153	85	-45%
Naphtha (MOPJ) (\$/ton)	646	785	22%
Ethylene (SEA) (\$/ton)	1,008	1,054	5%
Propylene (SEA) (\$/ton)	966	1,008	4%
Hedging Gain/(Loss) (MB)	(1,355)	(23,057)	<-200%
Stock Gain/(Loss) and NRV (MB)	5,981	(3,197)	-153%
Adjusted EBITDA* (MB)	22,826	21,616	-5%
Adjusted EBITDA (%)	9%	6%	-3%
Petroleum Product Sales Volume (million bbl)	53.35	50.84	-5%
Petrochemical Product Sales Volume (million ton)	5.55	5.11	-8%

Note: * Adjusted EBITDA refers to EBITDA excluding Stock gain/(loss), NRV, Gain/(loss) from commodity hedging, and Extra item.

For Upstream Business in 2022, the Adjusted EBITDA was Baht 21,616 million, which decreased from the previous year by 5%, and the Adjusted EBITDA Margin was at 6%. The overall product sales volume decreased from 2021. The Company's petroleum product sales volume was lower at 50.84 million barrels due to the planned maintenance shutdown of Refinery in Q4/2022. The Company's petrochemical product sales volume of 5.11 million tons decreased from 2021 due to the planned maintenance shutdown of Aromatics 2 in Q2/2022 and the planned maintenance shutdown of Olefins 3 in Q2/2022. The performance decreased as follows:

1. For the Refinery business in 2022, the performance increased from 2021 resulting from an increase in main product spreads which included Diesel, Jet fuel, Low Sulfur Fuel Oil, and Gasoline spread mainly due to the conflict between Russia and Ukraine which led to a decline of market supply. While the market demand increased due to the lowering trend of COVID-19 infections and the re-opening of cities in many countries, even the market was pressured by economic recession and inflation. The Company had the planned maintenance shutdown of the Refinery in Q4/2022 for 49 days. The Company's Market GRM increased to 12.1 USD per barrel.

2. For the Aromatics business in 2022, the performance decreased from the previous year resulting from a decline in Paraxylene and Benzene over Condensate spread due to lower demand of the Polyester textile market from the COVID-19 infections throughout the year and zero-COVID policy in China which are the main pressure factors in the downstream market despite the reduced operating rate of some producers. While Benzene was pressured by a weak downstream market. In 2021, the market was supported by economic recovery even though the energy consumption control policy was implemented in China. The Market P2F decreased to 85 USD per ton.
3. For the Olefins business in 2022, the performance decreased from 2021 resulting from the feedstock price increased with the higher of Crude oil price while the downstream market was impacted by the zero-COVID policy in China and global economic recession even though some Ethylene producers reduced their operating rates. The Company completed the planned maintenance shutdown of Olefins 3 in 2022 resulting in lower sale volume compare with 2021.

Intermediates

Price, Product Spreads and Performance of Intermediates

(Unit : USD per ton)	2021	2022	YoY % +/(-)
Mono-ethylene glycol (MEG -ACP)	846	903	7%
MEG - 0.65 Ethylene	191	218	14%
Phenol	1,178	1,309	11%
Phenol spread*	448	357	-20%
Bisphenol A (BPA)	2,889	1,860	-36%
BPA spread**	1,649	553	-66%
Propylene Oxide (PO)	2,086	1,230	-41%
Purified Terephthalic Acid (PTA)	669	845	26%
PTA - 0.67PX	96	105	10%
Acrylonitrile (AN)	2,239	1,706	-24%
AN - Propylene	1,273	697	-45%
Methyl Methacrylate (MMA)	1,985	1,874	-6%
MMA - Naphtha	1,339	1,089	-19%
Adjusted EBITDA (MB)	19,029	5,049	-73%
Adjusted EBITDA (%)	22%	6%	-16%
Sales Volume (Kton)	2,961	2,874	-3%
Share of gain/(loss) from investment (MB)	1,352	(592)	-144%

Note:

* Phenol spread derives from Phenol-0.878 BZ-0.474 Propylene+0.616 Acetone

** BPA spread derives from BPA-0.853 Phenol-0.273 Acetone

For Intermediates Business in 2022, the Adjusted EBITDA was Baht 5,049 million, which decreased from the previous quarter by 73%, and the Adjusted EBITDA Margin was at 6%. The overall product sales volume was approximately 2,874,000 ton which decreased from 2021 by 3% due to the planned maintenance shutdown of Monoethylene Glycol plant, Phenol plant unit 2, and Propylene Oxide plant in this quarter.

The overall market of Intermediates product in 2022 was weak compared to the market in 2021 due to the dampening demand impacted by the global economic slowdown, the COVID-19 outbreak, and the new supply of Phenol and Propylene Oxide segment that entered the market this year. Besides, the market situation of Phenol in 2021 was under-supply because of the Polar-Vortex disruption and the implementation of energy consumption control policy in China that led to production cut or curtailed of some Phenol producers.

Polymers & Chemicals

Price, Product Spreads and Performance of Polymers & Chemicals

(Unit : USD per ton)	2021	2022	YoY % +/(-)
Average Polyethylene (PE)	1,299	1,280	-1%
High-Density Polyethylene (HDPE)	1,181	1,203	2%
HDPE-Ethylene	172	148	-14%
Linear Low-Density Polyethylene (LLDPE)	1,200	1,208	1%
LLDPE-Ethylene	192	154	-20%
Low-Density Polyethylene (LDPE)	1,516	1,428	-6%
LDPE-Ethylene	507	373	-26%
Polyethylene Terephthalate (PET)	975	1,097	12%
Polypropylene (PP)	1,321	1,206	-9%
PP- Naphtha	675	421	-38%
Polyvinyl Chloride (PVC)	1,419	1,103	-22%
PVC-0.5Ethylene	915	576	-37%
Polyols	2,465	1,656	-33%
Polyols-0.92PO	546	525	-4%
Adjusted EBITDA (MB)	11,819	7,580	-36%
Adjusted EBITDA (%)	11%	7%	-4%
Sales Volume (Kton)	2,353	2,199	-7%
Share of gain/(loss) from investment (MB)	3,036	1,598	-47%

For Polymers and Chemicals Business in 2022, the Adjusted EBITDA was Baht 7,580 million, which decreased from 2021 by 36%, and the Adjusted EBITDA Margin was at 7%. The overall product sales volume was approximately 2,199,000 ton which decreased from 2021 by 7%.

The Polymers market in 2022 was under pressure mainly due to lower PE spread, which decreased from

2021 by 1% even though crude oil prices was higher this year. Although the lowering trend of COVID-19 infections and the re-opening of cities in many countries, PE price was pressured by a new supply, zero-COVID policy in China, and concerns about global economic recession. For the Polyols market in 2022, the oversupply and slowdown of market demand led to a decline in Polyols price compared with the previous year.

Bio & Circularity

Price, Product Spreads and Performance of Bio & Circularity

(Unit : USD per ton)	2021	2022	YoY % +/(-)
Methyl Ester (ME) P2F (THB per Kilogram)	3.1	3.4	10%
Fatty Alcohol (FA) P2F	275	514	87%
Adjusted EBITDA (MB)	1,497	1,579	5%
Adjusted EBITDA (%)	8%	7%	-1%
ME Sales Volume (Kton)	323	293	-9%
FA Sales Volume (Kton)	86	97	13%
Share of gain/(loss) from investment (MB)	1,523	1,326	-13%

For Bio and Circularity Business in FY2022, the Adjusted EBITDA was Baht 1,579 million, which increased from the previous year by 5%, and the Adjusted EBITDA Margin was at 7%. This was supported by Fatty Alcohol P2F improved significantly and the increase in sales volume of Fatty Alcohol due to the longer shutdown period to change Catalyst in 2021 (Q1/2021 and Q2/2021). In addition, to accelerate the sales volume, the Company shift sales destination

to other countries apart from China where COVID-19 pandemic was severe, led to the higher sales volume of FA compared with previous year. However, Methyl Ester sales volume decreased by 9% from previous year as the B5 biodiesel mandatory was implemented since February 5, 2022 to October 9, 2022 and changed to B7 afterwards, while the B10 biodiesel mandatory was stipulated for basic biodiesel blending and B6, B7, or B20 for alternative biodiesel blending.

Performance Chemicals

Price, Product Spreads and Performance of Performance Chemicals

(Unit : USD per ton)	2021	2022	YoY % +/(-)
Adjusted EBITDA (MB)	1,779	10,667	>200%
Adjusted EBITDA (%)	13%	9%	-4%
Sales Volume (million ton)	49	837	>200%
Share of gain/(loss) from investment (MB)	(36)	(20)	44%

Note: the Company realized allnex performance since January 2022.

For Performance Chemicals Business in 2022, the Adjusted EBITDA was Baht 10,667 million, which increased from the previous year by over 200%, and the Adjusted EBITDA Margin was at 9% due to the consolidation of allnex's performance since January 2022, attributed to higher performance of Performance Chemicals compared with last year. In term of demand in 2022, it was impacted by the global economic recession and inflationary factors, direct and indirect

impact from the Russia and Ukraine war, COVID-19 lockdown in China and lower Automotives OEM volumes impacted by micro-chips shortages in the first half of 2022. These impacts led to the lower sales volume in 2022. However, allnex is able to contribute stable margin per unit, leading to the Adjusted EBITDA Margin of Performance Chemicals at 11% in 2022, excluding one-time expense from the purchase price allocation to inventories.

OPERATING PERFORMANCE

Unit : MB	2021	2022	YoY % + /(-)
1 Sales Revenue	465,128	678,267	46%
2 Feedstock cost	(341,893)	(521,512)	53%
3 Product to Feed Margin	123,235	156,755	27%
4 Variable Cost	(34,107)	(51,148)	50%
5 Fixed OH	(18,556)	(32,542)	75%
6 Stock Gain/(Loss) and NRV	5,955	(3,657)	-161%
7 Gain/(Loss) on Commodity Hedging	(1,440)	(23,057)	<-200%
8 Other Revenue	4,932	7,527	53%
9 SG&A Expenses	(18,878)	(31,458)	67%
10 EBITDA	61,141	22,420	-63%
11 Depreciation & Amortization	(23,593)	(26,646)	13%
12 Loss from impairment of assets	(1,886)	-	-100%
13 Provision of contingent liabilities-Subsidiary	(444)	-	-100%
14 Gain on shares purchase	-	939	100%
15 Gain on sale of investment	10,201	-	-100%
16 Gain from investment reclassification	10,565	848	-92%
17 Technical incident in the warehouse construction project	-	(894)	100%
18 EBIT	55,984	(3,333)	-106%
19 Net financial expense	(5,434)	(9,171)	69%
20 FX Gain (Loss)	(4,765)	(313)	93%
21 Share of gain/(loss) from investment	6,993	2,908	-58%
22 Corporate Income Tax	(7,228)	2,273	-131%
23 Net Profit/(Loss) after Tax	45,550	(7,636)	-117%
24 Profit/(loss) attributable to:			
Non-controlling interests	568	1,116	96%
25 Owners of the Company	44,982	(8,752)	-119%
26 Adjusted EBITDA*	56,627	49,134	-13%

Note: * Adjusted EBITDA refers to EBITDA excluding Stock gain/(loss), NRV, Gain/(loss) from commodity hedging, and Extra item.

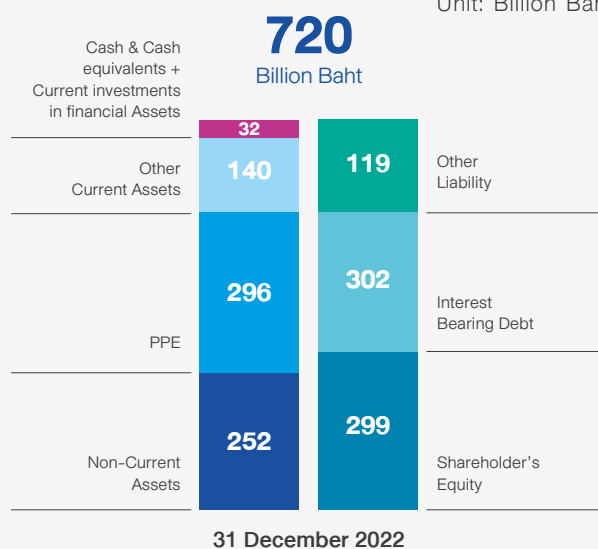
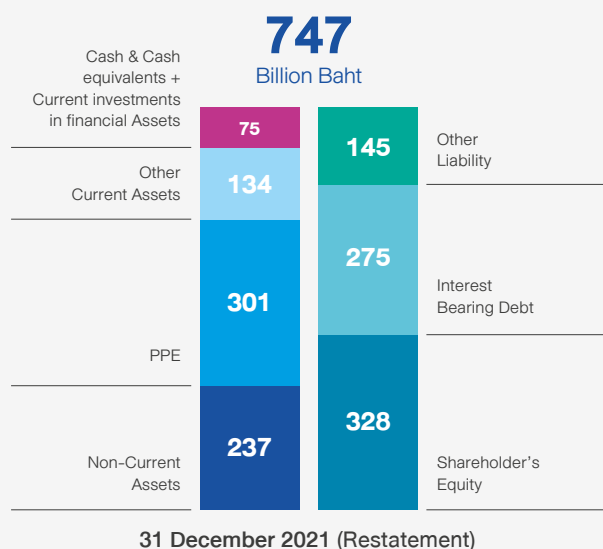
In 2022, the Company had higher sales revenue of Baht 678,267 million than in 2021 mainly due to the increase in petroleum products price in the Upstream business, and the Performance Chemicals business increased from the consolidation of allnex's financial performance in 2022, which led to higher revenue of the Performance Chemicals in 2022. Fixed overhead and SG&A expenses went up from 2021 due to the consolidation of allnex's expenses and maintenance expenses from the planned maintenance shutdown. Also, the Company had Stock Loss Net NRV for 3,657 million Baht and Loss from commodity hedging of Baht 23,057 million due to fluctuation of Dubai crude oil prices. For extraordinary items in 2022 were mainly the transactions occurred in Q4/2022 including 1) Gain of

Baht 939 million from the acquisition of shares of AGC Vinithai Public Company Limited (AVT) by private placement which increased the Company's holdings in AVT to 32.72% from 27.32% 2) Gain of Baht 848 million from the reclassification of investment in Thai Tank Terminal Company (TTT), which the Company's holdings in TTT decreased to 36.43% from 51%. The Company reclassified the investment in TTT from subsidiary to Joint Venture company resulted to the reassessment of its fair value on the date of this reclassification. For 2021, the Company had extraordinary items from Gain of Baht 20,766 million from the sales of ordinary shares of 12.73% in Global Power Synergy Public Company Limited (GPSC), and the reclassification of the remaining investment shares of 10%.

Statements of Financial Position

Balance sheet

Unit: Billion Baht



Assets

As of December 31, 2022, the Company had total asset of Baht 719,965 million, decreased by 4% or Baht 27,515 million from December 31, 2021 and variance of the assets were described as follows:

- Total Current asset decreased by Baht 37,083 million mainly due to 1) a decrease in Cash and Cash Equivalents and Current Investments in financial assets by Baht 43,032 million due to USD bond redemption by USD 1,000 million in September 2022 (refer to cash flows analysis) 2) a decrease in Account Receivable by Baht 5,287 million due to the overall products price decreased 3) Inventories was increased by Baht 5,066 million due to higher crude oil prices.
- Property plant and equipment decreased by Baht 4,721 million mainly due to depreciation for the year of Baht 10,382 million, while the projects in progress that were completed during the period was Baht 5,446 million.
- Non-current asset increased by Baht 14,289 million from 1) Right-of-use assets increased by Baht 14,235 million due to the allnex's assignment from Intangible assets to Right-of-use assets and the extension of the long-term service agreement with TTT, 2) Other non-current financial assets decreased by Baht 4,695 million due to the fair value measurements on the investment in Global Power Synergy Public Company Limited (GPSC), 3) the currency conversion of allnex, which led to a decrease in intangible assets by Baht 4,899

million and goodwill by Baht 1,975 million due to the appreciation in Baht currency against Euro from the end of 2021, 4) there was an increase in investments in subsidiary, associate, and other companies by Baht 11,731 million from purchase of ordinary shares in AGC Vinythai Public Company Limited (AVT).

Liabilities

As of December 31, 2022, the Company had total liabilities of Baht 421,138 million, increased by Baht 1,260 million from December 31, 2021 and movements of liabilities were as follows:

- Interest-bearing debt increased by Baht 26,479 million (including Lease liabilities) due to 1) Bonds issuance and Debt financing increased from 2021 by Baht 12,530 million, which increased from Bond issuance by 100,957 million Baht included Baht Bond issuance of Baht 30,000 million in January 2022, and USD Bond by USD 1,300 million in March 2022. The Company had prepayment of long-term loan to PTT Treasury Center Co., Ltd. (PTT TCC) by Baht 55,600 million and repayment to financial institutes by Baht 15,240 million. Also, the Company had Bonds issuance by Baht 25,000 million in June 2022, and repayment of USD 1,000 million bonds in September 2022, and 2) Lease liabilities increased by Baht 13,949 million Baht from the extension of the long-term service agreement with TTT.

- Other liabilities decreased by Baht 25,219 million due to 1) Account payable decreased by Baht 12,497 million due to lower crude sourcing from the planned maintenance shutdown of Refinery in Q4/2022, 2) Other current liabilities decreased by Baht 4,265 million resulting from the tax transaction related to allnex acquisition at the end of 2021, 3) Other non-current liabilities decreased by Baht 8,457 million due to decreased Deferred tax liabilities.

Shareholder's Equity

As of December 31, 2022, the Company had total Shareholder's Equity of Baht 298,828 million, which decreased by Baht 28,775 million from December 31, 2021, as a result from Net loss for the year ended December 31, 2022, of Baht 8,752 million. The Company had dividend payment for 2021 and interim dividend payment for 2022 of Baht 11,272 million. Additionally, the Company had lower Other components of equity by Baht 8,907 million, which included the loss from fair value measurements in financial assets of Baht 3,853 million from the fair value measurements of GPSC and Foreign Exchange loss of Baht 4,698 million.

Cashflow Statement

Cashflow (Unit : MB)	For the year Ended 31 Dec 2022
Net cash flows provided by operating activities	(3,426)
Net cash flows used in investing activities	(12,213)
Net cash flows provided by financing activities	(14,164)
Net increase (decrease) in cash and cash equivalents, before effect from foreign exchange rate	(29,803)
Effects of exchange rates on cash and cash equivalents	130
Net decrease in cash and cash equivalents during the period	(29,673)
Cash and cash equivalents at the beginning of the period	55,613
Cash and cash equivalents at the end of the period	25,940
Current investments in financial assets at the end of the period	6,023
Net cash and cash equivalent and investment at the end of the period	31,963

For the period ended December 31, 2022, the company had cash flow activities as follows:

- Cash flows used by operating activities of Baht 3,426 million due to Net Loss for 2022 (included Non-controlling profit) of Baht 7,636 million, and add back Non-cash items of Baht 36,459 million. The Company had Share of Profit from Investments in JV and associates of Baht 3,496 million, and Changes in operating assets and liabilities of Baht 32,249 million.
- Cash flow used in investing activities of Baht 12,213 million. The Company had cash paid for property, plant, and equipment, and intangible assets amounting to Baht 20,093 million, for example, Olefins 2 Modification Project (OMP) and planned maintenance shutdown of Olefins Plant 3. The Company had cash paid for investment subsidiaries, associates, and joint ventures of Baht 8,224 million, which was mainly from the purchase of AVT shares by Baht 8,077 million. The Company had proceed from investment in financial assets of Baht 13,458 million and dividend received of Baht 2,901 million.

- Cash flow provided by financing activities of Baht 14,164 million mainly due to the proceeds from Bonds issuance by Baht 100,587 million, cash provided by from borrowings from financial institutions by Baht 1,435 million. The Company had outflows from PTT TCC long-term loan prepayment by Baht 55,600 million, cash paid for bond repayment by Baht 36,134 million, cash paid for financial costs by Baht 9,494 million, Dividend payment by Baht 11,746 million, and cash paid for finance lease liabilities by Baht 2,494 million.

As a result, as of December 31, 2022, the Company had total Cash and Cash Equivalents of Baht 25,940 million, along with Current investments in financial assets of Baht 6,023 million. Hence, the Company had total cash and cash equivalent and investment of Baht 31,963 million. The Company had Net interest-bearing debt to equity at 0.90 times and Net interest-bearing debt to EBITDA at 12.04 times.

Key Financial Ratios

Financial Ratios		2020	2021	2022
<u>Liquidity Ratios:</u>				
Current Ratio	(Times)	2.20	1.42	1.65
Quick Ratio	(Times)	1.52	0.85	0.74
Operating Cash Flow Ratio	(Times)	0.40	0.67	-0.03
Account Receivables Turnover	(Times)	10.36	11.72	14.22
Account Receivable Days	(Days)	35.31	31.14	25.66
Inventory Turnover	(Times)	9.10	7.81	8.50
Days Sales in Inventory	(Days)	40.22	46.76	42.93
Account Payables Turnover	(Times)	13.91	9.08	9.86
Account Payables Days	(Days)	26.31	40.18	37.00
Cash Cycle	(Days)	49.22	37.72	31.59
<u>Profitability Ratios:</u>				
Gross Margin Ratio	(%)	3.70	12.62	0.08
EBIT/Sales Revenue	(%)	1.23	12.52	0.00
Cashflow from Operation/EBIT	(%)	546.31	116.90	46.50
Net Profits to Sales Revenue	(%)	0.06	9.59	-0.01
Return on Equity	(%)	0.07	15.01	-0.03
<u>Efficiency Ratios:</u>				
Return on Total Assets	(%)	0.86	9.50	-0.01
Return on Fixed Assets	(%)	7.79	24.05	5.99
Total Asset Turnover	(Times)	0.70	0.75	0.93
<u>Leverage Ratios:</u>				
Interest Bearing Debt to Equity	(Times)	0.54	0.84	1.01
Interest Coverage Ratio	(Times)	6.43	12.25	-0.07
Dividend Payout Ratio	(%)	>200	37	N/A

PROJECTS PROGRESS

The Company has important projects in the pipeline:

- The Company and Kuraray Co. Ltd (KRR) set up a joint venture, Kuraray GC Advanced Materials Co. Ltd, with High Heat Resistant Polyamide-9T (PA9T) capacity of 13,000 ton per year and Hydrogenated Styrenic Block Copolymer (HSBC) capacity of 16,000 ton per year. The plant is expected to start commercial operation within Q1/2023.

- The Company had approved an investment for the Olefins 2 Modification Project which will allow the Company to increase Propane usage as feedstock and align with the Company's strategy to enhance feedstock flexibility and long-term competitiveness. The plant is expected to start commercial operation within Q2/2023.

Currently, the projects are remained on the development plan. The company will publicly announce the information once the implementation of the projects is officially made.

Estimated Annual CAPEX of GC Group for the next 5 years

Projects	Total	Estimated Annual CAPEX (M.USD)				
	2023-2027	2023	2024	2025	2026	2027
1) Olefin 2 Modification Project	33	33	-	-	-	-
2) Other projects	269	225	27	16	-	-
Total	302	258	27	16	-	-
3) allnex expansion & growth Capex	491	80	111	114	95	91
GC group Grand total	793	338	139	130	95	91

Notes:

1. Group annual maintenance ~ 400 M.USD (including allnex Holding GmbH)
2. Other projects such as IT & digital, new office facility, operational excellence etc.

MARKET AND BUSINESS OUTLOOK IN 2023

The global economic outlook in 2023 continues to be impacted by multiple factors. A prolonged period of the Russia-Ukraine conflict, which in response to Russia's invasion of Ukraine, sanctions were imposed on Russian economy and energy, which have caused direct impacts on economies around the globe. These resulted in an impact on the global energy supply and prices, and global inflationary. However, there was a positive sign shown in China by an orderly easing of mobility restrictions. The IMF has revised down the expected world economy growth to 2.9% in 2023 (As of January 2023). The global economy is expected to continue to recover in line with the increase in demand for Petroleum and Petrochemical products, however, there are heightened uncertainties over the economic outlook and monetary policy in each country.

Upstream Business Unit

The Company anticipates that the average price of Dubai crude oil in 2023 will be within the range of 85-90 USD per barrel. The International Energy Agency (IEA) had estimated the crude oil demand (as of October 2022) in 2023 at 101.3 million barrels per day, increased by 1.7 million barrels per day from the 2022 demand. However, downside risk exists. The energy crisis continues to be a major concern, along with a recovery in demand, especially in China after the re-opening, the increase in OPEC supply, and global economic trends and prospects.

For Petroleum products, the Company anticipates that products price and products spread will be softened in 2023 comparing with 2022 which products spread has stood at high level due to tight supply in the market impacted from the consequence of the conflicts in Europe. As a result, Diesel over Dubai crude oil spread is expected to be 24-27 USD per barrel while Low Sulfur Fuel Oil (LSFO) over Dubai crude oil spread to be 14-18 USD per barrel. The expected Gasoline over Dubai crude oil spread is 15-17 USD per barrel. The Company will continue to focus on the production and our contracts with suppliers and partners to ensure that the Company will be able to handle current and future crises and uncertainties. The Company expects that the Refinery utilization rate of 2023 will be operated at around 101%.

For Aromatics products, Paraxylene over Naphtha spread is expected to be stable at 300-340 USD per ton. As more producers enter the market, however, the expected demand from downstream business such as Fiber and Filaments industries, Purified Terephthalic Acid (PTA), and PET Bottle Resin are expected to gradually recover following supported by food and beverage industry, e-commerce industry and the recovery in global economy by easing lockdown in China. Benzene over Naphtha spread is expected to be 220-250 USD per ton, supported by the new capacity of downstream products such as Phenol even still some pressure from new production capacity and economics concern impact to downstream demand. The Company expects that the Aromatics utilization rate of 2023 will be 90% due to the planned maintenance shutdown of Aromatics plant in Q3/2023.

The outlook for Olefins products, the Company anticipates that Ethylene products price will be at 960-990 USD per ton. Propylene is expected to be 960-990 USD per ton, however, the supply will be pressured by new capacity in China. The Company expects Olefins utilization rate to be around 85% due to the planned maintenance for the preparation for the commercial operation of Olefins plant 2/2 modification project in Q1/2023 and the planned maintenance shutdown of Olefins plant 1 in Q3/2023.

Intermediates Business Unit

For Phenol market trend in 2023, the Company anticipates that Phenol P2F spread will be at 260-300 USD per ton, as new supply is predicted to enter the market, along with new capacity from Bisphenol A (BPA). The demand for end products recovery is continuing from policies launching in China to stimulate vehicle and construction markets.

For MEG and PTA market, the Company expects that the average MEG price will be 570-600 USD per ton which higher than the average market price in 2022. PTA price is expected to be stable. The expected demand from downstream business is expected to gradually recover same as Paraxylene product.

Polymers & Chemicals Business Unit

The Company anticipates that the average Polyethylene price in 2023 is expected to be 1,150-1,200 USD per ton. This is supported by the stronger demand for packaging, along with the re-opening of China and the decrease of new capacity, even though there are concerns about economic uncertainty. The Company expects that the Polyethylene plants utilization rate will be around 98% in 2023. The expected market outlook of Polyethylene Terephthalate (PET) is as abovementioned.

Performance Chemicals Business Unit

The end markets industry such as automotive industry, and construction industry are expected to be recovered in 2023 as the launches policies to expand and stimulate both industries in China. For packaging industry is expected to grow follow an upward economic growth trend.

SUSTAINABILITY MANAGEMENT REPORT

GC strive to operate for the organization's growth as well as the balance of the three dimensions, namely Environment, Social and Governance (ESG). Our success has been reflected throughout the recognitions both national and international. GC has implemented sustainability strategies and achieved the objectives as our goals. We have also attained outstanding results under sustainability strategy (Step up):

Sustainability Management in the Environmental Dimension

GC reaffirms our stance to partake in the Paris Agreement under the United Nations Framework Convention on Climate Change. We have, thereby, set the target to reduce greenhouse gas emissions (scope 1 & 2) by 20 percent within 2030 and achieve the Net Zero Target as well as halving scope 3 emissions by 2050. To correspond with the Low Carbon Transition Framework:

Efficiency-driven: highlights the implementation of diverse greenhouse gas reduction and energy enhancement projects, such as Energy Conservation, Maptaphut Integration (MTPI), Greenhouse Gas Reduction through Alternative Energy, etc. We stress on energy and utilities management for maximum efficiency, loss reduction during transportation, greenhouse gas emissions reduction, and integrated waste management.

Portfolio-driven: features investment in the High Value Business (HVB) group and businesses that correspond to the Circular Economy principles. GC also explores opportunities to leverage synergy in order to yield maximum value from current businesses, markets and technologies, such as the acquisition of "allnex" which has high profitability and can respond to consumer needs based on megatrends. Additionally, ENVICCO, a joint venture between GC and ALPLA, has commenced the full commercial operation of its high-quality recycled plastic resin production plant in 2022. The plant's operations promote the concept of product circularity by reintroducing used plastic into an end-to-end waste management process. This is carried out in tandem with the development of the "YOUTURN Platform" as well as the collaboration with networks and third parties in

order to achieve the Net Zero Target while preserving competitiveness and enabling continuous growth.

Compensation-driven: covers the continuous implementation of projects to restore and reinforce the balance of forest ecosystems in collaboration with the government, the private sector, the society and communities since 2013, spanning across a total area of 2,500 rai. These projects include the 80-rai Eco-Forest Rayong Wanarom which follows the Eco Forest principle and has been registered in the Thailand Voluntary Emission Reduction Program (T-VER), and the Khao Huai Mahat Forest Restoration and Water Conservation Project. Additionally, GC has also built cooperation with our partner network and made Corporate Venture Capital (CVC) investments in order to gain access to Carbon Capture Utilization and Storage (CCUS) technology and innovation.

Sustainability Management in the Social Dimension

GC is committed to conducting business with responsibility in adherence to the principle of Social Enterprise (SE) by implementing the organization's innovations and expertise as well as optimizing the utilization of current resources according to Circular Economy (CE). Concurrently, GC focuses on generating and returning income to the communities and the society, improving the quality of life, solving environmental problems, and managing plastic waste, which will lead to a sustainable and low-carbon society. GC also places importance in building relationships and engagement with all sectors. Our CSR projects are prioritized based on three key components, namely Better Living such as Community Waste Model under YOUTURN Platform, sharing such as Rayong Organic Living project, and Ecology such as underground water bank covering the economic, social and environmental dimensions.

Sustainability Management in the Economic Dimension

GC emphasizes on innovation investment and development to strengthen our competitiveness and support the achievement of our Net Zero Target under the Innovation Management Strategy which comprises 1) New Technology Uplift, 2) Market-focused Innovation, and 3) Technology Integration.

Furthermore, GC also enhances employee capacity and capabilities in support of our innovation development endeavors. Accordingly, we encourage cooperation in innovation research and development with networks and third-party agencies or experts as well as direct and indirect investment in innovation. This year, GC has signed a Memorandum of Understanding to conduct a feasibility study on the application of Carbon Capture and Storage (CCS), or CCS Hub Model, with PTT Group in an effort to achieve the Carbon Neutrality Target and the Net Zero Target. In addition, we have made investments in the form of corporate venture capital (CVC).

Highlight examples of GC's innovations in 2022 include the upcycling of used plastic from the YOUTURN Platform to create eco-designs in collaboration with 8 "Experts of Style" in Fashion & Lifestyle, Adventure & Traveling, and Home & Living; Bioplastics Toothbrush which are bio-based products under the brand Venture; and Post-Consumer Recycled Resin (PCR Resin) which features transforming plastic waste into plastic resins and delivering them to customers for further production under the concept of Circular Economy. They can replace ordinary plastic resins in the molding of packaging. Besides supporting Circular Economy, the PCR resins also contribute to decreasing resource and energy consumption as well as waste generation. The packaging of "Mistine" body lotion is the first product in Thailand to be manufactured from the PCR resins.

GC's firm commitment to sustainability is in line with the national approach and in accordance with international standards. As a result, GC has become the only chemical company in Thailand and Asia to have received No. 1 global ranking from the Dow Jones Sustainability Indices (DJSI) for the fourth consecutive year. The company has also earned the highest ranking in Thailand for Climate Change and Water Management at scored an "A" (Leadership Level), which is the highest ranking, in Water Security based on the assessment framework of the Carbon Disclosure Project (CDP), a globally trusted assessment institute. Additionally, GC has received recognition from leading Thai institutes, such as the SET Sustainability Awards of Honor for the fifth consecutive year and the Thailand Sustainability Investment (THSI) Awards for the eighth consecutive year from the Stock Exchange of Thailand. These examples of success in sustainability leadership undoubtedly reflect GC's commitment to grow with ESG as our foundation.

COMPANY INFORMATION AND OTHER IMPORTANT INFORMATION

COMPANY INFORMATION

REFERENCES

SECURITIES REGISTRAR

Thailand Securities Depository Company Limited
93, 14th Floor, Ratchadaphisek Road, Din Daeng
Sub-District, Din Daeng District, Bangkok 10400
Tel: +66 (0) 2009-9999,
Fax: +66 (0) 2009-9991
Website: www.set.or.th/tsd

REGISTRAR AND DEBENTURE HOLDERS REPRESENTATIVE

Bank of Ayudhya Public Company Limited
1222 Rama III Road, Bang Phongphang
Sub-District, Yan Nawa District, Bangkok 10120
Tel: +66 (0) 2296-2030, 4808, 5557
Fax: +66 (0) 2683-1298
Website: www.krungsri.com

US\$ BOND REGISTRAR

Citibank, N.A., London Branch
c/o Citibank, N.A., Dublin Branch
1 North Wall Quay, Dublin 1, Ireland
Fax: +353 1622 2210

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Fax: +66 (0) 2677-2222
Website: <https://home.kpmg>



LEGAL PROCEEDING

Oil spill incident legal case

During the third quarter of 2014, a number of people in Rayong filed several lawsuits with the Civil Court and the Rayong Provincial Court against the Company to claim extra compensation from an oil spill incident and to perform the rehabilitation of the sea and natural environmental recovery. Some cases have been dismissed and some cases have been passed a judgement by the Civil Court on 25 August 2016 which ordered the Company to compensate for damages including interest and rehabilitation of approximately Baht 11.26 million. The Company has appealed on 17 February 2017. Subsequently, on 11 May 2018, the Company made compromise agreements with the majority of plaintiffs at the Civil Court. On 20 December 2018, the Court of Appeal has passed the judgement according to the compromise agreements for which the Company has already paid compensation in full amount. For the remaining plaintiffs, the Court of Appeal ordered the Company to pay compensation with interest according to the judgement of the Court of First Instance and reduced the amount of interest. The Company has paid the compensation to all plaintiffs completely and no petition is submitted to Supreme Court by any plaintiffs. This case has become final.

For the case at Rayong Provincial Court, on 28 September 2018, the Court has made a judgement ordering the Company to pay damage costs with interest of approximately Baht 38 million by deducting the remedy payment paid to the plaintiffs of Baht 24 million. The Company deposited the remaining damage costs with interest with the Rayong Provincial Court on 25 February 2019. Some plaintiffs filed an appeal with the Rayong Provincial Court and the Company has filed an answer to the appeal with the Rayong Provincial Court on 2 October 2019. Subsequently, on September 1, 2020, the Court of Appeal Region 2 passes the judgement ordering the Company to pay additional damages including interest to the plaintiffs. The Company deposited the additional amount of Baht 25 million to the Rayong Provincial Court on 30 September 2020, which is to cover the additional damages ordered under the judgement. Afterwards, on 14 October 2020, the Rayong Provincial Court set an appointment to hear the judgement or the order of the Court of Appeal Region 2 on 26 November 2020. Then, the plaintiffs have filed the Dika appeal period on 1 March 2021. The Supreme Court has issued an order accepting the Dika appeal of the plaintiffs on 2 March 2022 and sent a copy of Dika appeal to the Company on 19 March 2022. The Company filed an answer to the Dika appeal on 13 September 2022. The case is currently under the trial by the Supreme Court.

FREQUENTLY CONTACTED FINANCIAL INSTITUTIONS

Bangkok Bank Public Company Limited

Address : 333 Silom Rd., Silom,
Bang Rak, Bangkok 10500
Tel : 0-2230-2328, 0-2230-2295,
0-2626-3646, and 0-2353-5421

Krungthai Bank Public Company Limited

Address : 35 Sukhumvit Rd., Klong Toey Nua,
Wattana, Bangkok 10110
Tel : 0-2208-4845 - 47

Bank of Ayudhya Public Company Limited

Address : 1222 Rama III Rd.,
Bang Phongphang, Yan Nawa,
Bangkok 10120
Contact location : 550 Phloenchit Rd., Lumpini,
Pathum Wan, Bangkok 10330
Tel : 0-2296-3999 and 0-2296-4776

Kasikornbank Public Company Limited

Address : 1 Soi Rat Burana 27/1,
Rat Burana Rd., Rat Burana,
Rat Burana, Bangkok 10140
Contact location : 400/22 Phahon Yothin Rd.,
Samsen Nai, Phaya Thai,
Bangkok 10400
Tel : 0-2470-3074

Siam Commercial Bank Public Company Limited

Address : 9 Ratchadapisek Rd.,
Chatuchak, Chatuchak
Bangkok 10900
Tel : 0-2544-5740

02

CORPORATE GOVERNANCE

GC is committed to good corporate governance and seeks to operate efficiently with transparency, accountability, and fairness, in strict compliance with relevant laws and regulations to foster confidence among all shareholders and stakeholders and **reinforce its determination to become a model of good corporate governance on the international level.**





CORPORATE GOVERNANCE POLICY

GC, under the supervision of the Board of Directors, is committed to maintaining its corporate governance standard in conformity with international standards since its establishment in 2011. To this end, the Board of Directors has established a Corporate Governance Policy as part of the Business Operations Policy. The Corporate Governance and Sustainability Committee has been assigned to oversee relevant matters and ensure that GC's corporate governance practices meet international standards, align with the Company's business strategies and directions, and comply with any other requirements, laws and guidelines. The committee is also tasked with monitoring and assessing the effectiveness of corporate governance implementation on a yearly basis through meetings of each sub-committee. The assessment results are also regularly reported to the Board of Directors.

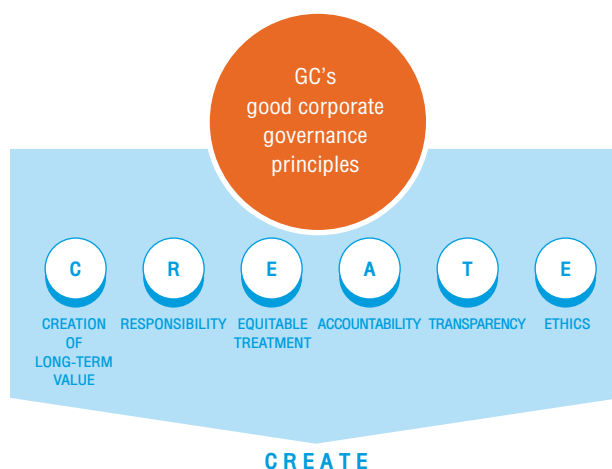
Overview of Corporate Governance Policy and Practices

The Board of Directors has established a fair management structure that governs the relationship of the Board of Directors, the management, and shareholders. The Board of Directors also plays an important role in formulating visions, strategies, policies, and important action plans, ensuring that there are effective performance monitoring/assessing and risk management systems, in addition to maintaining its independence and accountability for the outcomes of its performance of duties pursuant to good corporate governance principles. The objectives are as follows:

- Strengthening the management system so that it is transparent and fair to all groups of stakeholders, complies with the applicable laws, regulations, rules, and requirements of the government agencies, and meets international and distinct standards, which will help enhance GC's competitiveness adaptability and enable it to prevent and eliminate any potential conflicts of interest.
- Building confidence among investors and the general public both in Thailand and overseas and taking part in increasing the value of GC's shares in order to protect its interests while taking into consideration the interests, rights, and equality of the shareholders and relevant stakeholders.
- Monitoring the Company performance assessment and inspecting the operation in order to improve and rectify, a more effective operation.
- Establishing the scope of responsibilities of the Board of Directors and Executives towards all stakeholders, to ensure that the management exercise its authority within the defined scope.

In this connection, the Board of Directors has established a Corporate Governance Policy as operational guidelines for all of GC Group's Directors, Executives and employees in adherence to both domestic and international practices, such as guidelines of the Stock Exchange of Thailand (SET), the Corporate Governance Code for Listed Companies of the Securities and Exchange Commission (CG Code), the ASEAN Corporate Governance Scorecard, the Dow Jones Sustainability Indices (DJSI). Moreover, the Board of Directors is determined to continuously improve the Company's corporate governance to meet international standards, which include taking into consideration the shareholder's rights, equitable treatment of shareholders, emphasis on the roles of stakeholders, information disclosure and transparency, and the accountability of the Board of Directors.

GC's good corporate governance principles consist of Creation of long-term value, Responsibility, Equitable treatment, Accountability, Transparency, and Ethics (C R E A T E). These principles have been adopted by the Company as guidelines to ensure that its operation complies with the applicable laws and regulations of every country in which it operates. The Board of



Directors and Executives serve as ethical leaders and role models for compliance with the Corporate Governance Policy, Anti-Corruption Policy, Corporate Governance and Business Code of Conduct Handbook of GC Group. They also promote good corporate governance culture, attend to the stakeholders, and promote practices and business operations which take into account human rights, consumer rights, and fair labor practices. In addition, they shall put in place the auditing, monitoring, assessment, and revision systems in order to ensure that all employees adhere to and follow the Corporate Governance Policy fully and sustainably. Details of the corporate governance performance can be found under “Ensure Compliance with Corporate Governance policy and practices.”

Policy and Practices for the Board of Directors

Board of Directors

The Board of Directors shall be appointed by the Annual General Meeting of Shareholders, elected directors to replace those retiring by rotation on a yearly basis. All Directors shall be qualified and possess no prohibited characteristics stipulated by relevant laws and regulations. A board diversity policy has also been established as part of the Director nomination and selection process to ensure a suitable and diverse board composition in line with the Corporate Governance and Business Code of Conduct Handbook. Under this policy, the nomination takes into consideration the range of knowledge, competency, and expertise in various fields beneficial to the Company according to the Board Skills Matrix, such as engineering, Energy, Material Petrochemical and Chemical, economics and finance, business administration, accounting, law, sustainability, and information technology, and takes into account the diversity of gender, ethnicity, and nationality as well as the suitable proportion of independent director in accordance with good corporate governance principles, without discrimination on the grounds of ethnicity, nationality, skin color, race, or religion, in order to achieve a diverse range of expertise and perspectives necessary for and beneficial to GC’s business operations.

The current Board of Directors consists of 15 members, consisting of one executive Director and 14 non-executive Directors. Among these, nine are Independent Directors, which is considered suitable for the size and type of business of the Company and allows for an

effective delegation of duties. Board duties and responsibilities are clearly defined in compliance with applicable laws, regulations and articles of association, shareholder resolutions, and good corporate governance principles. The Chairman of the Board oversees its discharge of duties to ensure efficiency and independence from the management.

Further details appear under “Key Information on the Board of Directors.”

Sub-committees

The Board of Directors has appointed four Sub-committees, namely the Audit Committee, the Nomination and Remuneration Committee, the Corporate Governance and Sustainability Committee, and the Risk Management Committee, helps in screening the operation in different aspects as assigned as well as specifies the qualifications, term of office, and scope of duties according to the charter of each specific committee. The Directors of the sub-committees are qualified for their knowledge and capability with appropriate and adequate experience sufficient to perform in the sub-committee for each specific field according to the stipulation of the relevant laws, rules, regulations, and the Company’s Articles of Association. Each sub-committee regularly reports its performance to the Board of Directors at Board meetings and disclose its annual performance in the past year to regulatory agencies, shareholders, and the general public in Form 56-1 One Report on a yearly basis.

Nomination and Appointment of Directors, Independent Directors, and Chief Executive Officer

The Board of Directors has appointed and entrusted the Nomination and Remuneration Committee with the authority to nominate and select qualified candidates to take directorship to replace resigning Directors or Directors due to retire by rotation in accordance with the Company’s fair and transparent nomination criteria and procedures, as well as to nominate and select candidates for the Chief Executive Officer and President position from a list of qualified Directors and propose such candidates to the Meeting of the Board of Directors and/or the General Meeting of Shareholders for consideration and approval. Such candidates shall have all qualifications and shall not hold any of the prohibited characteristics as stipulated by the applicable laws and regulations, including the Public Limited Company Act

B.E. 2535 (1992), the Securities and Exchange Act B.E. 2535 (1992), the Organic Act on Counter Corruption B.E. 2561 (2018), Notifications of the Capital Market Supervisory Board, Notifications of the Bank of Thailand, CG Code, rules and regulations of the Office of the Securities and Exchange Commission (SEC) and the Stock Exchange of Thailand (SET), GC's articles of association and Corporate Governance and Business Code of Conduct Handbook, and the independence and conflicts of interest of the Directors shall be also be taken into consideration with due circumspection. Every Director shall perform their duties with accountability, upholding the duty of care and the duty of loyalty. In addition, the Nomination and Remuneration Committee may consider candidates from the director's pool of creditable organizations, such as that of the State Enterprise Policy Office (SEPO) and the list of chartered directors of the Thai Institute of Directors (IOD), which compile a list of knowledgeable and competent persons with diverse areas of specialization beneficial to the operation of the Company. The committee shall also take into consideration the Board diversity, including the proportion of female Directors (gender diversity), the diversity of ethnicity and nationality, and Independent Directors. The diversity of skills of the existing Directors, including knowledge, skills, expertise, experience, and specialization that will benefit the Company and correspond with business strategies according to the Board Skills Matrix of the Company, in order to ensure that the Board composition is diverse, suitable, and in line with the Board Diversity Policy and that the Board of Directors can effectively responds to GC's existing and future strategies and goals, as detailed below.

Nomination and appointment of Directors to replace Directors retiring by rotation: The Company gives opportunities for shareholders to nominate qualified persons for directorship of the Company in advance of the Annual General Meeting of Shareholders every year. The Nomination and Remuneration Committee is responsible for nominating and selecting qualified candidates in accordance with the Director nomination and appointment criteria and procedures and proposing the candidates to the Meeting of the Board of Directors for consideration and approval before proposing the list of such candidates to the General Meeting of Shareholders for consideration and approval. The approval of the General Meeting of Shareholders shall be by a majority of votes of shareholders who attend the meeting and are entitled to vote. In compliance with

the corporate governance principles, the shareholders shall vote on each candidate on an individual basis. For the nomination of former directors for re-appointment, the performance in the previous years, the ability to dedicate time to their duties, and their participation of each such candidate shall be taken into consideration.

Nomination and appointment of Directors to fill vacancies in cases other than retiring by rotation: In accordance with the articles of association of the Company, the Nomination and Remuneration Committee is responsible for nominating and selecting qualified candidates according to the Director nomination and appointment criteria and procedures and proposing such candidates to the Meeting of the Board of Directors for consideration be to appointed as Director to fill a vacancy, except in the case that the remaining term of the vacant seat is less than two months, in which case The Director who is appointed to the seat shall remain in office for the remaining term. The approval for such appointment shall be by at least three quarters of the votes of the number of the remaining Directors.

Nomination and appointment of members of sub-committees: The Nomination and Remuneration Committee is responsible for nominating and selecting qualified Directors of the Company in accordance with the sub-committee nomination and appointment criteria and procedures, which include the charter of each Sub-Committee, and for proposing the candidates to the Meeting of the Board of Directors for consideration for appointment as members of the Sub-committee. A sub-committee member shall hold office for three years per term. The approval for such appointment shall be by a majority of votes of the Meeting of Board of Directors. A sub-committee member retiring by rotation may be re-appointed for another term by the Board of Directors. In case of vacancy other than by rotation, the replacing sub-committee member shall remain in office for the remaining period of the one that has been replaced.

Consideration of qualifications of Independent Directors: The performance of Independent Director's duties is a key mechanism in the oversight of the Company's business operations to ensure that the decisions of the Board of Directors will prioritize the interests of shareholders as a whole and comply with corporate governance principles. To this end, the qualifications of Independent Directors have been specified in the Corporate Governance and Business

Code of Conduct Handbook and on the Company's website. The qualifications of Independent Directors established by the Company are more stringent than those prescribed by the Notification of the Capital Market Supervisory Board on the matter regarding the shareholding of no more than 0.5% of total shares with voting rights of the Company, parent company, subsidiaries and affiliates, major shareholders or persons with controlling power over the Company, including the the shareholding of their related persons (while the Notification of the Capital Market Supervisory Board requires only shareholding of no more than 1%). In addition, the Company requires that the Independent Directors may remain in office for no more than nine consecutive years from the date of initial appointment. This requirement is included in the charter of Independent Directors, which has been published on the Company's website.

Nomination and appointment of the Chief Executive Officer and President (CEO): In case of vacancy, the Nomination and Remuneration Committee is responsible for nominating and selecting a candidate for the position from the list of Directors of the Company who possesses necessary and suitable skills, professional experience, and specific qualifications for the business operation in accordance with the Board Skills Matrix, which includes business administration knowledge and capability and experience in relevant fields, such as, energy, petroleum, and petrochemical. Furthermore, the candidate must demonstrate leadership, have experience as a leader of a company, and be well-regarded by relevant business organizations. The committee shall also take into account any potential conflicts of interest with GC and other companies in GC Group and propose the candidate to the Meeting of the Board of Directors for consideration and appointment.

Details of the nomination and appointment of Directors, Independent Directors, and Chief Executive Officer and President can be found under "Nomination, Development, and Performance Assessment of the Board of Directors."

Remuneration of the Board and Executives

The Board of Directors: Details of the remuneration of the Board of Directors can be found under "Meeting Attendance and Remuneration of Individual Board Members."

Executives: Details of remuneration of the Executives can be found under "Executives."

Development of Directors and Executives

The Board of Directors places great importance on seminar attendance as a way to enhance Directors' knowledge and competence and enable them to discharge their duties more effectively as well as to prepare Executives for internal rotations and for succession to the Chief Executive Officer and President position and a role in the top management. The Board of Directors has also prescribed the potential assessment of top Executives to enhance their preparedness for Executive-level duties. Key development initiatives can be summarized under "Development of Directors, Executives, and Company Secretary".

Assessment of Directors' Performance

The Board of Directors has prescribed annual Board performance assessments to enable Directors to review their performance and review problems and obstacles during the year. There are three types of performance assessment, namely group assessment, self-assessment, and cross-assessment (assessing another Director). Furthermore, Board KPIs have established according to the CG Code and Dow Jones Sustainability Index (DJSI) comprising four aspects, which are the Company's performance, the Board performance assessment results, Directors' meeting attendance, and Directors' engagement during Board meetings. Additionally, group assessment and self-assessment have been prescribed for the Company's sub-committees, namely the Audit Committee, the Nomination and Remuneration Committee, the Corporate Governance and Sustainability Committee, and the Risk Management Committee. The assessment results and suggestions are subsequently presented to the Board of Directors and used to develop guidelines for optimizing the Board's performance in a tangible way. The assessment results are also disclosed in Form 56-1 One Report and used by the Nomination and Remuneration Committee as a factor in the determination of The Board of directors annual remuneration.

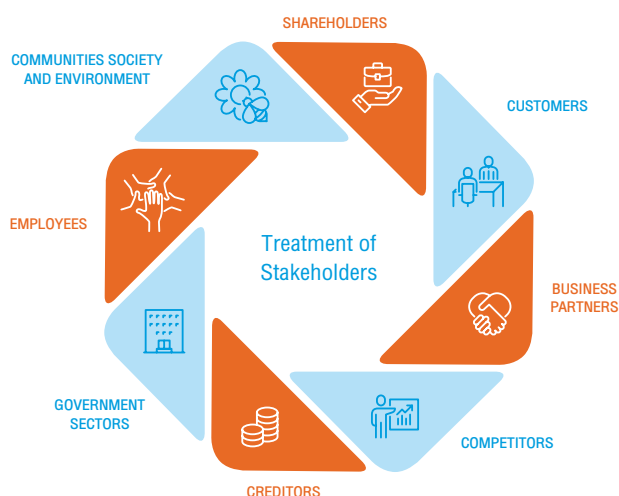
Further details are provided under "Nomination, Development, and Performance Assessment of the Board of Directors."

Governance of GC Group

The Company grows in the petrochemical and chemical industry and engages in investment and joint venture expansion in various countries both by itself and through its subsidiaries, joint ventures, affiliates and others, as detailed under “Business Operation and Performance.” The Board of Directors has approved the implementation of governance guidelines and management which are in line with GC Business Principle, as described in detail under “Governance of Subsidiaries and Affiliates.”

Policy and Practices for Shareholders and Stakeholders

GC’s business operation involves various groups of stakeholders, ranging from shareholders, customers, business partners, creditors, competitors, government sectors and employees to communities, society, and the environment. As each stakeholder group has different needs, the Board of Director has established policies and guidelines for responsible engagement of each stakeholder group in line with their specific needs as part of the Corporate Governance and Business Code of Conduct Handbook and disclosed them on the Company’s website.



Shareholder Rights

GC prioritizes shareholder right protection and has included it as part of the Corporate Governance and Business Code of Conduct Handbook to ensure full compliance.

Provision of Important and Pertinent Information to Shareholders

GC provides shareholders with clear, up-to-date information of importance and pertinence on its business

operations. To this end, it also discloses information deemed necessary, albeit not legally required, on its website and via the portal of the Stock Exchange of Thailand (SET).

The 2022 Annual General Meeting of Shareholders

GC held the 2022 Annual General Meeting of Shareholders via electronic media (E-AGM) at 09:00 a.m. on Monday, April 4, 2022, in compliance with the Emergency Decree on Electronic Meetings B.E. 2563 (2020) as well as other applicable laws and regulations. GC also ensured convenience for the attending shareholders as detailed below.

- Prior to the Meeting
- GC clearly notified shareholders of the rules and procedures relating to rights of shareholders to propose matters to be included in the agenda of the Annual General Meeting of Shareholders and to nominate qualified persons for consideration and election as Directors in advance of the Annual General Meeting of Shareholders from September 16, 2021 to December 31, 2021 via SET Portal and the Company’s website. The nominated persons or proposed matters will be considered in accordance with the prescribed criteria. The Nomination and Remuneration Committee will be in charge of considering the qualifications of such nominated persons, and the Corporate Governance and Sustainability Committee will consider the proposed matter deemed beneficial and which should be proposed as an agenda item of the meeting, which are then proposed to the Board of Directors for further consideration. The Board of Directors will inform the shareholders of its decision and rational at the 2022 Annual General Meeting of Shareholders. For the year 2022, none of the shareholders proposed agenda items or nominated any person to be considered for appointment to directorship.
- According to the resolutions of the Board of Directors’ meeting held on February 14, 2022, GC instantly notified SET after the meeting to disseminate the news to its shareholders that the 2022 E-AGM would be held on April 4, 2022, and the record date was set for March 1, 2022, to accommodate shareholders the rights to attend the 2022 E-AGM and receive dividend payment. This information was also published on GC’s website.
- GC published the invitation letter on GC’s website, comprising the agenda items with the Board’s opinions on each agenda item as well as the

attachments, proxy forms, and measures and guidelines for registration and attending the 2022 E-AGM in both Thai and English, on March 4, 2022, over 30 days in advance to the meeting. In addition, GC sent an invitation letter, along with QR codes for downloading the digital versions of Form 56-1 One Report for the year 2021 and the 2021 Integrated Sustainability Report.

- If a shareholder would like to assign a proxy to attend and vote at the E-AGM on their behalf or if they were unable to attend the E-AGM in person, GC provided them with a proxy statement that allowed them to specify their “Approval,” “Objection,” or “Abstention” vote for each agenda item. Independent Directors’ profiles were also included for their consideration. Details of the proxy assignment process and documents required to facilitate the procedure were enclosed with the invitation letter. All of the documents were available in both Thai and English.
- The invitation letter was mailed to its shareholders on March 15, 2022, over 21 days ahead of the meeting.
- Shareholders were given an opportunity to submit advance inquiries on the meeting agenda to GC via corporatesecretary@pttgcgroup.com, ir@pttgcgroup.com, or cg@pttgcgroup.com.
- GC opened an E-AGM registration system for shareholders and proxies from March 22, 2022 to the date of the meeting and provided a call center to address any inquiries from shareholders regarding the registration and attendance of the meeting.

■ On the Day of the Meeting

- The E-AGM was conducted in adherence to COVID-19 preventive measures and in compliance with relevant laws and regulations, which all Directors, Executives, and employees were required to follow strictly. Such measures included temperature checking at the entrance, wearing a medical mask or a cloth mask, and maintaining a physical distance at all times. Alcohol hand sanitizers were also provided at the venue.
- GC appointed call center and system administration staffs to ensure the convenience of the shareholders and proxies in accessing the E-AGM system and address questions regarding its use. Shareholders and proxies were allowed to access the E-AGM system over two hours ahead of the meeting to ensure that they were given accurate and complete information about the meeting and were able to

submit inquiries and voted in accordance with the objectives of the meeting.

- The 2022 E-AGM was attended by 14 out of 15 Directors, as Mr. Don Wasantapruerk, a Director, passed away on March 14, 2022. Top management, auditors, legal advisors, a lawyer, who was a witness for vote counting, and shareholders’ right protection volunteers from the Thai Investors Association responsible for evaluating the quality of the 2022 Annual General Meeting of Shareholders were also present.
- Before the meeting began, shareholders were explicitly informed of the voting and vote-counting procedure for each agenda item. Shareholders and proxies can cast a vote for “Approval,” “Objection,” or “Abstention” on all agenda items.
- At the meeting, the Chairman proceeded with all agenda items in order and afforded all shareholders equal rights to submit inquiries and express their opinions. For each agenda item, shareholders or proxies could submit inquiries in advance by typing their questions or by VDO conference. The Sub-committee chairpersons, Chief Executive Officer and President, and any relevant top management were assigned to answer shareholders’ questions. All expressed questions and opinions were fully recorded in the minutes of the meeting.

■ After the Meeting

- GC disclosed its resolutions of the 2022 E-AGM through the SET Portal one the meeting was finished. The disclosed resolutions included a complete set of the “Approval,” “Objection,” “Abstention,” of each agenda item.
- The minutes of the E-AGM were prepared in Thai and English, specifying the names of Directors and Executives attending the meeting, as well as other relevant attendees, key explanations, a list of questions and answers and a summary of opinions expressed. The minutes were submitted to SET and other relevant organizational authorities within 14 days after the meeting. They were also made available on www.pttgcgroup.com for shareholders inspection and mailed the minute of meeting shareholders. GC allowed the shareholders to object to the minute of E-AGM within 30 days.

GC’s 2022 E-AGM was ranked “Excellent” with a perfect score of 100 for the eleventh consecutive year from 2012-2022 and was given a 2022 Investor’s Choice Award by the Thai Investors Association.

Equitable Treatment of Shareholders

GC ensures equitable treatment of all shareholders, whether majority or minority, Thai or foreign. GC's equitable treatment of shareholders is summarized as follows:

- GC values all shareholders and has put in place measures to fairly and equitably safeguard the fundamental rights of every shareholder. These measures are aimed at fostering investors' trust and confidence in the Company and ensuring continuous and suitable returns.
- Minority shareholders are given the opportunity to express their opinion, provide suggestions, and submit complaints to the Board of Directors, Chairman of the Corporate Governance and Sustainability Committee (an Independent Director) and the Company Secretary via GC website under Corporate Governance or e-Mail at cg@pttggroup.com. The Corporate Governance and Sustainability Committee will review the complaints or suggestions submitted for take appropriate actions. Institutional investors can request information or express their opinions via email at ir@pttggroup.com under the care of the Investor Relations Department.

Roles of Stakeholders

GC places importance on the rights of all stakeholders. Based on principles related to the rights and impacts on stakeholders, the written good practice guidelines have been formulated and published on GC's website. Stakeholders are also provided with channels to express their opinions, suggestions, and recommendations to the Company. Stakeholder-related policies, guidelines, and actions in 2022, are summarized below:

Shareholders

GC respects the fundamental rights of shareholders and treats every shareholder equitably for their utmost satisfaction. These rights include the right to participate in the Annual General Meeting of Shareholders, the rights to vote, to propose meeting agenda items, and to nominate candidates for directorship. GC also listens to their opinions and suggestions and has provided them with contact channels via www.pttggroup.com and e-Mail addresses at ir@pttggroup.com and cg@pttggroup.com.

With regard to the treatment of institutional and retail investors, GC held quarterly performance review meetings via Facebook Live and Microsoft Teams and virtual roadshows, in which online booking channels were made available to enable interested institutional investors to directly make an appointment with GC.



In addition, the Company took part in the quarterly Opportunity Day as well as SET Digital Roadshow, an online meeting held in collaboration with the Stock Exchange of Thailand (SET) to provide retail and foreign investors with access to information sources and an opportunity to communicate with listed companies. To comply with the Code of Conduct for Investor Relations, GC refrained from meeting with investors for 14 calendar days prior to the disclosure of its operating results to protect and safeguard GC's confidential information not yet publicly disclosed.

Customers

To achieve customer satisfaction and confidence, GC has continued to develop the quality of its products and services and elevate its product and service standards through systematic voice of customer management in order to improve products and services that meet the needs of a diverse range of customers and end markets. GC also seeks to create sales opportunities and foster collaboration with customers and trade partners to develop green products.



GC has also continuously improved and developed the system and its sales, marketing and customer management processes as part of its customer relationship management process to strengthen its customer management process and systematically improve the quality of information in order to deliver the best customer experience throughout the customer journey, from product and service awareness on various communication channels, including through sales officers and online communications, all the way to order placement and payment, with the goal of fostering customer loyalty and achieving consecutive purchases from potential long-term customers. GC also seeks to optimize its internal operation and communication between departments for greater efficiency and speed.

Additionally, GC guarantees product quality in accordance with various international standards to enhance customer confidence and market and has put in place a whistleblower channel for complaints about its products and services to systematically handle such complaints, track progress, and report solutions to customers in every business unit. It also discloses complete information about its products and services to customers by coordinating meetings between the Company, and customers to exchange information about the market condition and GC's products. In-person and online sessions were also regularly to educate customers about GC's products services and the direction of the market. In addition, GC welcomes information on market needs from customers through its communication channels for its product and service development and adjustment and ensure alignment with future market directions.

Furthermore, GC treats all customers equitably and protects its confidential data by creating a Data Lost Protection system, issuing a privacy notice, and establishing a policy and working team to set customer data management and protection measures in accordance with the Personal Data Protection Act (PDPA). The Company also supervises its operation to ensure the absence of profiteering and unfair trade conditions.

Suppliers

GC procures supplies to ensure it can deliver products and services that meet customer needs and seeks to foster confidence its production and continuous

business expansion. GC's procurement policy places emphasis on operational efficiency, transparency, fairness, accountability, and compliance, on occupational health and safety, and on social and environmental responsibilities to ensure sustainability and maximize stakeholder benefits.

With regard to supplier accountability, GC has established supplier management strategies, encompassing the supplier selection process; the supervision and promotion of environmental, social, and governance responsibilities in suppliers' business operations and compliance with the Supplier Code of Conduct; supplier performance assessment; supplier relationship management, and supplier development.

GC has engaged in sustainable procurement in line with its business strategies and one of its action plans, which is to focus on fostering a network of green procurement. In 2022, GC increased opportunities for socially-responsible suppliers by establishing green products and services specifications and requiring 40% of its total procurement volume to be from green procurement and net-zero procurement by 2050. Training sessions were also organized to educate its target suppliers and enable them to achieve the defined objectives. GC also passed ISO 20400:2017 – sustainable procurement verification by the Management System Certification Institute (MASCI).

In addition, GC regularly reviews the Supplier Code of Conduct (SCOC), placing emphasis on human rights and labor rights, occupational health and safety, environmental management, and good corporate governance. Registered vendors are also encouraged to sign an SCOC compliance statement; All new vendors have acknowledged and complied with the business code of conduct. GC also carried out Environmental, Social, and Governance (ESG) assessments among high-spending suppliers (1st tier critical suppliers) for the seventh consecutive year. In 2022, A total of 83 suppliers underwent the assessment, and the results showed no violation of labor rights or human rights, good corporate governance principles, business code of conduct, or applicable laws, rules, and regulations, and that the safety management and law was up to standards.

GC has consistently procured products and services from suppliers in four Municipal District Community

around the Map Ta Phut Industrial Estate to promote employment, generate revenue, and enhance the quality of life of the local people as well as to contribute to Rayong's economic development. GC's procurement from this community throughout the period from January to December, 2022, was worth approximately Baht 135 million.

Furthermore, GC organized the 2022 annual supplier conference on the topic "Transformation to Sustainability: Accelerated Digitalization Speeds Towards Sustainability" to sustainably develop collaboration with its suppliers. In addition, GC communicated to its suppliers its vision, action plans, legal requirements, as well as business strategies and directions and informed them of the business code of conduct and good corporate governance principles to reassert its intention of anti-corruption. GC also informed its suppliers of its no-gift policy and encouraged them to become member of the Thai Private Sector Collective Action Against Corruption (CAC). GC also welcomed opinions and complaints from its personnel and external parties through the whistleblower system, prioritized the upholding of human rights, communicated its sustainability action plans, and promoted the exchange and development of commercial, environmental, social, and corporate governance knowledge among the suppliers.

Additionally, GC's procurement, as well as documents and operational manuals, has been made compliant with the Personal Data Protection Act B.E. 2562 (2019). GC has also communicated relevant guidelines to relevant stakeholders, including suppliers, users, and procurement officers, as well as monitored and verified the operation to ensure the established process is correctly implemented.

Business Competitors

To ensure that treatment of business competitors is consistent with international standards and within the scope of the laws on trade competition, GC has established its Business Code of Conduct on the Treatment of Business Competitors in conformity to those principles to ensure fair and transparent competition by neither seeking confidential information of business competitors through fraudulent or inappropriate means nor tarnishing their reputation with slanders or give a negative review.

Creditors

GC treats its creditors fairly and responsibly and strictly complies with contractual terms and conditions. A Payment Tracking System (PTS) has been set up to enable creditors to conveniently track and check payment statuses by themselves. GC, in collaboration with financial institutes, has introduced an e-Mail Advice System, which is based on GC's Outsourced Payment System for informs a necessary information in advance to its creditors. An additional system has also been introduced to issue invoices, tax invoices, and receipts electronically. Accounts payable aging reports are also prepared for the benefit of tracking the resolution of overdue transactions. In the event that GC is unable to fulfill contractual obligations or terms, it will notify its creditors in advance to seek mutual resolutions.

In collaboration with banking institutions, GC has introduced blockchain to the management of letters of guarantee and implemented strict measures for the verification of changes in creditor data to prevent cybersecurity risks and ensure that all transactions are correct and appropriate. GC has also coordinated with banking institutions to introducing the e-Withholding tax system to enable creditors to review data through the Revenue Department's system by themselves as well as enforced a standard for companies in GC Group requiring that they comply with the conditions between GC and its creditors to ensure adherence to defined procedures, prudence, and accountability.

For financial institutions and debenture holders, GC gives equal opportunities for all financial institutes to propose transactions. GC treats creditors as equals, fairly manage loan agreements and maintains independence in decision making. It also acts on the basis of integrity without requesting, accepting, or offering any undue benefits in its contact with financial institutions and debenture holders. All information of events related to GC's businesses is also regularly disclosed to creditors, debenture holders, and institutional investors. GC also fosters relations with creditors through activities every year.

GC has also established a Personal Data Privacy Policy for the oversight and management of personal data, including the storage, collection, use, and disclosure. To ensure that GC's operation is in compliance with the Personal Data Protection Act (PDPA) and relevant laws in accordance with GC's corporate governance policy.

Public Sector

Recognizing the significance of the public sector as one of GC Group's stakeholders, GC has established a guideline on the treatment of the public sector in the countries in which it invests so as to avoid adverse consequences. The treatment of the public sector policy has been included in the Corporate Governance and Business Code of Conduct Handbook. GC also strives to comply laws, rules, and governmental regulations in obtaining support for its business activities, which includes:

- (1) support for GC's strategies, such as the advancement of requirements, regulations, and standards, and the undertaking of joint projects to support national policies and bring benefits to GC's activities;
 - (2) support for GC's usual business operations, such as permits, benefits, and concessions according to applicable laws, rules, and regulations as well as established procedures, processes and practices.
- All contacts and communication with the public sector, including local authorities and state enterprises, must be transparent, with full disclosure of accurate information as per governmental requirements. To this end, GC has adopted the Online Permits & Privilege Licenses System in the planning and monitoring of operation progress to ensure compliance with governmental rules, regulations, and conditions.

Other activities carried out by GC are as follows:

- Establishing an emergency communication center, which is connected to Rayong's local communication centers, and publicly disclosing the name of the officers assigned to communicate with government agencies so as to make known information communicated to relevant government agencies and local communities as well as create an accurate understanding of situations.
- Organizing activities to foster relations with relevant government agencies, such as anti-corruption activities that fostered understanding and reaffirmed mutual commitment to transparency and anti-corruption efforts.
- Providing venues for meetings held to share knowledge on new laws and other activities.
- Collaborating with the public sector to improve work processes, such as by increasing the use of online systems and reducing redundant steps.
- Keeping track of measures introduced in Rayong and at the national level to ensure that relevant communications and preparations are made and that they are implemented correctly.

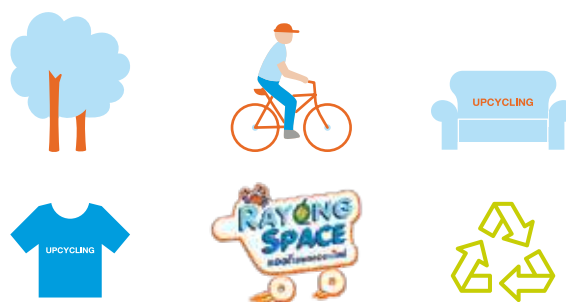
Employees

GC ensures that its employee care is in line with good corporate governance principles and business ethics by fostering positive experience for employees at every part of the employee life cycle, focusing on employee development through various forms of learning in order to promote practical application, which include a 24/7 digital learning platform where employees could learn anywhere and anytime. GC also ensures the well-being of its employees and a safe work environment and conducts employee surveys on various topics to understand their issues and true needs and make improvements accordingly. As a policy, GC determines employee remuneration based on its performance, provides competitive welfare of its employees and their families compared to other leading companies in similar businesses, and provides care to ensure a happy retirement for its employees.

In addition, it is GC's policy to employ and promote career advancement for people with disabilities, in line with the Empowerment of Persons With Disabilities Act, B.E. 2550 (2007). Details of GC's employee treatment with respect to human rights appear under "Employees."

Society, Communities, and the Environment

Under the Sustainability Management Policy of GC Group, GC strives to lead the charge in operating its business in line with sustainable development guidelines, foster confidence and respond to stakeholders expectations through operational excellence and transparency, and take into account the preservation of an economic, social, and environmental balance. The policy is supported, advanced, and complied accordingly by Executives and employees at all levels. GC's Corporate Social Responsibility (CSR) strategic plans are formulated in accordance with its strategies. In this regard, GC has initiated a forestation project to increase green spaces in underserved areas in Bangkok as well as a seagrass planting project for ecosystem revitalization and is planning a mangrove reforestation project in suitable areas in Thailand for the next year. The objective



of these projects is to achieve net-zero greenhouse gas emissions and mitigate global warming, which is one of GC's core targets. In tandem, GC has continued to carry out circular economy initiatives, including the construction of community waste hubs in communities surrounding its manufacturing plants. The project is set to be scaled up to other provinces with preparedness, using the concept of social enterprise models to foster sustainability in communities. This way, communities will not only reap environmental benefits through proper waste management but will also gain income through employment and the sales of good quality plastic waste for further upcycling. GC also seeks to address the fundamental needs of communities and stimulate grassroots economies through its social enterprise Pracharath Rak Samakkee Rayong (Social Enterprise) Company Limited, as well as offer marketing assistance and create a marketplace for local Rayong products on online platforms, such as through the Rayong Space fanpage and by having young influencers promoting local products through social media to increase customer reach.

GC has also adopted the world-class sustainability reporting framework known as Integrated Sustainability Report (ISR), which covers economic, social and environmental topics, as well as other issues that may significantly affect GC. Further details can be found in the Integrated Sustainability Report 2022.

Compensation for Violations of Rights

GC has established guidelines to protect the rights of stakeholders in case of violations resulting from the business operation of GC Group, whereby the compensation offered shall not be lower than the legally-mandated rate.

Prevention of Internal Information Use

GC's Internal information use Policy and guideline have been included in the Corporate Governance and Business Code of Conduct Handbook and published on the Company's website for shareholders' ready access and acknowledgment. Directors, Executives and employees are constantly reminded to comply with the policy, under which they are prohibited from using material insider information not yet publicly disclosed

for personal gain or the benefit of others, including for trading GC's securities. The essence of the policy is summarized below:

- (1) Directors and Executives under SEC's definition must report to SEC changes in their holding of the Company's shares within three business days as required by SEC. Moreover, the Company has established a policy requiring Directors and Executives to notify the Company Secretary of their intention to trade the Company's shares at least one business day before the transaction is made.
- (2) The Board of Directors monitors each individual's compliance with GC's Business Code of Conduct on internal information use every month. The Company Secretary, who receives information from SEC via email on changes to Directors and Executives' shareholding when their shares are traded or transferred, will report such changes to the Board of Directors. Their shareholding at the beginning and the end of each fiscal year and any changes during the year are disclosed.
- (3) GC notifies Directors and Executives in writing that they are prohibited from trading the Company's shares 30 days ahead of the disclosure of the quarterly and annual financial statements or that of other information that may affect the prices of the Company's shares. They are also prohibited from trading the Company's shares within 24 hours after the said disclosure.
- (4) All Executives and employees are required to comply with the Company's guidelines on confidentiality of information and safeguard its information, customers'/supplier information, and personal information of related parties. They are also required to adhere to the Company's measures on the safeguarding of confidential information or information that is not yet publicly disclosed.
- (5) GC's Directors, Executives and employees are regularly kept up to date on regulations and policies regarding insider information to ensure their acknowledgement and compliance. The Company has clearly prescribed disciplinary sanctions in case of violation of the inside trading policy.

Details on the results of internal information use appears under "Ensure Compliance with Corporate Governance policy and practices."

Prevention of Conflicts of Interest

The Board of Directors has included a policy and guidelines for considering transactions that involve or may involve a conflict of interest in the Corporate Governance and Business Code of Conduct Handbook, to which all Directors, Executives and employees must adhere. They must also carefully follow the guidelines for connected transactions and refrain from violating the regulations of SEC and SET. Directors and Executives under SEC's definition must report their interests and those of their related parties to the Company. In addition, a connected transactions manual has been issued, and principles concerning connected transactions have been communicated to relevant units under GC Group. Information on these transactions has been collected in a database retrievable by relevant departments for reference so as to prevent errors.

GC has also put in place measures to prevent conflicts of interest, under which Directors, Executives, and all employees are required to annually report potential conflicts of interest. When a conflict of interest arises, the person with vested interests must immediately report GC of such a conflict, using the Conflict of Interest Form (for the Directors) or report via the intranet (for Executives and employees), to their supervisors for acknowledgement so that they can take suitable action.

Details on the results of the prevention of conflicts of interest appears under "Ensure Compliance with Corporate Governance policy and practices."

Anti-corruption

GC has established an Anti-Corruption Policy, which has been approved by the Board of Directors, as well as written guidelines precluding all requests, receives, payments, and transactions with individuals or juristic persons involved in corruption, with disciplinary sanctions clearly defined. The policy is included in the Corporate Governance and Business Code of Conduct Handbook for Directors, Executives and employees to follow. In addition, the Company is a member of Thai Private Sector Collective Action Against Corruption (CAC) as well as a CAC Change Agent and encourages its suppliers to join CAC as a member. Further details can be found under "Ensure Compliance with Corporate Governance policy and practices."

Business Code of Conduct

Corporate Governance and Business Code of Conduct Handbook

The Board of Directors approved the compilation of "Corporate Governance and Business Code of Conduct Handbook," comprising two parts. The first part is the corporate governance structure and the second part is the principles according to corporate governance policy and business code of conduct, consisting of principles and best practices for ethical business operations, such as observance of laws, rules and regulations; anti-fraud and anti-corruption measures; responsibility towards stakeholders; human rights; consumer rights; and fair labor. The handbook was distributed to all Directors, Executives and employees and required them to sign a compliance statement to pledge their adoption of the handbook as guidance in their performance of duties according to corporate governance policy. The Business Code of Conduct Handbook has also been distributed to GC's joint ventures and business partners and published on the Company's website (www.pttgcgroup.com) under "Corporate Governance and Business Code of Conduct Handbook" for ready access for stakeholders, regulatory agencies, and those interested. The details of the Business Code of Conduct are shown in Attachment 5 under "GC Policy and Practices of Corporate Governance and Business Code of Conduct."

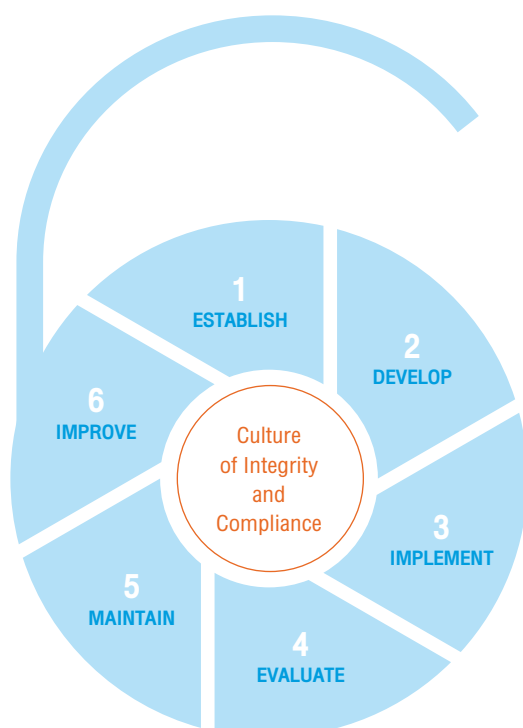
Additionally, the Board of Directors has implemented an annual review of the Corporate Governance and Business Code of Conduct Handbook to ensure its



consistency with criteria and practices issued by regulators and assessment agencies, both domestic and international. In 2022, GC revised its Corporate Governance and Business Code of Conduct Handbook to ensure consistency with the assessment criteria of the Thai Private Sector Collective Action Against Corruption (CAC) and GC's operation and policies, and the wording was edited to improve relevancy. In addition, the Board of Directors and Executives, who serve a crucial role in fostering and driving an ethical organizational culture, have also formulated and cultivated GC SPIRIT 4 Core Behaviors, an organizational value that places importance on integrity and ethics. GC SPIRIT: 4 Core Behaviors, along with the topics of corporate governance, risk management and internal control, and compliance (GRC), have been communicated to all employees across the organization through CEO Townhall and integrated into the work process in order to cultivate them into GC's corporate culture.

Corporate Compliance

Recognizing that compliance with laws or even more stringent standards promotes sustainable development, GC places importance on operating its businesses in full compliance with relevant regulatory and legal requirements at Thai and overseas. The Company has adopted the ISO 19600 (Compliance Management Systems-Guidelines: 2014 (E)) standard as its operational framework in order to ensure an organization culture of integrity and compliance, which comprises six steps:



(1) Establish; (2) Develop; (3) Implement; (4) Evaluate; (5) Maintain; and (6) Improve. At the operational level, the first line of defense has prepared and disseminated information on the corporate compliance comprising three processes, namely (1) Assessment - to identify major non-compliance risks; (2) Prevention - to define measures for compliance control and minimize non-compliance risk; and (3) Correction and Improvement - to appropriately respond to or manage matters that deviate from the standard and to regularly review and improve control measures.

GC has also further improved its compliance management system by introducing the principles of internal control systems to enable operators to identify and assess compliance risks relevant in the work process and create a database for GC Group for the undertaking of compliance assessments to identify deviations or non-compliance in order to establish suitable compliance controls. In addition, the ISO 37301 : Compliance Management Systems - 2021 (E) has been adopted as guidelines for optimizing compliance efficiency to prevent risks and foster GC's sustainability.

In addition, GC has implemented organization-wide compliance oversight, and the performance is reported to the Corporate Governance and Sustainability Committee for their acknowledgement and comments to ensure that GC's corporate compliance process is more efficient and consistent with international standards.

Dissemination of Good Corporate Governance Principles

GC communicates its key corporate governance principle entitled "C R E A T E," comprising six elements: the Creation of long-term value for the organization; Responsibility; Equitable treatment of all stakeholders; Accountability for decisions made and being able to



PTT GROUP CG DAY 2022 : TOGETHERVERSE CG POWER FOR SUSTAINABILITY & BEYOND ON 23 NOVEMBER 2022



HOOK ACKNOWLEDGEMENT AND LEARNING

offer justification for such decisions; Transparency, which entails full, accurate, equitable and timely disclosure through appropriate channels; and Ethics in business conduct, to its employees for their acknowledgement from the first day of work. GC also continuously underlines and instills corporate governance principles into its employees through training programs, seminars, and other activities. For example, GC offers a mandatory e-Learning program on its “Hook Acknowledgment and Learning” system, through which Executives and employees can sign the acknowledgement of the Corporate Governance and Business Code of Conduct Handbook and take a test. “PTT Group CG Day 2022: Togetherverse CG Power for Sustainability & Beyond” was also organized to foster an understanding among employees, suppliers, customers, and relevant agencies of the role of corporate governance in driving the organization towards a sustainable future. Additionally, GC’s corporate governance practices are assessed by domestic regulatory authorities and international standards, such as the Thai Institute of Directors Association (IOD), the Thai Investors Association (TIA), and the Dow Jones Sustainability Indices (DJSI) in order to gauge GC’s corporate governance performance and keep its corporate governance practices in line with international standards.

Furthermore, Executives have communicated the principles of corporate governance, risk management, and internal control as well as corporate compliance to employees through Hook Talk videos in key meetings of each business unit and in internal meetings of each department to encourage them to behave ethically, be mindful of risks and internal control, and perform their duties in strict compliance with good corporate governance principles, the Company’s regulations, laws and rules in addition to regularly improves its best practices.

Major Changes and Developments in Corporate Governance Policy, Practices, and Systems

In 2022, GC’s major changes and developments in its corporate governance policy, practices, and systems for the optimization of corporate governance and the enhancement of GC’s corporate governance standards in line with CG Code can be summarized as follows:

Determination of goals, strategies and corporate cultures

- Establishing a suitable hurdle rate for each business unit consistent with its competitive situation and strategies for implementation in making investment decisions; and adding new criteria for investment decisions, such as GHG emission reduction and energy saving.
- Incorporating Governance, Risk management and internal control, and Compliance (GRC) into the corporate values to ensure consistency with corporate governance principles.
- Adjusting criteria for Cross Functional Initiatives to increase their alignment with GC’s vision and missions, such as the streamlining of the work process to reduce the working time required and achieve better outcomes.
- Preparing MFBT Playbook (Market Focused Business Transformation) and incorporating the topic of innovation culture into GC SPIRIT 4 Core Behaviors.
- Promoting the role of Executives as GC SPIRIT 4 Core Behaviors role models through the delivery of narrative speeches on the topics of GC Leadership System and GCMS Leadership System with GC SPIRIT 4 Core Behaviors, with a post-talk outcome assessment.

Strengthening an effective Board of Directors

- Revising director nomination and selection criteria and procedures to ensure compliance with laws, rules, regulations, and the current duties of the Nomination and Remuneration Committee.
- Engaging EY Corporate Services Limited (EY) to serve as consultant for the 2022 Board of Directors performance assessment, with the following scope of work:
 1. Establishing guidelines and providing suggestions for improving the three types of board performance assessments (group assessment, self-assessment, cross-assessment)

- GC has improved its the Board of Directors performance assessments (group assessment, self-assessment, cross-assessment) to ensure compliance with applicable laws, rules, and regulations, good corporate governance principles, practices at national and international levels, and the current business conditions and relevant trends.
- 2. Conducting the Board of Directors performance assessments using individual interviews.
- 3. Summarizing and analyzing assessment results to improve, monitor, and develop the performance of duties of the Board of Directors and enhance the efficiency.
- 4. Providing suggestions and consultation on the Board of Directors performance assessments.
- Improving the performance assessments of three Sub-committees, namely the Nomination and Remuneration Committee, the Corporate Governance and Sustainability Committee, and the Audit Committee (group assessment and individual assessment) to ensure consistency with the board performance assessment forms, the scope of duties according to their charters, and criteria of regulators for application in developing/improving their efficiency.
- Organizing training for the Audit Committee on financial and accounting reporting standards for sustainability.
- Amending the charters of two Sub-committees:
 - The Charter of the Nomination and Remuneration Committee: The scope of duties was revised for greater clarity and consistency with the discharge of current duties.
 - The Charter of the Audit Committee: The scope of duties was revised for greater clarity and complied with law and regulations.

Establishment/revision of policies, handbooks and guidelines

- Revising the content and practices in the the Corporate Governance and Business Code of Conduct Handbook to ensure alignment with domestic and international good corporate governance assessment criteria and GC's policies.

- Revising the Quality, Security, Safety, Occupational Health, Environment, and Business Continuity Policy, specifying operations that prioritize the assessment and prevention of impacts upon the environment and ecosystem, the preservation of biodiversity and the circular use of resources in order to achieve net-zero greenhouse gas emissions by 2050.
- Establishing a green digital management policy/guidelines, focusing on procurement for the fostering of a safe, eco-friendly, high-quality digital culture; the proper use of digital products and services; and the optimization of energy use for digital products and services.
- Amending GC's regulation on data classification and the security of GC's data and documents in the year 2022 to ensure the storage of vital data and documents was in compliance with the Data Governance Policy.
- Revising the complaint management handbook to cover all relevant units.

Supervision of policies and operation of GC Group

- Revising GC Way of Conduct guideline by applying various international standards and realigning the guidelines to the business context and risks of each company in GC Group as appropriate.
- Preparing the revised 2022 GC Way of Conduct booklet and distributing it to Executives appointed as Directors or Executives in a subsidiary and to GC's Executives or units which are responsible for oversight of a subsidiary in order to provide operational guidelines in key areas for companies in GC Group to ensure operational accuracy, transparency, standard, and clarity and create a functional management system that is consistent with GC's direction.
- Developing a webpage through the Share Point system to provide an additional access to data and news related to GC Way of Conduct that are always up-to-date, such as communication documents and Frequently Asked Questions (FAQs).
- Revising the Subsidiary Directors Handbook on the guideline of appointing personnel as Directors in a subsidiary to improve efficiency and consistency with the current work process.
- Providing consultancy on subsidiary portfolio management to subsidiary governance unit to ensure the adequacy and uniformity of the work processes with regard to governance, risk management, and internal control.

Responsibility towards stakeholders

Customers/Suppliers

- Improving the Performance Excellence Management System (GCMS) to cover customer management and marketing in order to generate value for customers through the delivery of excellent products and services; and improving various components of the customer management and marketing system, such as the voice-of-the-customer (VOC) process, the customer strategy and marketing planning process, the customer relationship fostering process, and the customer and marketing data management process.
- Initiating a Vendor/Supplier Registration (AVL/ASL) and Vendor Performance Management project, which that encompasses supplier registration, data on the products and services of approved vendors, essential vendor information, risk data, as well as vendor performance assessment.
- Initiating a Smart Work Request project for the procurement of services from suppliers with long-term agreements with GC, which improves operational agility and allows for status tracking and budget control.
- Organizing seminar sessions for target suppliers to foster an understanding of decarbonization.



Shareholders

- Organizing the 2022 Annual General Meeting of Shareholders via electronic means (E-AGM) in compliance with relevant electronic meetings laws, notifications, and measures prescribed by various agencies.

Risk management and internal control

- Organizational structure management:
 - Developing a leadership assessment tool for assessing business competency, agility, and personal attributes in order to review the preparedness of managerial-level executives in the talent pool and the successor pool against the global benchmark.
- Expanding the scope of sustainability operation oversight at the levels of Directors and the Management and scaling up the sustainability guidelines to the entire GC Group.
- Revising members of the Sustainable Development Committee (SDC), improving their roles and responsibilities, and appointing a Decarbonization Workstream to drive and monitor operations in accordance with the Decarbonization Roadmap.
- Amending the appointment order of the Technology Committee appointment by assigning the highest-level Sustainability executive officer and the highest-level Technical, Engineering, and Maintenance executive officer as members of the committee to enhance the efficiency of innovation operations and ensure GC's sustainable and secure business advancement.
- Appointing committees in each business unit to ensure the product and technology research and development policies and strategic plans of each business unit are aligned with GC's development direction as well as to promote and drive the efficient commercialization of research projects, namely the Innovation Process and Base Chemicals Committee (IPBC), the Innovation Value added Product Committee (IVPC), and the Long Term Innovation Committee (LTIC).
- Developing a GC Enterprise Risk Taxonomy and communicating it to relevant parties for adoption for the risk assessments of 2023 at corporate and business unit levels to connect risks at each level through uniform nomenclature across the organization, integrate risk management, enhance risk management efficiency at all levels, and pave the way for the deployment of an Integrated GRC Digital Platform in the future.
- Formulating an Internal Control Questionnaire (ICQ) to assess the adequacy of the internal control of GC Group in line with COSO principles for internal control for use in five key processes: Compliance, Order to Cash, Procure to Pay, Fixed Asset Management, and Information Technology.

- Fraud and Anti-corruption actions:
 - Encouraging GC Group to become members of the Thai Private Sector Collective Action Against Corruption (CAC), with two companies becoming successfully certified members and one company declaring intent to join CAC in 2022.
 - Joining the CAC Change Agent Program to demonstrate its intent to expand the network of business transparency to its suppliers, with 10 suppliers having declared their intent to join the program, thus earning GC a CAC Change Agent Award.
 - Developing a fraud risk assessment on CSA Connect system to further clarify and cover more aspects of fraud and allow for self-assessment of fraud risks.
 - Developing and activating the Automated CAC Checklist system to improve work processes and optimize the management of GC's anti-corruption measure compliance database as well as data monitoring, processing, analysis, and verification; and providing suggestions on the CAC Checklist via an online system.
- IT governance and management:
 - Implementing the Data Governance Policy, including the appointment of a data governance working team and the establishment of IT

governance framework and IT governance standards, processes, or guidelines.

- Conducting cyber attack IT & data leak drills and crisis and business continuity management drills at the corporate level.
- Establishing a division-level IT security unit to oversee and develop policies and standards, provide recommendations, and manage cybersecurity risks for GC Group; to introduce cybersecurity technologies to GC Group; and to provide support to enhance cybersecurity awareness and knowledge among employees.

The Board of Directors recognizes its role as a governing body of the Company. To this end, the Board has prescribed a review of the application of the Corporate Governance Code for Listed Company 2017 (CG Code) to GC's business context at least once a year as well as an assessment of CG Code compliance to ensure that the outcome is appropriate and that the development plans suitable for the business are consistently formulated. Based on the item-by-item review and assessment results of CG Code compliance in 2022, it was found that GC successfully apply most of the items of CG Code in accordance with the Apply and Explain principle. For any item of the CG Code that GC was unable to or had yet to apply to its business, explanations were been recorded as part of the Board's resolution.

Practice/Guideline	GC's practice
Item 3.1.2 The Board of Directors should determine the appropriate number of Directors to allow the efficient performance of duties, whereby the number of directors shall be no less than five and not exceeding twelve directors, depending on the size, types, and complexity of the business.	■ The Corporate Governance and Business Code of Conduct Handbook stipulates that the Board of Directors shall consist of no fewer than five Directors but no more than fifteen Directors. The Meeting No.13/2018 of the Board of Directors dated December 20, 2018, resolved that the aforesaid number of Directors was appropriate for GC's complexity and the diversity of its business types. ■ GC's articles of association prescribe that the Board of Directors shall consist of no fewer than five Directors but no more than fifteen Directors.
Item 4.2.1 (1) The Board of Directors should ensure that a compensation structure is in place and takes into consideration the appropriate ratio of salary, short-term operation results, such as bonuses, and long-term operation results, such as employee stock ownership plans.	■ The Company is in the process of considering the appropriate compensation structure and the connection of compensation to long-term operation results, project duration, and the stock exchange conditions that would facilitate such undertakings.

Compliance with Corporate Governance Principles in Other Areas

GC consistently complies with corporate governance standards. Relevant activities in 2022 are summarized below.

Board KPIs

The Board of Directors reviewed the Board KPIs to be implemented in 2022 to ensure their alignment with the best practices stipulated in CG Code and DJSI.

Data Governance

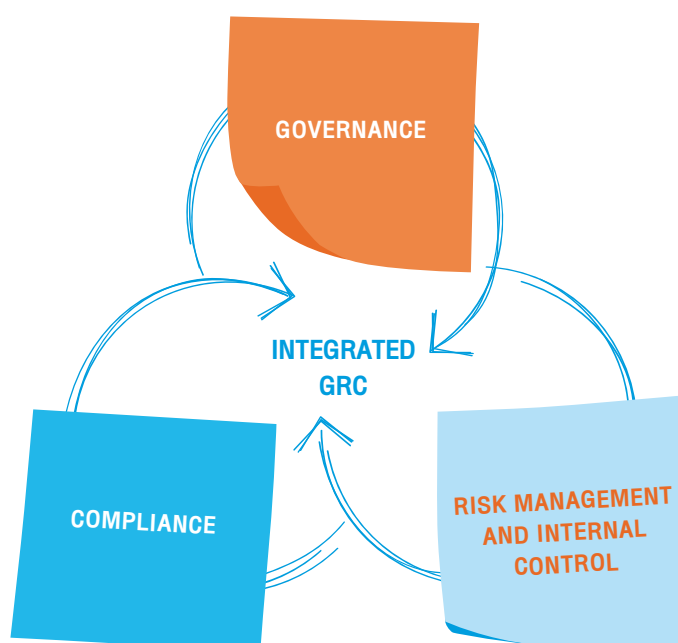
GC introduced a data governance framework and adopted GCMS, which was an integrated management system, to drive the participation of all personnel in data management to ensure the standard, quality, and availability of GC's data and to foster an ethical awareness for proper data usage and sharing in compliance with GC's regulations and the Personal Data Protection Act B.E. 2019 (PDPA).

To this end, GC put in place responsible persons, data management standards and processes, as well as big data management technology to support the expansion of advanced analytics and transform GC into a robust data-driven organization. Relevant initiatives include the following:

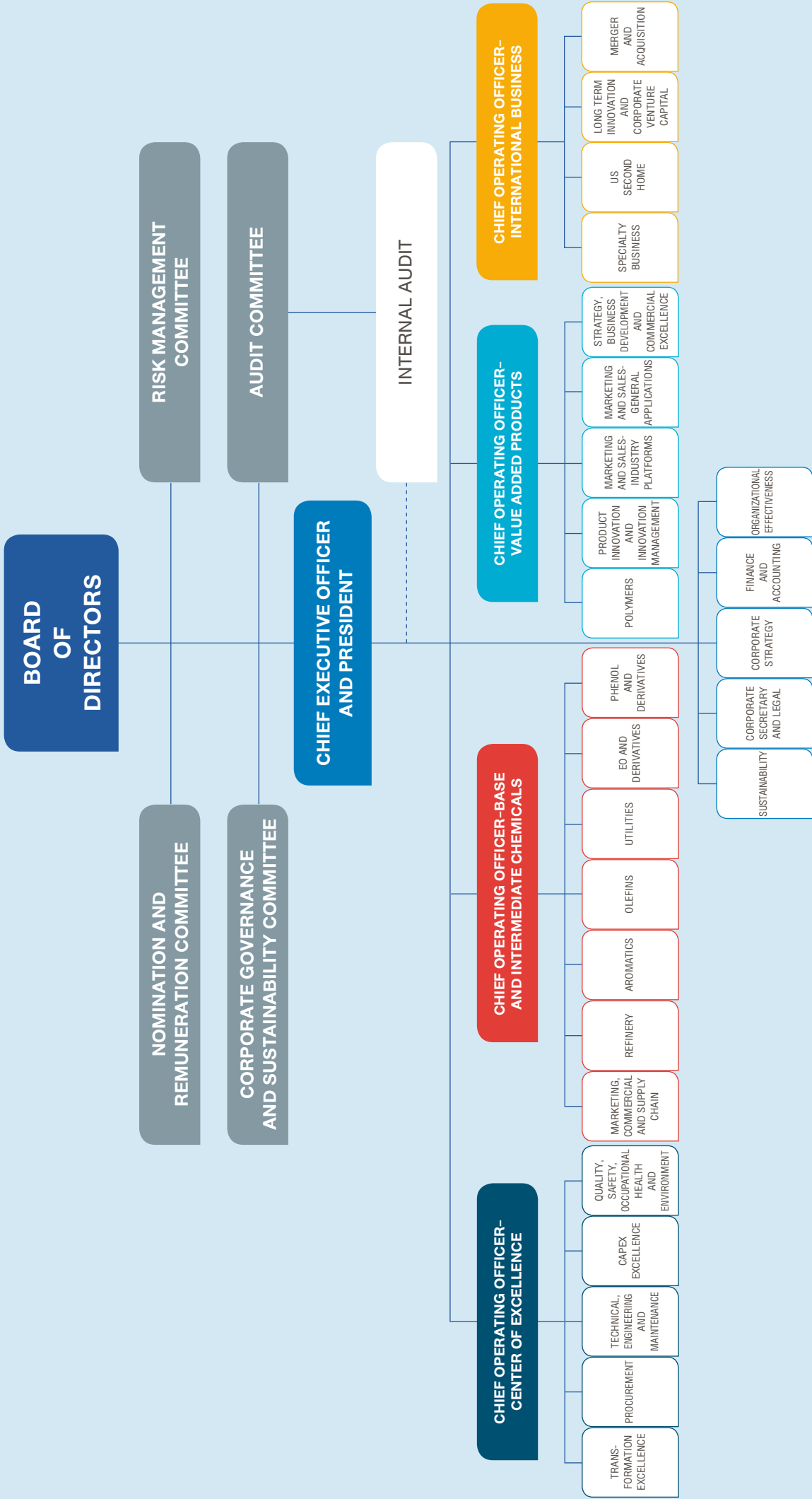
1. Appointing data governance executors consisting data owners and data stewards, who were tasked with establishing data management standards to ensure data quality, control data access, and address data integration issues.
2. Declaring data management standards, such as the CDE/ECDE standard, the data quality standard, and the data integration standard.
3. Introducing regulations on data classification and handling procedures as well as data quality management procedures.
4. Implementing master data quality management, which, in the first phase, covered data on materials, vendors, customers, equipment, plant maintenance, and ready made assets.
5. Prescribing data management as part of project methodology implementation to develop digital use cases and requiring all key projects of GC to have a data management process that meets standards and ensures data quality throughout the duration of the projects.
6. Developing tools, connectivity, and data transfer via cloud technology and developing a data catalog to systematically integrate GC's data catalogs and datasets so as to give employees a convenient access to data and enable them to utilize it to create added value for GC in a sustainable way.
7. Informing and educating employees at all levels through communications to foster their understanding of data management and enable them to use data correctly and safely.

Integrated Governance, Risk Management and Internal Control, and Compliance (Integrated GRC)

GC places importance on the integration of Governance, Risk management and internal control, and Compliance (GRC), to enable it to achieve its business goals with efficiency, transparency, and accountability and minimize risks that may affect its business. Further details of GRC operations appear under "Internal Control."



ORGANIZATION STRUCTURE



BOARD OF DIRECTORS

The Board of Directors as of February 1, 2023, comprises the following members:

Name	Position	Date of appointment
1. Mr. Piyasvasti Amranand	Chairman/Chairman of the Independent Director	April 9, 2018
2. Mr. Apisak Tantivorawong	Independent Director/Chairman of the Audit Committee	Jan 24, 2020
3. Mr. Pakorn Nilprapunt ⁽¹⁾	Independent Director/Chairman of the Nomination and Remuneration Committee/Director to the Audit Committee	April 9, 2018
4. Professor Somkit Lertpaithoon	Independent Director/Chairman of the Corporate Governance and Sustainability Committee	April 9, 2018
5. Mr. Grisada Boonrach	Independent Director/Chairman of the Risk Management Committee	June 2, 2020
6. Mrs. Watanan Petersik	Independent Director/Director to the Audit Committee/Director to the Corporate Governance and Sustainability Committee	Sep 22, 2014
7. Mr. Somkiat Prajamwong ⁽²⁾	Independent Director/Director to the Nomination and Remuneration Committee	April 4, 2022
8. Lieutenant General Nimit Suwannarat ⁽³⁾	Independent Director/Director to the Nomination and Remuneration Committee	Jan 1, 2023
9. M.L. Chayotid Kridakon ⁽⁴⁾	Independent Director/Director to the Corporate Governance and Sustainability Committee	May 14, 2022
10. Mr. Chadil Chavanalikhorn ⁽⁵⁾	Director/Director to the Corporate Governance and Sustainability Committee	Dec 19, 2022
11. Mrs. Pantip Sripimol	Director/Director to the Corporate Governance and Sustainability Committee	Nov 22, 2021
12. Mr. Sarawut Kaewtathip	Director/Director to the Risk Management Committee	July 20, 2020
13. Mr. Noppadol Pinsupa ⁽⁶⁾	Director/Director to the Risk Management Committee	Jan 23, 2023
14. Mr. Cherdchai Boonchoochauy ⁽⁷⁾	Director/Director to the Risk Management Committee	Dec 19, 2022
15. Mr. Kongkrapan Intarajang	Director/Secretary to the Board of Directors/Director to the Risk Management Committee/Chief Executive Officer and President	Oct 1, 2019

Remarks:

⁽¹⁾ Mr. Pakorn Nilprapunt, Chairman of the Nomination & Remuneration Committee, replaced Lieutenant General Nithi Chungcharoen, effective January 1, 2023.

⁽²⁾ Mr. Somkiat Prajamwong, Independent Director, replaced Mr. Don Wasantapruet, who passed away, effective April 4, 2022.

⁽³⁾ Lieutenant General Nimit Suwannarat, Independent Director, replaced Lieutenant General Nithi Chungcharoen, effective January 1, 2023.

⁽⁴⁾ M.L. Chayotid Kridakon, Independent Director, replaced Mr. Chansin Treenuchagron, effective May 14, 2022.

⁽⁵⁾ Mr. Chadil Chavanalikhorn, Director, replaced M.L. Peekthong Thongyai, effective December 19, 2022.

⁽⁶⁾ Mr. Noppadol Pinsupa, Director, replaced Mr. Disathat Panyarachun, effective January 23, 2023.

⁽⁷⁾ Mr. Cherdchai Boonchoochauy, Director, replaced Mr. Noppadol Pinsupa, effective December 19, 2022.

Directors who has resigned during the year 2022:

Name	Position	Term of appointment
1. Mr. Don Wasantapruet*	Independent Director/Chairman of the Nomination and Remuneration Committee	Nov 1, 2015 - Mar 14, 2022
2. Mr. Chansin Treenuchagron	Director/Director to the Corporate Governance and Sustainability Committee	Sep 21, 2020 - May 13, 2022
3. Mr. Noppadol Pinsupa	Director/Director to the Corporate Governance and Sustainability Committee	Oct 1, 2021 - Sep 29, 2022
4. M.L. Peekthong Thongyai	Director/Director to the Risk Management Committee	Oct 1, 2021 - Oct 31, 2022
5. Mr. Disathat Panyarachun	Director/Director to the Risk Management Committee	Oct 22, 2018 - Nov 30, 2022
6. Lieutenant General Nithi Chungcharoen	Independent Director/Chairman of the Nomination and Remuneration Committee	Sep 22, 2014 - Dec 31, 2022

Remark: * Passed away on March 14, 2022

Shares held by the Board of Directors under SEC's definition, their spouses, and their minors as of December 31, 2022

Name	Number of Shares		
	As of January 1, 2022	As of December 31, 2022	Increase/(Decrease) of Shares during the Year (Shares)
1. Mr. Piyasvasti Amranand	-None-	-None-	-No change-
2. Mr. Apisak Tantivorawong	-None-	-None-	-No change-
3. Lieutenant General Nithi Chungcharoen	-None-	-None-	-No change-
4. Professor Somkit Lertpaithoon	-None-	-None-	-No change-
5. Mr. Grisada Boonrach	-None-	-None-	-No change-
6. Mrs. Watanan Petersik	-None-	-None-	-No change-
7. Mr. Pakorn Nilprapunt	-None-	-None-	-No change-
8. Mr. Somkiat Prajamwong	-None-	-None-	-No change-
9. M.L. Chayotid Kridakon	-None-	-None-	-No change-
10. Mr.Chadil Chavanalikhikorn	N/A	-None-	-No change-
11. Mrs. Pantip Sripimol	-None-	-None-	-No change-
12. Mr. Sarawut Kaewtathip	-None-	-None-	-No change-
13. Mr.Cherdchai Boonchoochaui	N/A	-None-	-No change-
14. Mr.Kongkrapan Intarajang	-None-	-None-	-No change-

Remark: Lieutenant General Nimit Suwannarat and Mr. Noppadol Pinsupa began their directorship on January 1 and January 23, 2023 respectively.

Composition of the Board of Directors

GC's Articles of Association mandate that the Board of Directors be composed of no fewer than five but no more than 15 Directors. Each Director is to serve a three-year term. At least one-third and no fewer than three Directors on the entire Board must be Independent Directors. According to good corporate governance principles, more than half of the Board of Directors must be Independent Directors. Furthermore, GC's good corporate governance principles prescribe that at least half of the Board of Directors must be residents of the Kingdom of Thailand. These Directors must also have the legally required qualifications, not possess any attributes prohibited by law and not be over the age of 70.

The composition of the Board of Directors and its members' qualifications comply with its Articles of Association, good corporate governance principles,

and legal regulations. In addition, the Company's policy protects Directors from any form of gender discrimination. The Board of Directors comprises individuals from diverse fields of knowledge, expertise and professional experience which are beneficial to the Company's business operations. Furthermore, each Director may hold a directorship at no more than five companies listed with the Stock Exchange of Thailand (SET) and at no more than three state enterprises or juristic persons whose shares are held by state enterprises, according to a resolution passed by the cabinet. As of February 1, 2023, the Company's Board of Directors comprises a total of 15 Directors, which is a number appropriate for its business size and type. These Directors are divided into the following categories:

- (1) 14 Non-Executive Directors
- (2) 1 Executive Director, namely the Chief Executive Officer and President
- (3) 9 Independent Directors (over half the number of the Board's total)
- (4) 2 Female Directors

Authority and Responsibilities of the Board of Directors

The Board of Directors governs the Company's operations and ensures strict compliance with applicable laws, GC's objectives and Articles of Association, and shareholder resolutions, as well as good corporate governance principles and the Code of Best Practices of Directors of Listed Companies set forth by SET. All Directors possess the knowledge and capability needed to perform their duties for the benefit of the Company and its shareholders. The Board's authority and responsibilities are summarized below:

- 1) Discharge its duties and oversee the Company's operations to ensure strict compliance with applicable laws, GC's objectives and Articles of Association, and shareholder resolutions, as well as good corporate governance principles and the Code of Best Practices of Directors of Listed Companies set forth by SET.
- 2) Dedicate its time and attention to establishing the Company's vision, mission, directions, and strategies as well as freely express opinions and seek useful information to determine the direction of the Company.
- 3) Review and approve key strategies and policies as well as objectives, financial goals, and corporate plans, as well as supervise and monitor the management's implementation of the Company's strategic plans in compliance with the defined directions and strategies to ensure that the management is able to achieve the Company's vision, directions and strategies with efficiency
- 4) Establish Corporate Governance Policy and Business Code of Conduct, which appropriately outline principles and good practices for the Board, the management, and staff members, and cultivate responsibility awareness in all employees to promote an understanding of and strict compliance with these principles and guidelines, in addition to the Company's rules and regulations, to assure all stakeholders of fairness.
- 5) Exercise approval authority on various matters beyond the authority granted to the Chief Executive Officer and President in the Company's provision, namely GC Group's budget, investment, project implementation, as well as key contract entry, the appointment of Directors to replace those resigning during the year or to Sub-committee, naming of authorized Directors, and the appointment of the dates for the annual general meeting of shareholders and interim dividend payment.
- 6) Ensure that the corporate accounting system, financial reporting and auditing are credible, supervise the assessment of internal control's adequacy, and ensure that internal audits are performed efficiently and effectively.
- 7) Consider all relevant risk factors and devise comprehensive risk management guidelines, ensure that the Company's Executives are equipped with an efficient risk management system or process to mitigate risks as well as to explore business opportunities that may arise from these risks, and ensure that adequate and effective internal control is in place.
- 8) Monitor and manage all conflicts of interest as well as all connected transactions that may arise and value key transactions to maximize the benefit of shareholders and other stakeholders.
- 9) Provide appropriate channels of communication to each group of shareholders and ensure that the disclosure of information is accurate, clear, transparent, reliable, and of the highest standard.
- 10) Regularly conduct assessments and reviews of its own performance and that of the Chief Executive Officer and President.
- 11) Provide a suitable compensation system or mechanism for the Company's Executives relative to the performance of the Company to induce short-term and long-term motivation.
- 12) Act as leaders and role models in line with the Company's Corporate Governance Policy.
- 13) Assess corporate adherence to the Company's Corporate Governance Policy and Business Code of Conduct at least once a year.
- 14) Provide an appropriate, transparent, and fair nomination system for all key managerial positions. Top executives, from Executive Vice Presidents to the Chief Executive Officer and President, are appointed by the Board's majority votes.
- 15) Report to the Company any conflict of interest that its members or their affiliates may have with the management of the Company or its subsidiaries.
- 16) Attend every Board meeting, as well as every shareholders' meeting. If, under any circumstance, attendance is impossible, the Chairman of the Board must be notified in writing.
- 17) Value corporate social and environmental responsibility and promote a better quality of life for Thai people sustainably, starting with improving the standard of living of communities around the Company's plants to foster an environment where its plants and these communities co-exist in a sustainable manner.
- 18) Provide support to all anti-fraud initiatives for the purpose of progress and sustainable growth.

Moreover, the Board of Directors must obtain permission from the shareholders' meeting before acting on the following issues:

- Acquisition or disposition of an important asset or any connected transaction as prescribed by laws and the Capital Market Supervisory Board.
- Sale or transfer of the Company's entire enterprise or its essential components to other entities.
- Acquisition or transfer of an enterprise to the Company.
- Initiation, modification, or termination of all or some key lease contracts of the Company, including the assignment of lease contracts to other individuals or entry into a partnership with another entity to share profits or losses.
- Making addenda or amendments to the Company's Memorandum or Articles of Association.
- Increasing or decreasing the registered capital.
- Issuance of debentures for sale to the public.
- Dissolution of the Company or merging it with another company.
- Announcing annual dividends.
- Other activities that require approval from the shareholders' meeting as mandated by law or the Company's Articles of Association.

This is to ensure that GC, by means of the Board of Directors, has defined its vision, missions, directions, and strategies as well as established effective systems for the monitoring, assessment, and supervision of the management of the Executives, and that the Board of Directors is independent from the Management and is accountable to the outcome of their performance in accordance with good corporate governance principles in the following matters:

Transactions Involving Potential Conflicts of Interest

- (1) The Board of Directors shall establish policies and guidelines for reviewing transactions that involve or may involve a conflict of interest between shareholders, Directors, Executives, and other persons, both directly and indirectly. Related-party transactions under the approval authority of shareholders must be reviewed by the Audit Committee to ensure their fairness, rationality, and benefits to the shareholders as well as their compliance with laws and SEC's regulations.
- (2) The Board of Directors ensures that the defined procedure is followed with due care on the basis of rationality and independence and that the transaction approval process is transparent and takes into account the best and full interests of the Company in compliance with SEC's regulations.
- (3) Stakeholders may not take part in the approval of such transactions. In every meeting of the Board of Directors, the Chairman of the Board of Directors shall request for the cooperation of the Company's Directors in following the policy on reviewing transactions that may involve a conflict of interest,

whereby the Directors inform the meeting of their stake in order to abstain from voting or giving opinions or to leave the meeting while the agenda item related to them or involving their stake is being considered.

- (4) The Board of Directors ensures the accurate and complete disclosure of all transactions that may involve conflicts of interest in the Form 56-1 One Report.

Risk Management

- (1) The Board of Directors strives to create added value and sustainability for the business in accordance with the principles of good corporate governance. To this end, the Risk Management Committee has been appointed to formulate policies, provide guidelines and recommendations on risk management, as well as establish an efficient and effective risk management system to enable the Company to manage key risks and keep them within the risk appetite.
- (2) The Board of Directors inspects and reviews the operation to ensure compliance with the corporate risk management framework throughout the organization and provides recommendations on the management of key risks. The Board's duties also include reviewing risk management reports and monitoring key risks to ensure appropriate and adequate risk management.

Internal Control and Internal Audit

- (1) The Board of Directors values the significance of internal and has thus established an internal control system to provide assurance in the efficiency and effectiveness of the Company's operations as well as the reliability of its financial reports and compliance with relevant laws, rules, regulations, and anti-corruption principles. The Board of Directors has also established an internal audit policy to serve as operational guidance for the Board itself, Executives, and all employees across GC Group as well as appointed an internal audit unit, which evaluates the adequacy and effectiveness of the Company's internal control system in response to risks independently and reports its findings to the Audit Committee and the Board of Directors.
- (2) The Board of Directors reviews the adequacy of the five components of the Company's internal control system in accordance with the COSO Standard, namely Control Environment, Risk Assessment, Control Activities, the Information and Communication, and Monitoring Activities, on a yearly basis in order to ensure the achievement of the Company's objectives and goals and the continual improvement of the internal control system.

- (3) The Board of Directors puts in place a formal and transparent system to maintaining relationships with external and internal auditors. The Audit Committee is tasked with supporting their performance of duties in accordance with the Board of Directors' responsibilities in adequately evaluate the operations of GC and other companies in GC Group as well as offering independent and objectively opinions on the internal control system and risk management.
- (4) External auditors are required to annually affirm their independence to the Audit Committee and report on all procedures used in their audit firm to ensure their independence.
- (5) External auditors have the right to review reports or other financial reports issued by the Board of Directors in conjunction with their audited financial statements and have the right to include in their reports any anomalies inconsistent with the audited financial statements.
- (6) Audit fees and other fees paid to external auditors are disclosed in Form 56-1 One Report to increase the transparency regarding the auditors' independence.

Appointment to and Termination from the Board of Directors

GC's Articles of Association provide the following guidelines for the appointment to and termination from the Board of Directors:

Appointment

- The Board of Directors shall be elected annually (for replacements of directors retiring by rotations). Shareholders at a shareholders' meeting shall vote to appoint Director(s) according to the following guidelines:
 - (1) Each shareholder shall have one vote per share held.
 - (2) In the event that the number of nominees for the election does not exceed the number of vacant positions, shareholders shall vote on these eligible nominees. Shareholders shall allocate all of their votes per (1) to one nominee without dividing their votes.
 - (3) In the event that the number of nominees exceeds the number of vacant positions, shareholders shall still allocate all of their votes per (1) to one nominee without dividing their votes. Nominees receiving the majority of the votes shall be appointed to the Board until there are no vacancies left. Additionally, in the event that the number of nominees with equal votes exceed the number of available positions, The Chairman of the meeting shall cast the deciding vote.
- The Board of Directors shall nominate one Director as Chairman of the Board of Directors. Decisions made during a Board meeting are based on majority votes. The Chairman shall vote only when a deciding vote is needed. In the event that a Director's position becomes vacant for any reason other than retirement by rotation, the Board may appoint an individual who is qualified and does not possess any attributes prohibited by law as Director to attend the next Board meeting, unless the remaining term is less than two months. The new Director shall serve only the remaining term of his or her predecessor. This decision shall be made only with the agreement of at least three quarters of the remaining Directors.
- In the event that vacancies cause the number of Directors to fall below the quorum, the remaining Directors shall have the only authority to call for a shareholders' meeting in which shareholders shall vote to appoint new Directors to fill these vacancies only. This process must be completed within one month from the date on which the number of Directors no longer constitutes the quorum. These newly appointed Directors shall serve only the remaining terms of their predecessors.

Termination

- At each Annual General Meeting of Shareholders, one-third of the serving Directors shall retire by rotation. In the event that the number of serving Directors is not equality divisible by three, the number of Directors retiring shall be as close to one-third as possible. Directors to retire in the first and second years after Company registration shall be randomly selected; however, in later years, Directors serving the longest terms shall retire. Directors who retire by rotation may be re-elected to the Board.
- In addition to retirement by rotation, other causes for directorship termination include death, resignation, disqualification, and prohibition by law. Additionally, Directors can be terminated by a shareholders' meeting resolution or a court order.
- Resigning Directors must submit their resignation notice to the Company. Resignation is effective from the day the Company receives such notice. In addition, Directors may submit their resignation notice through the registrar. At a shareholders' meeting, shareholders may pass a resolution to force the termination of a Director before his or her term ends with three quarters of the attending and eligible shareholders' votes. Additionally, these majority votes must constitute at least half of the shares held by attending and eligible shareholders.

Independent Directors

According to the Company's corporate governance principles, more than half of the Board of Directors must be Independent Directors. Each Independent Director may serve up to three consecutive terms or up to nine years, with the term beginning from the date of first appointment as Independent Director. These Independent Directors must be experienced and independent as per the Capital Market Supervisory Board's requirements. Additionally, they must hold no more than 0.5% of the Company's shares (a stricter regulation than the Securities and Exchange Commission's limit of 1%). The definition of Independent Directors is disclosed in the Company's Corporate Governance Handbook and on the Company website.

Independent Directors must attend meetings regularly. They are allowed to freely express their opinions during these meetings and, to this end, are entitled to adequate access to company financial and business information. They are also tasked with protecting stakeholders' interests and preventing conflicts of interest among the Company, its executives, Board of Directors and major shareholders.

Currently, the Company has a total of nine Independent Directors, constituting more than one-third of the Board and exceeding the legal requirement. In addition, this number is in line with the Company's corporate governance principles, which stipulate that more than half of Board members must be Independent Directors. Moreover, the Charter of Independent Directors has been established to clearly outline their duties. Under the Charter recently amended to suit the current situation, the duties and responsibilities of Independent Directors are as follows:

- Advise and provide recommendations to the Board of Directors on key issues that the Company should act upon or issues that could be beneficial to the Company, its shareholders, and other relevant stakeholders.
- Ensure the Company's full compliance with its Anti-Corruption Policy and measures.
- Value corporate social and environmental responsibility.
- Seek consultation from external, independent consultants if necessary. The expenses incurred will be borne by the Company
- Ensure that the Company operates according to the regulations and requirements relevant to Independent Directors issued by regulatory bodies for listed companies and review the definition of an Independent Director to make sure that it is appropriate and complete according to legal requirements.
- Review the adequacy of their charter annually and propose recommended amendments, if any, to the Board of Directors for approval.

- Perform other duties as assigned by the Board of Directors, provided that these duties do not interfere with the independent nature required of Independent Directors.

Authorized Directors

According to GC's Articles of Association and Certification of Incorporation from the Department of Business Development of the Ministry of Commerce, as of January 31st, 2023, the authorized signatory Directors of GC specifies that: "(1) Mr. Kongkrapan Intarajang, Chief Executive Officer and President, can sign and affix the Company's seal on behalf of GC; or (2) two of the following three Directors can jointly sign and affix the Company's seal on behalf of GC, namely Mr. Cherdchai Boonchoochauly Mr. Chadil Chavanalikhorn, and Mr. Noppadol Pinsupa."

Roles of the Chairman and the Chief Executive Officer and President

The Chairman of the Board of Directors and the Chief Executive Officer (CEO) and President shall not be the same person. Their duties and responsibilities are distinct and separate, as described below:

The Chairman of the Board of Directors is an Independent Director whose main role is to ensure that the Board of Directors efficiently performs its duties and in compliance with the Company's good corporate governance principles and the business code of conduct, being independent from the management. In addition, the Chairman works with CEO to determine meeting agenda but refrains from participate in day-to-day business management. The Chairman of the Board of Directors will be the chairman of both Board meetings and shareholders' meetings and is prohibited from serving on any Sub-committee as explicitly prescribed in the scope of responsibilities of the Board of Directors and Sub-committees to ensure a clear and suitable separation of duties as well as independent judgment.

The Chief Executive Officer and President is the highest-ranking executive officer whom the Board of Directors chooses and appoints from one of the Directors under the GC's Articles of Association to oversee the Company under Board-assigned policies and directions in accordance with the scope of authority set forth in GC's Articles of Association and regulations. The CEO also serves as Secretary to the Board of Directors. Furthermore, GC's Articles of Association states that the CEO is entitled to compensation and benefits for his role as the highest-ranking executive officer in addition to what he or she receives as a Director. The CEO's roles, duties, and responsibilities, as well as compensation, are published on the Company website in Thai and English.

SUB-COMMITTEES

The Board of Directors at Meeting No.1/2011, held on October 19, 2011, appointed four Sub-committees, namely the Audit Committee, the Nomination and Remuneration Committee, the Corporate Governance and Sustainability Committee, and the Risk Management Committee. Directors serving on these sub-committees possess the expertise and knowledge required to oversee specific issues that each is tasked with according to GC's Articles of Association. The charter of each Sub-committee prescribes its members' desired qualifications, terms in office, and scope of duties and responsibilities. The names of Sub-

committee members, their duties and responsibilities, the number of their meetings and attendance in these meetings are detailed below.

Serving a three-year term, Directors appointed to these Sub-committees are to perform their specific tasks with diligence and efficiency. All Sub-committees report their performance to the Board of Directors at Board meetings regularly as well as disclose their annual performance to shareholders in Form 56-1 One Report. The names and duties of each Sub-committee as of December 31, 2022, are listed below.

Audit Committee

Name	Position	Date of Appointment
1. Mr. Apisak Tantivorawong*	Chairman of the Audit Committee (Independent Director)	Jan 24, 2020
2. Mr. Pakorn Nilprapunt	Director to the Audit Committee (Independent Director)	April 23, 2018
3. Mrs. Watanan Petersik*	Director to the Audit Committee (Independent Director)	Jan 25, 2021

Mr. Amorn Putiphrawan, Senior Vice President of Internal Audit, serves as Secretary to the Audit Committee.

Remark:

* Mr. Apisak Tantivorawong and Mrs. Watanan Petersik possess an educational background and work experiences in accounting and finance with regard to reviewing the credibility of financial statements.

The Audit Committee shall comprise of at least three Independent Directors. Each term lasts three years or until the termination of directorship, resignation, or dismissal. Member of the Audit Committee who retire by rotation may be re-appointed by the Board of Directors. Independent Directors may serve no more than nine consecutive years in office from the date of appointment. They shall also have qualifications and perform all duties in accordance with the Notification of the Securities and Exchange Commission and the scope of work prescribed by the announcement of the Capital Market Supervisory Board.

The Board of Directors has approved the Charter of the Audit Committee, which stipulates the composition, qualifications, terms of office, and scopes of duties

according to good corporate governance principles. Details of the charter are disclosed in the Company's Corporate Governance and Business Code of Conduct Handbook and on the Company website.

The Audit Committee consists solely of Independent Directors, with at least one of whom being a recognized expert with experience in finance and accounting. The Board believes that the Directors can carry out their duties independently and have continuously undergone trainings to enhance their expertise for the benefit of ensuring the credibility of the Company's financial and auditing reports, including their adherence to accounting standards, applicable laws, and other relevant standardized practices. Furthermore, the Audit Committee ensures adequate and effective internal

control and risk management systems while also overseeing internal processes regarding whistleblowers and complaint submissions. The Audit Committee nominates auditors and submits dismissal recommendations to the Board in the event that the independent auditor fails or neglect to perform their duties or wrongfully performs their duties. It also reviews the suitability and effectiveness of the Company's internal audit system and oversees the functions of Internal Audit to ensure compliance with International Standards for the Professional Practice of Internal Auditing. The Audit Committee reviews the Company's compliance with securities and exchange laws, regulations of the Stock Exchange of Thailand (SET), and other applicable laws. It also reviews connected transactions and conflicts of interest to

achieve compliance with applicable laws and the requirements of the Stock Exchange of Thailand (SET) and Securities and Exchange Commission (SEC) and ensure their sensibility, the utmost benefit of the Company, and full disclosure.

In 2022, the Audit Committee convened a total of nine meetings and one additional meeting with the external auditor, fulfilling its role according to the scope of authority and responsibilities stipulated by the Charter of the Audit Committee and as assigned by the Board of Directors. The Committee also reported its performance outcomes to the Board on a quarterly basis and subsequently disclosed its performance summary to shareholders in Form 56-1 One Report.

Nomination and Remuneration Committee

Name	Position	Date of Appointment
1. Mr. Pakorn Nilrapunt ⁽¹⁾	Chairman of the Nomination and Remuneration Committee (Independent Director)	Nov 22, 2021
2. Mr. Somkiat Prajamwong ⁽²⁾	Director to the Nomination and Remuneration Committee (Independent Director)	April 4, 2022
3. Lieutenant General Nimit Suwannarat ⁽³⁾	Director to the Nomination and Remuneration Committee (Independent Director)	Jan 1, 2023

Mrs. Pilasphan Udomjarumane, Senior Vice President, Corporate Secretary and Legal, serves as Secretary to the Nomination and Remuneration Committee.

Remarks:

⁽¹⁾ Mr. Pakorn Nilrapunt was appointed Chairman of the Nomination and Remuneration Committee, replacing Lieutenant General Nithi Chungcharoen on January 1, 2023.

⁽²⁾ Mr. Somkiat Prajamwong was appointed Director to the Nomination and Remuneration Committee, replacing Mr. Don Wasantapruet on April 4, 2022.

⁽³⁾ Lieutenant General Nimit Suwannarat was appointed Director to the Nomination and Remuneration Committee, replacing Lieutenant General Nithi Chungcharoen on January 1, 2023.

The Nomination and Remuneration Committee is composed of at least three Directors of the Board, all of whom shall be Independent Directors. These Directors serve a three-year term unless their terms on the Board end or they resign or are removed from positions.

The Nomination and Remuneration Committee nominates candidates for appointment to the Board or Sub-committees as well as nominates candidates to be appointed as the Chief Executive Officer and President according to a well-structured and transparent process. The Committee is also charged with

establishing remuneration guidelines for the Directors, Directors to Sub-committees, and CEO. Nomination criteria for Directors include experiences, profession, skills, expertise diversity, and specific qualifications required for the Company's businesses defined in the Board Skill Matrix. These criteria strike a balance among all business fields and yield the utmost benefit to the Company. In addition, the Committee considers candidates from the Director's Pool developed by credible organizations and present candidates to the Board and/or at the shareholders' meeting for appointment. The Committee also establishes criteria for the annual performance assessment of the Board

of Directors and CEO as well as assesses the performance of CEO to ensure alignment with good corporate governance principles.

The Board of Directors has approved the Charter of the Nomination and Remuneration Committee, which stipulates the composition, qualifications, terms of office, and scopes of duties according to good corporate governance principles. Details of the charter are disclosed in the Company's Corporate Governance Handbook and on the Company website.

In 2022, the Nomination and Remuneration Committee convened a total of six meetings to fulfill its role according to the scope of authority and responsibilities stipulated by the Charter of the Nomination and Remuneration Committee and as assigned by the Board of Directors. The Committee also reported its performance outcomes to the Board and subsequently disclosed its performance summary to shareholders in Form 56-1 One Report.

Corporate Governance and Sustainability Committee

Name	Position	Date of Appointment
1. Professor Somkit Lertpaitoon	Chairman of the Corporate Governance and Sustainability Committee (Independent Director)	April 23, 2018
2. Mrs. Watanan Petersik	Director to the Corporate Governance and Sustainability Committee (Independent Director)	April 23, 2018
3. M.L. Chayotid Kridakon ⁽¹⁾	Director to the Corporate Governance and Sustainability Committee (Director)	May 23, 2022
4. Mrs. Pantip Sripimol ⁽²⁾	Director to the Corporate Governance and Sustainability Committee (Director)	May 23, 2022
5. Mr. Chadil Chavanalikhikorn ⁽³⁾	Director to the Corporate Governance and Sustainability Committee (Director)	Dec 19, 2022

Mrs. Pilasphan Udomjarumanee, Senior Vice President, Corporate Secretary and Legal, serves as Secretary to the Corporate Governance and Sustainability Committee.

Remarks:

⁽¹⁾ M.L. Chayotid Kridakon was appointed Director to the Corporate Governance and Sustainability Committee, replacing Mr. Chansin Treenuchagron on May 23, 2022.

⁽²⁾ Mrs. Pantip Sripimol was appointed Director to the Corporate Governance and Sustainability Committee, replacing Lieutenant General Nithi Chungcharoen on May 23, 2022.

⁽³⁾ Mr. Chadil Chavanalikhikorn was appointed Director to the Corporate Governance and Sustainability Committee, replacing Mr. Noppadol Pinsupa on Dec 19, 2022.

The Corporate Governance and Sustainability Committee is composed of at least three Directors of the Board, more than half of whom shall be Independent Directors. Its Chairman shall also be an Independent Director. These Directors serve a three-year term unless their terms on the Board end or they resign or are removed from their positions.

The Corporate Governance and Sustainability Committee is responsible for establishing policies as well as supervising and promoting the implementation of sustainable development. The committee is also tasked with offering consultation and drawing up suitable and transparent operational guidelines in line with GC's good corporate governance and sustainable development

principles in order to achieve an Environmental, Social and Governance (ESG) balance, which in turn benefits the creation of value and sustainable business growth and helps foster confidence and credibility among stakeholders.

In 2022, the Corporate Governance Sustainability Committee convened a total of nine meetings to fulfill its role according to the scope of authority and responsibilities stipulated by the Charter of the Corporate Governance and Sustainability Committee and as assigned by the Board of Directors. The Committee also reported its performance outcomes to the Board and subsequently disclosed its performance summary to shareholders in Form 56-1 One Report.

Risk Management Committee

Name	Position	Date of Appointment
1. Mr. Grisada Boonrach	Chairman of Risk Management Committee (Independent Director)	June 22, 2020
2. Mr. Sarawut Kaewtathip	Director to the Risk Management Committee	July 20, 2020
3. Mr. Cherdchai Boonchoocha ⁽¹⁾	Director to the Risk Management Committee	Dec 19, 2022
4. Mr. Noppadol Pinsupa ⁽²⁾	Director to the Risk Management Committee	Jan 23, 2023
5. Mr. Kongkrapan Intarajang	Director to the Risk Management Committee	Oct 1, 2019

Miss Kanoknan Buranapansri, Acting Vice President of Corporate Risk Management and Internal Control System, serves as Secretary to the Risk Management Committee.

Remarks:

⁽¹⁾ Mr. Cherdchai Boonchoocha⁽¹⁾ was appointed Director to the Risk Management Committee, replacing M.L. Peekthong Thongyai on Dec 19, 2022.

⁽²⁾ Mr. Noppadol Pinsupa was appointed Director to the Risk Management Committee, replacing Mr. Disathat Panyarachun on Jan 23, 2023.

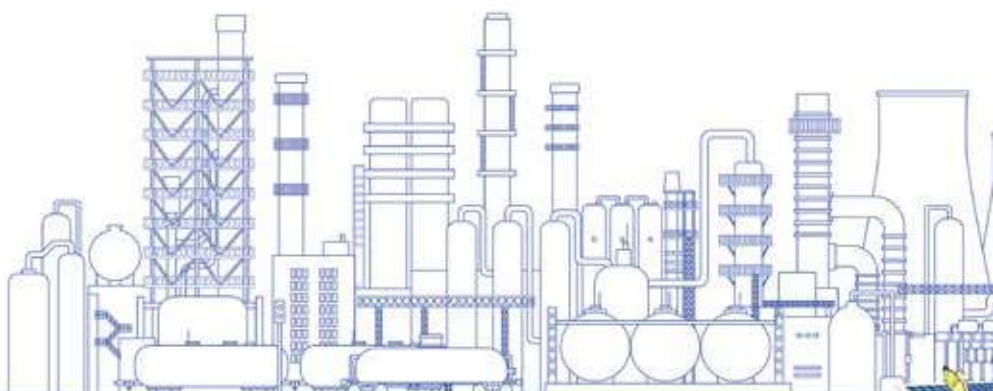
Mrs. Pantip Sripimol was appointed Director to Risk Management Committee to May 22, 2022 and was appointed Director to Corporate Governance and Sustainability Committee on May 23, 2022.

The Risk Management Committee is composed of at least three Directors of the Board, at least one of whom shall be an Independent Director. These Directors serve a three-year term unless their terms on the Board end or they resign or are removed from positions.

The Risk Management Committee's role is to establish policies related to the Company's risk appetite and risk tolerance as well as risk management guidelines that serve as a framework within which the entire GC Group operates. With a particular focus on early warning signs, the Committee oversees that risks are identified and ranked by impact and likelihood. In extension, the Committee establishes appropriate risk mitigation measures and monitors and assesses the effectiveness of the Company's risk management. Furthermore, the Committee offers its opinions and

recommendations on possible risk issues of an investment project or a legally binding agenda item that is complex in nature or will impact the Company's reputation in a significant manner. It also ensures that the Company's business operations comply with relevant laws and standards.

One Report In 2022, the Risk Management Committee convened a total of seven meetings to fulfill its role according to the scope of authority and responsibilities stipulated by the Charter of the Risk Management Committee and as assigned by the Board of Directors. The Committee also reported its quarterly performance outcomes to the Board and subsequently disclosed its performance summary to shareholders in Form 56-1 One Report.



EXECUTIVES

To ensure efficient organizational management and operations that adhere to the policies and directions established by the Board of Directors, the Chief Executive Officer and President, exercising the power vested in him by GC's Articles of Association, has formed the Management Committee (MC) and the Group Management Committee (GMC). Both committees are composed of top management from Senior Vice President upwards, under the CEO's direct supervision. The CEO, as head of the Company's employees, has the authority and duties to ensure that the Company operates according to the policies, plans, and budgets approved by the Board.

The MC is responsible for devising and aligning operational directions and guidelines with the Board's established policies. It reviews and offers suggestions on the Company's policies and operational guidelines in relation to marketing, commercial and supply; risk management, capital allocation and management; human resources management and development; quality, safety, occupational health and environmental management; and social responsibility as well as matters that may cause significant changes to its Business Units and Group Performance Centers. The MC also reviews and offers suggestions on Board meeting agenda prior to presenting them to the Board at the meeting. Additionally, the MC oversees the Company's compliance with the law and regulations of external regulatory authorities as well as its own

rules and regulations and the Company's relevant legal actions to ensure that the conduct of GC's business is in compliance with good corporate governance principles and in conformity to international standards. The MC also follows up on and implements the Board's resolutions, suggestions, and opinions given at Board meetings as well as oversees and monitors diverse aspects of GC's progress as a whole and internationally.

Meanwhile, the GMC is tasked with reviewing and offering opinions and recommendations on the alignment of Company policies with those of its Group Performance Centers in relation to the operational guidelines for Group Performance Centers' production management, marketing, commercial and supply, and risk management, including human resource management and development; quality, safety, occupational health and environmental management; and social responsibility. It also monitors the performance of Group Performance Centers and progress on innovation and technology initiatives as well as projects that contribute to the efficiency of their operations.

The MC holds at least three meetings monthly, while the GMC holds at least one monthly meeting. In 2022, the MC convened a total of 37 meetings, and GMC convened a total of 12 meetings. The Senior Vice President of Corporate Secretary and Legal serves as Secretary to both committees.



Executives under the Organizational Structure as of March 1, 2023

Name	Position
1. Mr. Kongkrapan Intarajang	Chief Executive Officer and President
2. Mr. Varit Namwong	Chief Operating Officer – Value Added Products
3. Mr. Toasaporn Boonyapipat	Chief Operating Officer – Base and Intermediate Chemicals
4. Mr. Pirun Krimwongrut	Chief Operating Officer – Center of Excellence
5. Mr. Narongsak Jivakanun	Chief Operating Officer – International Business
6. Miss Pattaralada Sa-Ngasang	Executive Vice President – Finance and Accounting
7. Mrs. Warawan Tippawanich	Executive Vice President – Corporate Strategy
8. Mr. Siridech Kumvongdee	Executive Vice President – Marketing, Commercial and Supply Chain
9. Mr. Anutin Chuaypen	Executive Vice President – Organizational Effectiveness
10. Mr. Pornsak Mongkoltrirat	Executive Vice President – Polymers
11. Mr. Pukpong Wungrattanasopon	Executive Vice President – Olefins
12. Mr. Saroj Putthammawong	Executive Vice President – Marketing and Sales - Industry Platforms
13. Mr. Chaya Chandavas	Executive Vice President – Sustainability
14. Mrs. Jeeranee Pimthanothai	Executive Vice President – Technical, Engineering and Maintenance
15. Mr. Amorn Putiphrawan	Senior Vice President – Internal Audit
16. Mrs. Pilasphan Udomjarumanee	Senior Vice President – Corporate Secretary and Legal
17. Mr. Ratchada Sawasdirak	Senior Vice President – Refinery
18. Mr. Paisarn Sarapee	Senior Vice President – EO and Derivatives
19. Mr. Sawat Trongdilokrat	Senior Vice President – Phenol and Derivatives
20. Mr. Thitipol Artsanchorn	Senior Vice President – Marketing and Sales - General Applications
21. Mrs. Chananchida Wiboonkanarak	Senior Vice President – Strategy, Business Development and Commercial Excellence
22. Mr. Monton Rochvatanaboon	Senior Vice President – CAPEX Excellence
23. Mr. Sakesiri Piyavej	Senior Vice President – Quality, Safety, Occupational Health and Environment
24. Mrs. Chatsuda Kanjanarat	Senior Vice President – Transformation Excellence
25. Mr. Paranai Waitayasewee	Senior Vice President – Procurement
26. Mr. Kamel Ramdani	Senior Vice President – Product Innovation and Innovation Management Acting Senior Vice President – Long term Innovation and Corporate Venture Capital
27. Mrs. Rattiya Chandavas	Senior Vice President – Specialty Business Acting Senior Vice President – Merger and Acquisition
28. Mr. Panod Awaiwanond	Senior Vice President – US Second Home
29. Mr. Panchoak Auetanapa	Acting Senior Vice President – Utilities
30. Mr. Sombat Silangwon	Senior Vice President – Aromatics

Remark: Executives in numbers 1-6 are executives as per SEC's Notification Re: Determination of Definitions in Notifications relating to Issuance and Offer for Sale of Securities.

Changes in Executives from January 1, 2022 – March 1, 2023

- 1) Mr. Sakesiri Piyavej was appointed Senior Vice President – Quality, Safety, Occupational Health and Environment on January 1, 2022.
- 2) Mr. Wiboon Chuchepchunkamon was transferred to the position of Chief Operating Officer – Center of Excellence on February 1, 2022 and retired on December 31, 2022.
- 3) Mr. Toasaporn Boonyapipat was transferred to the position of Chief Operating Officer – Base and Intermediate Chemicals on February 1, 2022 and Acting Senior Vice President- Aromatics to February 28, 2023.
- 4) Mr. Varit Namwong was transferred to the position of Chief Operating Officer – Value Added Products and Acting Senior Vice President – Green Chemicals on February 1, 2022.
- 5) Mr. Narongsak Jivakanun was appointed Chief Operating Officer – International Business and Acting Vice President – International Strategy and Relations on February 1, 2022.
- 6) Mr. Chaya Chandavasv was appointed Executive Vice President – Sustainability on February 1, 2022.
- 7) Mrs. Rattiya Chandavasv was appointed Senior Vice President – Specialty Business and Acting Senior Vice President – Merger and Acquisition on February 1, 2022.
- 8) Mr. Panod Awaivanond was appointed Senior Vice President – US Second Home on February 1, 2022.
- 9) Mr. Kamel Ramdani was appointed Acting Senior Vice President – Long term Innovation and Corporate Venture Capital as well as Acting Vice President – Corporate Venturing on February 1, 2022.
- 10) Miss Somsri Phanichrungruang was reappointed as Senior Vice President under Value Added Products on April 1, 2022 and was transferred to the position of Senior Vice President – Marketing and Sales - Industry Platforms under Value Added Products on July 1, 2022 and retired on December 31, 2022.
- 11) Mr. Sawat Trongdilokrat was appointed Senior Vice President – Phenol and Derivatives under Base and Intermediate Chemicals on May 1, 2022.
- 12) Mr. Thitipol Artsanchorn was transferred to the position of Senior Vice President – Marketing and Sales - General Applications under Value Added Products on July 1, 2022.
- 13) Mr. Paisarn Sarapee was transferred to the position of Senior Vice President under Base and Intermediate Chemicals and was seconded to GC Oxirane Company Limited as Managing Director on July 1, 2022 and was reappointed Senior Vice President – EO and Derivatives under Base and Intermediate Chemicals on January 1, 2023.
- 14) Mrs. Jeeranee Pimthanothai was appointed Executive Vice President – Technical, Engineering and Maintenance under Center of Excellence on July 1, 2022.
- 15) Mr. Khomson Piyawattanaviroj retired early on July 31, 2022.
- 16) Mr. Monton Rochvatanaboon was appointed Senior Vice President – CAPEX Excellence under Center of Excellence on August 1, 2022.
- 17) Mr. Piroj Samutthanant was appointed Executive Vice President under Value Added Products on September 1, 2022 and retired on December 31, 2022.
- 18) Mr. Kridsada Prasertsuko was reappointed as Senior Vice President under Value Added Products on October 1, 2022 and was seconded to Global Green Chemicals Plc. as Managing Director on January 1, 2023.
- 19) Mr. Prakart Buttamart was appointed Acting Senior Vice President under Center of Excellence and was seconded to NPC Safety and Environmental Service Co., Ltd. as Managing Director on October 1, 2022.
- 20) Mr. Siridech Kumvongdee was reappointed Executive Vice President under Value Added Products on December 13, 2022 and was transferred to the position of Executive Vice President – Marketing, Commercial and Supply Chain under Base and Intermediate Chemicals on January 1, 2023.
- 21) Mr. Supasit Tongsupachok retired on December 31, 2022.
- 22) Mr. Vitaya Pinmuangngarm retired on December 31, 2022.

- 23) Mr. Amnuai Phrom-Anant retired on December 31, 2022.
- 24) Mr. Narongchai Pisutpunya retired on December 31, 2022.
- 25) Mr. Panchoak Auetanapa was appointed Acting Senior Vice President – Utilities under Base and Intermediate Chemicals on January 1, 2023.
- 26) Mr. Kasem Leewongjaroen was appointed Acting Senior Vice President under Base and Intermediate Chemicals and was seconded to GC-M PTA Co., Ltd. and Thai PET Resin Co., Ltd. as President on January 1, 2023.
- 27) Mr. Pirun Krimwongrut was appointed Chief Operating Officer – Center of Excellence on January 1, 2023.
- 28) Mr. Anutin Chuaypen was appointed Executive Vice President – Organizational Effectiveness on January 1, 2023.
- 29) Mr. Saroj Putthammawong was transferred to the position of Executive Vice President – Marketing and Sales - Industry Platforms under Value Added Products on January 1, 2023.
- 30) Mr. Sombat Silangwon was appointed Senior Vice President-Aromatics on March 1, 2023.

Remuneration Policy for Executive Directors and Executives

The Company evaluates the performance of its Executives annually against the pre-determined Key Performance Indicators (KPIs). These include financial performance, implementation of long-term strategic goals, personal performance, the Company's performance and practices of other listed companies of a similar size in the same industry. The evaluation also takes into account their responsibilities, management development and overall economic conditions.

Total Remuneration for Executive Directors and Executives from the Company and its Subsidiaries

The remuneration for the Chief Executive Officer and President is appropriately determined using transparent, fair, and reasonable criteria. The position's duties and responsibilities are also taken into account in conjunction with personal performance. The Nomination and Remuneration Committee is charged with reviewing and proposing the remuneration of the Chief Executive Officer and President to the Board of Directors for approval. It should be noted that, at the highest level of the Company's management hierarchy, the Chief Executive Officer and President is awarded compensation and other benefits in addition to those received as a Director on the Board of Directors.



Total remuneration of GC and GC's Subsidiaries paid to the Executives under SEC's definition* serving in 2022 (Including those who retired and resigned in 2022)

Type of Remuneration	Number of Executives	Total (Million Baht)		
		GC	GC's Subsidiaries	Total
Total Combined Salaries	6	61	4	65
Total Combined Special Bonuses	6	5	-	5
Provident Fund Contributions	6	5	-	5
Total		71	4	75

Shares held by the Board of Directors under SEC's definition, their spouses, and their minors as of January 1, 2023

Name	Number of Shares		
	As of January 1, 2022	As of December 31, 2022	Increase/ (Decrease) of Shares during the Year (Shares)
1. Mr. Kongkrapan Intarajang	-None-	-None-	-No change-
2. Mr. Varit Namwong	108,939	108,939	-No change-
3. Mr. Toasaporn Boonyapipat	-None-	-None-	-No change-
4. Mr. Pirun Krimwongrut*	27,033	27,033	-No change-
5. Mr. Narongsak Jivakanun	-None-	-None-	-No change-
6. Miss Pattaralada Sa-NGasang	-None-	-None-	-No change-

Remark: * Mr. Pirun Krimwongrut was appointed Chief Operating Officer – Center of Excellence on January 1, 2023.



EMPLOYEES

People Management and Development Policy

A management approach that strengthens both the organization and its people is a key mechanism for enhancing GC's competitiveness as well as its ability to operate its business effectively and accommodate domestic and international investment expansion, enabling the Company to grow sustainably and attain its aspiration "To be a Leading Global Chemical Company for Better Living."

GC strives to foster the organization's and its people's readiness to meet future business needs and achieve outcomes as planned. To this end, GC has developed human resource strategies to keep its human resource management consistent with GC Group's strategic directions and business goals so as to ensure effectiveness and efficiency. The three core focuses are: organization, people, and culture, and the actions taken are as follows:

1. People

GC strives to enhance the efficiency of its personnel as well as their competitiveness for business today and in the future in order to bolster their productivity for the company. Key activities in 2022 can be summarized as follows.

1.1 Manpower Plan Strategy

1.1.1 GC improved its work processes, focusing on end-to-end lean process improvement through the FiT project to enhance process efficiency, productivity, and agility in order to achieve the following results:

- Efficient work process managements and operating models
- Organization-wide data connectivity

- Accurate, fast, and efficient decision-making process
- Skilled and knowledgeable personnel with the ability to keep pace with changes



1.1.2 GC adopted digital technology as a strategic driver of digitalization across various projects to reap added values in pursuit of 4 Smart Goals: (a) Smart Plant, (b) Smart Sales & Marketing, (c) Smart Work Process, and (d) Smart Workplace. GC also initiated technology transformation to improve and modernize its infrastructure in support of its business units in conjunction with continuous people transformation, which refers to the development of skills and abilities and a digital technology culture.

1.1.3 GC conducted manpower planning and established a manpower framework to suit the organizational missions and control its manpower ratio by reviewing the recruitment of new hires to replace resigned and retired personnel to ensure suitability and adequacy for GC's business continuity and alignment with GC's situation, visions, and strategies in anticipation of digitalization for the maximum benefit of the company's business operations.

1.1.4 GC began engaging in freelance employment in order to control its personnel costs in the long-term, focusing primarily on hiring skilled individuals with specialized expertise on a temporary basis to produce the desired deliverables in order to directly address GC's needs, thus making personnel management more flexible and efficient.

1.2 Upskill / Reskill

GC offers a diverse range of learning modes to cater to self-learners and enable them to learn from anywhere and at any time through its digital learning management system known as UP Platform. GC organized various programs to enhance the knowledge, competency, and capabilities of its personnel, such as by establishing the Expert House, which makes it possible to organize more courses on a more diverse range of subjects and accommodate more participants. External training institutes are also engaged to organize programs for the development of leadership, management, and other skills relevant to work, such as English skills improvement courses by VOXY, a language service provider recognized by the world's leading education institutions, and programs for the development of high-level executives in anticipation of international business expansion by INSEAD.

Since 2021, GC has established long-term strategies to steer its learning culture towards self-directed learning, in which each learner can design their own learning path, analyze and determine their areas of development, set their own learning goals, and select their own learning resources, using the 70-20-10 blended learning model, consisting of 70% experience-based learning, 20% coaching and mentoring, and 10% traditional learning. In addition, a tool named I-List has been adopted for individual development planning to enable each employee to plan and manage their own learning in order to achieve their expected skill development goals and career advancement. With this tool, learners can plan their own learning and select courses relevant to their self-development at all times with ease. Within this learning culture, GC believes that its personnel will be able to enhance their skills and capabilities rapidly and in time for changes in its business operations.



To support self-directed learning, GC has created an ecosystem of development and growth consisting of three major components:

1. **Success Profile and Job to be Done:** This component enables employees to compare their progress against GC's expectations, identify room for improvement, and establish their own self-development targets.
2. **Development Roadmap and Blended Learning Solution.** Designed by the Expert House, this component allows employees to conveniently select learning modules to design their own learning trajectory.
3. **Outcome Management:** This component tracks whether employees who have undergone self-development can apply their acquired skilled and capabilities to their work and produce expected deliverables, thus enabling them to see the progress of their self-development and plan the next stage of development.

GC has also initiated the Expert House project, in which experts from each line of work are assigned to design functional training courses in different formats for internal deployment, focusing on developing critical capabilities and producing tangible business impacts. Under this project, each business unit has been formed to translate business strategies into development needs, which are then used to design blended learning solutions and assessment tools and to track personnel development. The Expert House project makes use of both in-house and external subject matter experts and instructors. In 2022, a total of 20 Expert Houses were established, including Corporate Expert House, Engineering and Plant Operation Expert House, Digital Expert House, and Leadership Expert House.

Furthermore, GC has initiated various ancillary projects, such as the Certified Internal Instructor and Content Influencer programs, to enhance instructors' ability to convey knowledge in an engaging way, improve learning efficacy, enhance instructor confidence, and promote acceptance among employees within the organization (boundary of recognition), all of which will contribute to their career advancement.

Thanks to the Expert House program, GC has been able to make personnel development more specific and targeted. At present, GC's learning and development activities can be divided into three categories:

1. Corporate Learning Solution: 69 courses featuring learning activities on laws and GC's policies
2. Leadership Learning Solution: 15 courses featuring learning activities for leadership development
3. Functional Learning Solution: 155 courses featuring learning activities for the development of specific skills for the defined roles and responsibilities of each position

In 2022, GC also carried out other key personnel development projects, including the Operator Competency Development project and the GC New Gen Get Together Onboarding Camp project.

1.3 Recruitment Strategy

To drive corporate strategies towards success, great emphasis is placed on the recruitment of new hires in key functions with new skills and knowledge necessary for GC's future business expansion. In addition, GC does not hire government officials in compliance with its Anti-corruption Policy. In 2022, GC revised the recruitment process to ensure compliance with the Personal Data Protection Act B.E. 2562 (2019) as well as launched the Employee Referral Program, in which GC's employees could refer individuals with desired capabilities to GC, and introduced technology to enhance operational efficiency, such as an online criminal record request system. GC also conducted a recruitment customer satisfaction survey and other projects to enhance the corporate image among target applicants on social media.



Remark: *The definition of government officials is based on the Anti-corruption Policy of GC Group.
<https://www.pttgcgroup.com/storage/document/cg-anti-corruption/pttgc-anti-corruption-policy-en.pdf>

1.3.1 GC held the Functional Focus Campaign to expand the applicant database on social media towards applicants with 3-5 years of experience as well as compile and categorize job positions into five major groups, namely Digital & IT, Sustainability / R&D, Engineering and Operations, Legal / Business, and Marketing. Job advertisements were also announced on Facebook and LinkedIn to create a database for the recruitment of personnel for different positions and to publicize different job positions among GC's followers on social media. As a result of this initiative, data of a total of 2,100 applicants was obtained, while the numbers of followers on LinkedIn and Facebook increased by 11.5% and 16% respectively compared to 2021.

1.3.2 GC Brand Ambassador Phase 1 was launched, in which the employees who applied to the program were selected to serve as GC Brand Ambassadors to communicate positive aspects about GC, such as the work life at GC and its employee care, as well as to educate fellow personnel on different job positions in line with the succession plan. A total of three video clips of interviews with internal units were produced and published through various communication channels of GC, thus eliminating media production and presenter costs.

1.3.3 GC organized GC Online Open House 2022 to publicize various job positions and enhance GC's corporate image. As a result of this activity, data of 450 candidates was obtained, and after screening, over 315 candidates were added to the database across different job positions. The activity incurred no cost and increased visitors to GC's Facebook page in October by 66.9% compared to September, during which no activity was held.

1.3.4 The "GC: Hot Job of the Month" monthly campaign was held as another channel for recruiting and attracting individuals with required skills for the job vacancies. Interesting job positions were announced via Facebook, LinkedIn, and Line Official Account at the beginning of each month from January to October 2022. During this period, a total of 87 job positions were posted, and over 4,400 applications were submitted.

To accommodate future business expansion, the Operator Pool 2022 was developed to plan personnel replacements for the next three years, and the applicant data obtained through different activities between 2019-2022 was compiled and reviewed in order to track the applicants' current status and develop a database for pre-screening and subsequent deployment in the recruitment process.

Furthermore, the data and the interface of the recruitment webpage were updated to appeal to younger generations of visitors, enhance the corporate image and the employer branding, and ultimately attract more applicants. In addition, the recruitment team continued to produce and publish content on social media, such as Facebook and LinkedIn, to educate and inspire the audience and communicate interesting facts, while GC Brand Ambassadors described the working atmosphere at GC. This year, the number of followers on Facebook and LinkedIn rose by more than 10% on average compared to 2021 – an indication of increased public attention towards GC.

Other supports for the employees

GC takes care of its employees across various aspects throughout their life cycles in a manner that is suitable for and aligned with the internal and external environments to create a positive work experience for employees, as detailed below:

■ Performance Management System

To ensure that performance assessment enhances the achievement of GC's goals, supports the learning and development and the performance improvement of individual employees, and promotes rewards and recognition, GC has integrated its performance assessment policies, beginning with establishing annual goals, performance monitoring during the year, and year-end assessment. Also, to make certain that the corporate goals are reflected on individual levels, Key Performance Indicators (KPIs) are cascaded from the company's goals to the top executives and further down to the subsequent levels, while KPI alignment is conducted within each function, and a review performance alignment is carried out internally to ensure the function is assessed to the same standard. Moreover, to ensure fairness and

transparency, the company policy requires that employees and their supervisors meet for a performance check-in periodically to allow them to monitor their performance and obtain assistance regularly. This practice not only supports remote work (working from home), which is one of GC's working modes, but also encourages supervisors to perform coaching duties, such as through words of appreciation, prioritization, fostering of confidence, and words of encouragement, in order to enhance personnel capabilities and performance.

After the year-end assessment is conducted, supervisors compare the outcome with the results of the peer review to identify disparity, which affects the annual salary adjustment and the bonus according to the company's remuneration policy and operating results. GC has updated and improved its performance assessment system to be more user-friendly and enable assessment via mobile phones or tablets in addition to Personal Computers (PCs) or notebooks. In 2022, GC introduced a policy enabling employees and supervisors to review and revise the KPIs during the year to enhance the dynamic and prescribed a performance assessment for personnel entrusted with special assignments to promote rewards and recognition, boost morale, and encourage better performance as well as to promote agile and cross-function working. Furthermore, to ensure that these assessments truly lead to continuous development, GC has integrated individual development planning into the employee performance assessment system, in which employees can express their own wishes regarding their career in the next 1-3 years. Their wishes are then taken into account in the consideration of job rotations, people development, and future recruitment.

■ Remuneration

As a policy, GC offers competitive remuneration and benefits to its employees compared to leading companies in the same industry. The Company participates in the remuneration survey for the oil and gas industry conducted by the benefit and compensation consultants every year, to obtain information and maintain competitiveness. In addition, the appropriate remuneration is determined

in accordance with the performance and duties to create utmost efficiency and effectiveness for both the Company and the employees. The salary structure is determined according to job level and position, taking into account fair remuneration for male and female employees. The remuneration ratio between male and female personnel is 76% to 24%.

GC also provides other legally-mandated welfare, such as social security and provident fund contributions, as well as welfare not required by the law. In addition, to ensure a positive life experience in the organization for all employee groups, who may have different needs, GC has revised its welfare and benefits, such as flexible benefits and healthcare benefits for parents for single employees. Furthermore, GC has studied remuneration and benefits for employees assigned overseas in comparison with leading companies both in Thailand and abroad to support GC's strategies of work scope expansion, co-investment, and investment. To support the operations of companies under GC Groups and GC's joint ventures, GC provides them with data on its salary structure in order to ensure their competitiveness within their industry and uniform practice across GC Group.

■ Employee Relations

To give employees a happy working life, foster employee engagement, and promote work-life balance, GC has carried out well-being projects since 2018 to take care of its employees in terms of health, wealth, and mindfulness, and such activities have been modified to accommodate remote work (working from home), as detailed below.

- GC organized a virtual meeting via MS Teams to give a refresher on GC's existing medical welfare (ER ma Share).
- GC held quarterly meetings of the Welfare Committee via MS Teams and in conference rooms to foster relationships and understanding between the Company and its employees; activities fostering relationships between the Welfare Committee and the company, such as VP Meet Welfare Committee; training sessions of the roles and responsibilities of the Welfare Committee; as well as CSR activities.
- GC organized various activities on physical and mental health and financial management via various online channels. Physical health promotion activities were namely "Keep Your Heart Health," "Stroke: A Silent Threat," and "Conquer the Office Syndrome." Mental healthcare programs included the "Mental Health Hot Line" for employees and their families, "Spark Your Life and Overcome Obstacles," "Creating a Positive Energy amid Changes," "Persuasion Techniques," "Stress and Depression Test," "Adjusting to the Working Life." Activities on financial management included educational sessions on investment for each age range (50 years old – retirement), debt management, and risk management through insurance products.
- GC offered virtual consultation with doctors through V-Health application provided by insurance companies and worked with hospitals to provide sessions with virtual teleconsultants as part of its "Telemedicine and Medication Delivery" project.



Telemedicine and
Medication Delivery

Additionally, GC boosts the morale of long-serving employees by giving long service awards for employees at each specific year of service and carrying out initiatives that will promote a happy retirement, as detailed below.

- In 2022, GC Group Turnover Rate is 5.4% (GC only Turnover Rate is 2.6%) in order to understand and improve employee experience, exit interviews were conducted on resigning employees to further improve GC's employee care and welfare as well as other matters.
- Knowledge sharing sessions were organized to allow retiring employees to share their know-how and experience with current personnel. The Happy Retirement 2022 Program was also conducted to equip those retiring with financial literacy and healthcare knowledge to ensure a happy life after retirement.
- For certain employees, especially those with health issues, the Mutual Separation Program (MSP) was conducted to equip them with useful knowledge, such as healthcare, finance management, and outplacement programs.

GC recognizes the significance of enhancing the quality of life of people with disabilities and giving them opportunities to demonstrate their capabilities, earn a livelihood, develop self-reliance, depend less on families and society at large. Thus, GC strives to empower them to become a vital force in earning income for their families and driving the economy of the country, especially for people with disabilities in the working age range as defined by the Persons with Disabilities Empowerment Act, B.E. 2550 (2007), which stipulates measures to promote career advancement and protect the employment of such individuals. In 2022, GC hired 4 people with disabilities to work in various positions as stipulated in Section 33 and promote the livelihoods of 39 people with disabilities in accordance with Section 35 of the Act. For the latter group, GC collaborated with the Rayong Association of Persons with Disabilities and the Rainbow Covenant Foundation to select individuals to participate in the initiative, assess their income level, and engage experts to give them knowledge that would enable them to earn a livelihood. GC thus supported a total of 43 peoples with disabilities and employed such individuals at the ratio of 1:100 to regular employees as mandated by the law.

Understanding the significance of employee engagement, GC has engaged external consultants with specialized expertise to conduct annual employee engagement surveys to listen to employees' opinions on various matters. The survey results are comparable with leading companies in the same industry and on par with international standards. In 2022, GC's employee engagement rate was 65%. In addition, GC has introduced an additional channel for employee feedback – interviews of individual employees of all age ranges from all types of work – in order to obtain data for in-depth analysis, the results of which are used to plan employee engagement improvement at corporate and functional levels.

2. Organization

GC strives to cultivate a Fit, Fast, Flexible & Effective approach to work and has thus established its "Ideal Organization" goals in line with its business strategies both at present and in the future. Key activities in this regard in 2022 can be summarized as follows.

2.1 Organizational Restructuring in Alignment with Long-term Strategies

GC has restructured itself into an "Ideal Organization" in alignment with its long-term strategies. As GC has significantly expanded its scope of operation, particularly with regard to High-Value Products (HVPs) and international business expansion, it has researched and designed a new organizational structure that would be on par with global leading companies in the industry to optimize its processes, better cater to customer needs in each business unit, enhance operational efficiency and efficacy, as well as reduce short- and long-term costs. In support of this restructuring and ensuing shifts, change management has been implemented to create a smooth transition, minimize risks and potential impacts, and foster personnel preparedness, thus ensuring that the executives and employees can take on new duties without problems.

2.2 Work from Home (WFH) and Work from Anywhere (WFA)

In 2022, Working from Home (WFH), instituted as a regular mode of work for GC's officer workers in 2021, was continued in response to the new normal. All employees were allowed to work from home at a maximum of 100%. In addition, employee surveys were regularly conducted to obtain their opinions on their work and quality of life, while tools, systems, and technologies were developed to allow employees to work from home more efficiently. GC also studied a management approach for "Working from Anywhere" (WFA) for specific lines of work whose nature permits WFA.

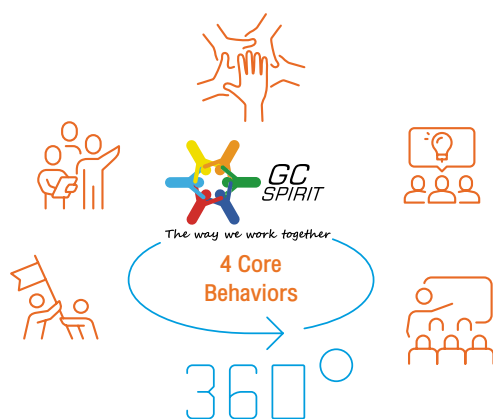
3. Culture

GC drives GC SPIRIT 4 Core Behaviors through communication, day-to-day activities, and fundamental systems in order to foster an understanding among employees and enable them to adopt the behaviors as part of their daily life and propel the Company towards its goal: "To be a Leading Global Chemical Company for Better Living."

In 2022, GC continued to strengthen its efforts to drive the organizational culture among employees at all levels, with all the executives serving as role models and inspirational leaders through various activities.

An example of such activities was a GC SPIRIT 4 Core Behaviors review workshop for GMC-level executives, held under the same theme Conviction to Change: Speed with Challenge Status Quo as in the previous year. In this workshop, the participating executives were given an opportunity to share their vision, missions, and operational directions through a narrative speech to inspire and foster an understanding among employees, placing emphasis on the delivery system to produce tangible results in accordance with the GC Leadership System. In addition, GC produced a “Lead by Example” video to encourage the adoption of GC SPIRIT 4 Core Behaviors as well as the “Meet the Top” activity – a Culture Talk session in which executives from leading organizations shared their perspectives on the fostering of corporate cultures.

In addition to the executives, who served as role models to ensure the continuous and efficient advancement of the organizational culture, GC also had a robust Culture Committee and Change Agents, who joined hands to carry out various activities, such as Change Agent Virtual Outing, in which Change Agents acknowledged the policy for advancing the organizational culture and were given guidelines on planning and conducting initiatives for driving GC SPIRIT 4 Core Behaviors in their functions. Another activity was Change Agent Chit-Chat, in which Change Agents exchanged their perspectives, opinions, as well as approaches to driving the culture and examples that could be applied to produce tangible changes in their functions.



To communicate with employees at all levels, GC produced a Culture Playbook Animation video to accompany its Culture Playbook in order to foster their understanding of the adoption of GC SPIRIT 4 Core Behaviors. In addition, VP Influencers were enlisted to convey key takeaways of the Culture Playbook to make it more accessible and promote its efficient adoption across the organization.

Furthermore, to gauge the success of its organizational culture advancement initiatives and ensure that the cultivation of its organizational culture was in accordance with the defined roadmap and produced tangible organization-wide results, GC conducted a culture survey and a 360-degree 4 Core Behaviors assessment, which involved supervisors, direct subordinates, co-workers, and external stakeholders, in order to reflect perspectives and behaviors related to the adoption of GC SPIRIT 4 Core Behaviors more clearly and accurately through those in contact with the individuals assessed. The results were analyzed to identify room for improvement and inform employee development. In addition, GC initiated the GC SPIRIT Award – a platform where Change Agents could present their achievements in driving the organizational culture within their functions – and carried out cross functional initiatives for the third consecutive year to create a space where employees could develop a new experimental model of work and take advantage of the diverse backgrounds and expertise of their teammates to propose new ideas to promptly meet the needs of internal and external customers. The cross functional initiatives also helped reduce costs for GC.

GC strives to promote a happy work life, better living, as well as safety and occupational health for its employees and has always been committed to improving and enhancing its organizational and personnel management capabilities as people are the most valuable resources for GC's strong and sustainable growth.

Employees

As of December 31, 2022, GC Group hired a total of 11,518 employees, which can be divided by function as follows

1. Direct reports to Chief Executive Officer and President	19 employees
2. Internal Audit	28 employees
3. Sustainability	71 employees
4. Corporate Secretary and Legal	49 employees
5. Corporate Strategy	50 employees
6. Finance and Accounting	203 employees
7. Organizational Effectiveness	201 employees
8. Direct reports to Chief Operating Officer – Center of Excellence	1,163 employees
9. Transformation Excellence	87 employees
10. Procurement	96 employees
11. Technical, Engineering and Maintenance	467 employees
12. CAPEX Excellence	142 employees
13. Quality, Safety, Occupational Health and Environment	173 employees
14. Direct reports to Chief Operating Officer – Base and Intermediate Chemicals	508 employees
15. Marketing, Commercial and Supply Chain	137 employees
16. Olefins	704 employees
17. Utilities	243 employees
18. Aromatics	308 employees
19. Refinery	302 employees
20. EO and Derivatives	107 employees
21. Phenol and Derivatives	191 employees
22. Direct reports to Chief Operating Officer – Value Added Products	796 employees
23. Polymers	435 employees
24. Marketing and Sales - Industry Platforms	96 employees
25. Marketing and Sales - General Applications	67 employees
26. Strategy, Business Development and Commercial Excellence	67 employees
27. Product Innovation and Innovation Management	116 employees
28. Direct reports to Chief Operating Officer – International Business	4,653 employees
29. Specialty Business	10 employees
30. US Second Home	10 employees
31. Long Term Innovation and Corporate Venture Capital	19 employees

Total Remuneration Paid to Employees in 2022

Type of Remuneration	Total (Million Baht)
Salaries, Bonus, Wages, and Other Welfares	26,126
Provident Fund Contributions	1,076
Post-employment Benefits	654
Other Long-Term Employee Benefits	3
Total	27,859

The number of employees joining the provident fund scheme accounts for 87% of all employees. Through its provident fund committee, GC selects a provident fund manager who is a signatory of the Investment Governance Code for Institutional Investors (I Code) as well as takes into consideration past investment performance.

OTHER IMPORTANT INFORMATION

Company Secretary, Chief Accountant, Head of Internal Audit, and Head of Corporate Compliance

Company Secretary

In pursuant to the Securities and Exchange Act (No. 4) B.E. 2551 (2008), Sections 89/15 and 89/16, the Board of Directors at Meeting No. 10/2562 held on August 19, 2019 appointed Mrs. Pilasphan Udomjarumanee, Senior Vice President, Corporate Secretary and Legal, as Company Secretary. By law, the responsibilities of Company Secretary include the preparation and safekeeping of important company documents, including the register of directors, meeting notices, Board and shareholders' meeting minutes, Form 56-1 One Report, and conflicts of interest forms filled by Directors and Executives. The Company Secretary is in charge of organizing Board and shareholders' meetings and submitting copies of reports on Directors and Executives interests to the Chairman of the Board of Directors and the Chairman of the Audit Committee. The Company Secretary also advises the Board and Executives on the rules and regulations they should familiarize themselves with, organizes training and orientation for current and new Directors, as well as provides them with information essential to their performance of duties as Directors. Moreover, the Company Secretary oversees compliance with laws, regulations and resolutions passed in Board and shareholders' meetings, as well as collaborates with relevant agencies on compliance. The Company Secretary has undergone training courses necessary for her to duly perform her roles. The qualifications of the Chief Accountants are disclosed in Attachment 1 "Details of Directors, Executives, Controllers, and Company Secretary."

Chief Accountant

GC assigned Ms. Duantip Wuttichartkriengkari, Acting Vice President – Financial Accounting 1 as of January 1, 2023, and Mrs. Sutha Suwanrath, Vice President – Financial Accounting 1 from August 1, 2020 to December 31, 2022, to oversee the Company's accounting and ensure its compliance with relevant standards, laws, and regulations. The qualifications of the Chief Accountants are disclosed in Attachment 1 "Details of Directors, Executives, Controllers, and Company Secretary."

Head of Internal Audit

The Audit Committee meeting No. 8/2017 convened on September 18, 2017 resolved to approve the appointment of Mr. Amorn Putiphrawan as Senior Vice President, Internal Audit, responsible for evaluating and enhancing the internal control effectiveness, supervising the operations of the internal audit function to be in accordance with the objectives and the international standards, including objectivity and independent consulting on the company's subsidiaries and report directly to the Audit Committee. The qualifications of the Head of Internal Audit are disclosed in Attachment 1 "Details of Directors, Executives, Controllers and Company Secretary".

Head of Corporate Compliance

GC appointed Ms. Rattana Nakasiri as Vice President, Corporate Compliance, on October 15, 2015. The responsibilities include overseeing corporate compliance, promoting corporate governance in business practices, and ensuring that the Executives and employees of GC Group comply with laws, rules, and regulations in countries where GC operates. The qualifications of the Head of Corporate Compliance are disclosed in Attachment 3 "Details of Heads of the Internal Audit and Compliance Units."

Heads of Investor Relations and Contact Information

Vice President – Corporate Finance & Investor Relations

Mr. Jittasak Soonthornpan

Tel : 0-2265-8172

e-Mail : jittasak.s@pttgcgroup.com

Division Manager – Investor Relation

Mr. Paween Chiasakul

Tel : 0-2265-8665

e-Mail : paween.c@pttgcgroup.com

Audit Fee and Non-Audit Fee

Audit Fee

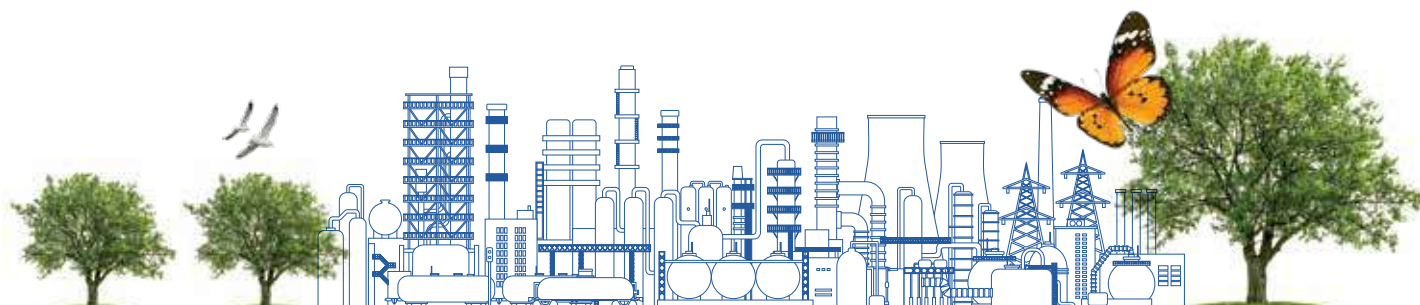
GC and its subsidiaries paid the audit fee to:

- KPMG Phoomchai Audit Ltd., which is the auditor of GC and its subsidiaries for the fiscal year of 2022 amounting to THB 11,462,700. Of this amount, GC paid THB 2,900,000 and its subsidiaries paid THB 8,562,700.
- The audit company that the auditor worked for, including persons or entities that are related to the auditors and the audit company for the fiscal year of 2022 amounting to THB 116,820,658.

Non-Audit Fee

GC and its subsidiaries paid the non-audit fee for performing agreed-upon procedures in connection with the requirements of the Board of Investment (“BOI”), transfer pricing services, tax and business consulting services and other audits by agreed-upon procedures to:

- KPMG Phoomchai Audit Ltd., which is the auditor of GC and its subsidiaries for the fiscal year of 2022 for incomplete services in the fiscal year of 2022 that will be paid for a total of THB 1,250,000.
- The audit company that the auditor worked for, including persons or entities that are related to the auditors and the audit company for the fiscal year of 2022 amounting to THB 50,213,533 plus incomplete services in the fiscal year of 2022 that will be paid for a total of THB 9,890,952.



BOARD OF DIRECTORS



1.	
2.	3.
4.	5.

1. Mr. Piyasvasti Amranand

Chairman
and Chairman of the Independent Director

2. Mr. Apisak Tantivorawong

Independent Director
and Chairman of the Audit Committee

4. Professor Somkit Lertpaithoon

Independent Director
and Chairman of the Corporate Governance
and Sustainability Committee

3. Mr. Pakorn Nilprapunt

Independent Director,
Chairman of the Nomination and Remuneration Committee,
and Director to the Audit Committee

5. Mr. Grisada Boonrach

Independent Director
and Chairman of the Risk Management Committee



6.	7.
8.	9.
10.	11.

6. Mrs. Watanan Petersik

Independent Director
Director to the Audit Committee and
Director to the Corporate Governance
and Sustainability Committee,

8. Lieutenant General Nimit Suwannarat

Independent Director
and Director to the Nomination
and Remuneration Committee

10. Mrs. Pantip Sripimol

Director
and Director to the Corporate Governance
and Sustainability Committee

7. Mr. Somkiat Prajamwong

Independent Director
and Director to the Nomination
and Remuneration Committee

9. Mom Luang Chayotid Kridakon

Independent Director
and Director to the Corporate Governance
and Sustainability Committee

11. Mr. Sarawut Kaewtathip

Director
and Director to the Risk Management Committee

BOARD OF DIRECTORS



12.

13.

14.

15.

12. Mr. Chadil Chavanalikhorn

Director
and Director to the Corporate Governance
and Sustainability Committee

14. Mr. Cherdchai Boonchoochaey

Director
and Director to the Risk Management Committee

13. Mr. Noppadol Pinsupa

Director
and Director to the Risk Management Committee

15. Mr. Kongkrapan Intarajang

Director,
Secretary to the Board of Directors,
Director to the Risk Management Committee,
and Chief Executive Officer and President

GC EXECUTIVES



1.	
2.	3.
4.	5.

1. Mr. Kongkrapan Intarajang

Chief Executive Officer
and President

2. Mr. Varit Namwong

Chief Operating Officer –
Value Added Products

4. Mr. Narongsak Jivakanun

Chief Operating Officer –
International Business

3. Mr. Toasaporn Boonyapipat

Chief Operating Officer –
Base and Intermediate Chemicals

5. Mr. Pirun Krimwongrut

Chief Operating Officer –
Center of Excellence

GC EXECUTIVES

REPORTING TO CHIEF EXECUTIVE OFFICER AND PRESIDENT



6.	7.	8.
9.	10.	11.
12.		

6. Miss Pattaralada Sa-NGasang

Executive Vice President –
Finance and Accounting

7. Mrs. Warawan Tippawanich

Executive Vice President –
Corporate Strategy

8. Mr. Chaya Chandavas

Executive Vice President –
Sustainability

9. Mr. Anutin Chuaypen

Executive Vice President –
Organizational Effectiveness

10. Mr. Amorn Putiphrawan

Senior Vice President –
Internal Audit

11. Mrs. Pilasphan Udomjarumanee

Senior Vice President –
Corporate Secretary and Legal
and Company Secretary

12. Mrs. Panida Chinayone

Senior Vice President –
Reporting to Chief Executive Officer
and President, Business Process
Redesign Project Leader (CBR)

REPORTING TO CHIEF OPERATING OFFICER-BASE AND INTERMEDIATE CHEMICALS



13.	14.	15.
16.	17.	18.
19.	20.	21.

13. Mr. Siridech Kumvongdee

Executive Vice President –
Marketing, Commercial
and Supply Chain

16. Mr. Paisarn Sarapee

Senior Vice President –
EO and Derivatives
and Managing Director of
GC Oxirane Company Limited

19. Mr. Sombat Silsangwon

Senior Vice President –
Aromatics

14. Mr. Pukpong Wungrattanasopon

Executive Vice President –
Olefins

17. Mr. Sawat Trongdilokrat

Senior Vice President –
Phenol and Derivatives

20. Mr. Theerapol Muenpakdee

Senior Vice President –
Base and Intermediate Chemicals
Secondment as Managing Director,
Thai Tank Terminal Limited

15. Mr. Ratchada Sawasdirak

Senior Vice President –
Refinery

18. Mr. Panchoak Auetanapa

Acting Senior Vice President –
Utilities

21. Mr. Kasem Leewongjaroen

Acting Senior Vice President –
Base and Intermediate Chemicals
Secondment as President,
GC-M PTA Company Limited and
Thai PET Resin Company Limited

GC EXECUTIVES

REPORTING TO CHIEF OPERATING OFFICER-CENTER OF EXCELLENCE



22.	23.	24.
25.	26.	27.
28.		

22. Mr. Saroj Putthammawong

Executive Vice President –
Marketing and Sales –
Industry Platforms

23. Mr. Pornsak Mongkoltrirat

Executive Vice President –
Polymers
and Managing Director of
GC Logistics Solutions Company Limited

24. Mr. Kamel Ramdani

Senior Vice President –
Science and Innovation

25. Mrs. Chananchida Wiboonkanarak

Senior Vice President –
Strategy, Business Development
and Commercial Excellence

26. Mr. Thitipol Artsanchorn

Senior Vice President –
Marketing and Sales –
General Applications
and Managing Director of
GC Marketing Solutions Company Limited

27. Mr. Kridsada Prasertsuko

Senior Vice President –
Value Added Products
Secondment as Managing Director,
Global Green Chemicals Public
Company Limited

28. Ms. Kornkamol Korpaisarn

Senior Vice President –
Value Added Products
Secondment as Managing Director,
GC Polyols Company Limited

REPORTING TO CHIEF OPERATING OFFICER- INTERNATIONAL BUSINESS



REPORTING TO CHIEF OPERATING OFFICER-VALUE ADDED PRODUCTS

**29. Mr. Kamel Ramdani**

Acting Senior Vice President –
Long term Innovation
and Corporate Venture Capital

30. Mrs. Rattiya Chandavas

Senior Vice President –
Specialty Business
Acting Senior Vice President –
Merger and Acquisition

31. Mr. Panod Awaiwanond

Senior Vice President –
US Second Home

32. Mrs. Jeeranee Pimthanothai

Executive Vice President –
Technical, Engineering and Maintenance

33. Mr. Paranai Waitayasewee

Senior Vice President –
Procurement

34. Mrs. Chatsuda Kanjanarat

Senior Vice President –
Transformation Excellence

35. Mr. Monton Rochvatanaboon

Senior Vice President –
CAPEX Excellence

36. Mr. Sakesiri Piyavej

Senior Vice President –
Quality, Safety, Occupational Health
and Environment

37. Mrs. Wilawan Songjaroen

Senior Vice President –
Center of Excellence
Secondment as Managing Director,
GC Maintenance and
Engineering Company Limited

38. Mr. Prakart Buttamart

Acting Senior Vice President –
Center of Excellence
Secondment as Managing Director,
NPC Safety and Environmental
Service Company Limited

CORPORATE GOVERNANCE REPORT

Summary of the Board of Director's Performance for the Year 2022

Nomination, Development, and Performance Assessment of the Board of Directors

Nomination and appointment of Directors, Independent Directors, and the Chief Executive Officer

The Nomination and Remuneration Committee, consisting of three Independent Directors, as prescribed in its Charter, is responsible for nominating and selecting qualified candidates with no prohibited characteristics as stipulated by applicable laws and regulations in accordance with the Director nomination and appointment criteria and procedure and proposing the list of candidates to the Meeting of the Board of Directors and/or the General Meeting of Shareholders (details of the criteria, procedures, and guidelines for the nomination and appointment of Directors, Independent Directors, and the Chief Executive Officer and President appear under "Policy and Practices for the Board of Directors"). In 2022, the Nomination and Remuneration Committee performed its duties in nominating and appointing Directors, Independent Directors, and Sub-committee as detailed below:

Nomination and appointment of Directors to replace Directors retiring by rotation: At the 2022 Annual General Meeting of Shareholders, held on April 4, 2022, five Directors were due to retire by rotation, namely Mr. Apisak Tantivorawong, Mr. Don Wasantapruek, Mrs. Watanan Petersik, Mr. Chansin Treenuchagron, and Mr. Kongkrapan Intarajang. Shareholders were given an opportunity to nominate qualified candidates for the vacant positions prior to the AGM from September 16 to December 31, 2021. However, there were no submissions of candidates from shareholders. The Nomination and Remuneration Committee, excluding members with a conflict of interest, thus

nominated and selected qualified candidates in accordance with the Director nomination and appointment criteria and procedure and resolved to nominate Mr. Somkiat Prajamwong to replace The Director retiring by rotation and nominate, Mr. Apisak Tantivorawong, Mrs. Watanan Petersik, Mr. Chansin Treenuchagron, and Mr. Kongkrapan Intarajang to be re-elected as directors for another term. The Board of Directors and the AGM resolved to approve the appointment of these candidates as Directors as instructed by the Nomination and Remuneration Committee.

The provisions in GC's Articles of Association regarding shareholders' meetings and voting state that shareholders shall cast all of their votes on their voting cards to vote one nominee for directorship at a time in order to ensure alignment with corporate governance principles.

Nomination and appointment of Directors to fill vacancies in cases other than retiring by rotation: Five Directors resigned during the year, namely Mr. Chansin Treenuchagron, Mr. Noppadol Pinsupa, M.L. Peekthong Thongyai, Mr. Disathat Panyarachun, and Lieutenant General Nithi Chungcharoen (effective January 1, 2023). To ensure the Board's uninterrupted discharge of duties according to the roles and responsibilities assigned, the Nomination and Remuneration Committee nominated and selected qualified candidates in accordance with the Director nomination and appointment criteria and procedure, taking into consideration qualifications in compliance with applicable laws, regulations, GC's articles of association and corporate governance principles, as well as the candidates' knowledge and expertise and the Board Skills Matrix. The Committee also considered the Director's Pool of the State Enterprise Policy Office and the Thai Institute of Directors (IOD). The Committee nominated candidates to place Directors who had resigned, namely M.L. Chayotid Kridakon, Mr. Cherdchai Boonchoochauy, Mr. Chadil Chavanalikhorn, Lieutenant General Nimit Suwannarat, and Mr. Noppadol

Pinsupa. The Board of Directors resolved to approve the appointment of these candidates as Directors as instructed by the Nomination and Remuneration Committee.

Nomination and appointment of members of Sub-committees: The Nomination and Remuneration Committee reviewed and nominated qualified Directors in accordance with the Director nomination and appointment criteria and procedure as well as the charter of each Sub-Committee to propose at the meeting of the Board of Directors for appointment as members of Sub-committees, namely, the Audit Committee, the Corporate Governance and Sustainability Committee, the Nomination and Remuneration Committee, and the Risk Management Committee. The the Board of Directors resolved to approve the appointment of the candidates as Directors as instructed by the Nomination and Remuneration Committee.

Review of Independent Director qualifications: Of GC's 15 Directors, a total of nine were Independent Directors (as of February 1, 2023), exceeding the requirement in the notification of the Capital Market Supervisory Board under the Securities Exchange Commission (SEC), which stipulated that the number of Independent Directors shall be at least one-third of the total number of Directors but shall not be lower than three. All Independent Directors were fully qualified as defined

by GC's Independent Director qualification requirements, the charter of Independent Directors, and the notification of the Capital Market Supervisory Board, and were able to express opinion independently in compliance with relevant criteria and corporate governance principles.

Development of Directors, Executives, and Company Secretary

Development and Training for Directors

GC has put in place a process to support the consistent development of its Directors. In 2022, the Company carried out the following activities:

- Orientation for new Directors: Newly appointed Directors were required to attend the board orientation, which included a presentation on GC's nature of business, business data and practices, as well as applicable rules and regulations, corporate governance principles and the business code of conduct, and useful information for the position. Additionally, the Company prepared handbooks and other documents required to perform their roles, namely the strategic plan, the Company's Articles of Association, Memorandum of Association, Form 56-1 One Reports/annual reports, related rules and regulations, and the Corporate Governance and Business Code of Conduct Handbook.

- GC encouraged Directors to participate in the following programs/seminars required for their duties:

Director	Program/Institute
1. Lieutenant General Nithi Chungcharoen*	■ Director Leadership Certification Program (DLCP), Class 8/2022 Thai Institute of Directors Association (IOD)
2. Mr. Sarawut Kaewtathip	■ Risk Management Program for Corporate Leaders (RCL), Class 29/2022 Thai Institute of Directors Association (IOD)
3. Mr. Somkiat Prajamwong	■ Director Certification Program (DCP), Class 329/2022, and Ethical Leadership Program (ELP), Class 28/2022 Thai Institute of Directors Association (IOD)

Remark: *Lieutenant General Nithi Chungcharoen performed his duties as an Independent Director through 2022 and resigned on January 1, 2023.

- GC organized a training session for the Board of Directors as a whole on the topic of Strategic Business Foresight, hosted by invited speakers from the Thai Institute of Directors Association (IOD), to inform them of key trends and challenges and enable them to apply the foresight mindset and process to formulate GC's long-term strategies, as well as a session on the topic "The Future of Decarbonization," led by invited speakers from McKinsey, update them on the outlook and trends of carbon capture, utilization and storage (CCUS), and hydrogen technology at both domestic and global levels.
- GC hosted talks for the Board of Directors entitled "Introduction to Coating Resins Industry," "allnex's Business," and "Key Strategic Priorities for allnex," led by GC's and allnex's representatives, in order to keep the Directors informed of the coating industry and allnex's business plans, thus providing them with supplementary information for monitoring the situation of the industry and reviewing GC's strategies.
- GC held an excursion and a site visit to Vencorex Holding in the French Republic and allnex Holding GmbH in the Federal Republic of Germany to listen to lectures hosted by allnex on Crosslinker production, research and development, as well as sales and customer relations achievements. The objective was to keep the Board of Directors advised on relevant progress, foster their understanding of allnex's business, and provide information that would inform their recommendations and formulation of GC's strategic directions.

Training for Executives and Company Secretary

GC consistently encourages its Executives and the Company Secretary to pursue further education and participate in training programs to acquire knowledge beneficial to their duties as well as their roles in supporting GC and the Board of Directors, as detailed below.

- GC conducted a training program for Executives from the Senior Vice President level upward and Executives serving as Directors and Executive Directors of companies under GC hosted by the Thai Institute of Directors Association (IOD). The training program consisted of three topics as follows:
 - Topic 1: Subsidiary Governance by Peangpanor Boonklum, Senior Executive Vice President, Office of General Counsel, PTT Public Company Limited. The objective was to foster an understanding of their roles and responsibilities in companies under GC, the roles and responsibilities of

Directors in subsidiaries, and guidelines for preventing legal liabilities that may affect GC.

- Topic 2: Business and Legal Issues for Directors and Executives by Chinapat Visuttiapat, partner at ONE Law Office. The goal was to inform the participants of the duties and legal liabilities of Directors and Executives; laws relevant to Director duties with regard to M&A, JV (international and domestic investment), the environment; as well as risks and suggestions related to Director duties, presented through case studies.
- Topic 3: Transformative Leadership for Global Enterprise by Kulvech Janvatanavit, Chief Executive Officer, the Thai Institute of Directors Association (IOD). The objective was to raise awareness of the significance of business transformation, which would strengthen the global mindset among corporate leaders, and to enhance the understanding of the roles and responsibilities of the Board of Directors, which would benefit their discharge of duties as Directors in a subsidiary and as GC's Executives.

In addition to the aforementioned training programs by the Thai Institute of Directors Association (IOD), GC has developed training programs for Executives at all levels. Further details appear under "Employees."

- GC encouraged the Company Secretary to attend training programs to support the Board of Directors. In 2022, the Company Secretary attended one program offered by the Thai Institute of Directors Association (IOD), namely the Ethical Leadership Program (ELP), Class 27/2022, and other in-house programs, namely Subsidiary Governance, Business and Legal Issues for Directors and Executives, and Transformative Leadership for Global Enterprise.

Board Performance Assessment

Board of Directors

GC has prescribed annual board performance assessments, carried out using three assessment forms: group assessment, self-assessment, and cross-assessment (individual assessment of other directors). The Board of Directors may engage external consultants to establish guidelines and provide suggestions on board performance assessment every three years to ensure compliance with CG Code and the Dow Jones Sustainability Index (DJSI) criteria. In 2022, EY Corporate

Services Limited (EY) was selected as an external consultant and engaged to improve the group assessment, self-assessment, and cross-assessment forms, which were then presented to the Nomination and Remuneration Committee for approval; conduct annual performance assessments using individual interviews, the results of which were compared against the assessment scores; and prepare a report of analysis of the assessment scores and suggestions of the Board of Directors for use in enhancing, monitoring, and developing board performance. A summary is given below.

Group Assessment: The group assessment form comprised six main sections: 1) Board policy, 2) Board performance, 3) Board structure (composition and qualifications), 4) Board style, 5) Board meeting, and 6) Board development. **The average group assessment score was 98.1%.**

Self-assessment (Assessment of Individual Directors): The assessment form comprised three main sections: 1) Directors' knowledge and expertise, self-development, and teamwork, 2) Board performance of duties, and 3) dedication of time and meeting attendance. **The average self-assessment score was 96.4%.**

Cross-assessment (Individual Assessment of Other Directors): The assessment form comprised three main sections: 1) the Director's knowledge and expertise, self-development, and teamwork, 2) Board performance of duties, and 3) dedication of time and meeting attendance. **The average cross-assessment score was 98.4%.**

Sub-committees

Annual performance assessments, both at committee (group) and individual levels, have been prescribed for all four Sub-committees. In 2022, every Sub-committee reviewed and revised the assessment questionnaires and criteria to ensure alignment with good corporate governance practices.

Audit Committee

The group assessment of the Audit Committee comprised two parts. The first part pertained to its composition, covering the topics of the Audit Committee's Charter, qualifications, meetings, learning, and data access; and the second part pertained to its performance of duties, covering the topics of roles and responsibilities and performance reporting to the Board.

The individual assessment comprised the following topics: knowledge and expertise, discharge of duties, and meeting attendance.

The average score of the group assessment was **99.3%**, and the average score of the individual assessment was **97.5%**

Nomination and Remuneration Committee

The group assessment comprised the following topics: composition and qualifications, performance of duties, guidelines for Directors, meeting attendance, reporting and performance evaluation.

The individual assessment comprised the following topics: knowledge and expertise, performance of duties, guidelines for Directors, and dedication of time and meeting attendance.

The average score of the group assessment was **98.9%**, and the average score of the individual assessment was **99.8%**.

Corporate Governance and Sustainability Committee

The group assessment comprised the following topics: composition and qualifications, performance of duties, guidelines for Directors, meeting attendance, reporting and performance evaluation.

The individual assessment comprised the following topics: knowledge and expertise, performance of duties, guidelines for Directors, and dedication of time and meeting attendance.

The average score of the group assessment was **96.4%**, and the average score of the individual assessment was **95.3%**.

Risk Management Committee

The group assessment comprised the following topics: composition and qualifications, roles and responsibilities, and meeting attendance.

The individual assessment comprised the following topics: responsibilities, adherence to business ethics and code of conduct, and dedication of time to duties and self-development.

The average score of the group assessment is **98%**, and the average score of the individual assessment is **98.5%**.

Meeting Attendance and Remuneration of Individual Directors

Board of Directors' Meetings

The date and time of the Meetings of the Board of Directors are scheduled in advance for the entire year, with the agenda items of each meeting clearly established. The Meeting of the Board of Directors is scheduled for the fourth Monday of every month. Special meetings of the Board of Directors may be held as appropriate and necessary. Members of the Board of Directors will receive a meeting invitation, draft minutes of the previous meeting, and supplementary information for the agenda of the meeting for consideration at least 7 days prior to the date of the meeting. For convenience and reduced paper usage, such documents are delivered to each Director via the D-Join system (Digital Join Application), which a data security system put in place. In 2022, the Board of Directors convened a total of 15 meetings, consisting of 14 pre-scheduled meetings and a special meeting. Directors who had other engagements and could not be in attendance were required to notify the Chairman of the Board of Directors in writing and specify the necessity for the absence. The Chairman informed the meeting of such matter at the beginning of each meeting.

The Chairman of the Board of Directors presides over the meeting and gives all Directors an opportunity to participate in the meeting and express their opinions independently. At each meeting, at least two-thirds of the total number of Directors must be present to form a quorum, and the quorum must be maintained while votes are cast. The Chairman may allow Directors to attend the meeting via electronic means, whereby the

meeting must be carried out in accordance with the security criteria and standards for electronic meetings pursuant to applicable laws and regulations issued by relevant government agencies. In casting votes, each Director shall have one vote, and a resolution of the meeting shall require a simple majority of votes. The Chairman of the Meeting shall have a casting vote in case of an equality of votes. The Board of Directors manages any conflicts of interest of the relevant persons with due circumspection, fairness, and transparency and discloses such information in full. In the event that a Director has a conflict of interest in the matter being considered, the Director shall not take part in any decision-making on the matter.

When the meeting is concluded, the Company Secretary is responsible for preparing the minutes of the meeting to be approved in the next meeting and signed by the Chairman of the Board of Director for verification. The approved minutes, along with supplement documents, are stored systematically in an electronic format in accordance with the Company's confidentiality level for ease of reference.

Furthermore, in accordance with corporate governance principles, the Board of Directors prescribes meetings of non-Executive Directors to allow them to provide opinions and guidelines for the management and business operation of the Company as well as meetings of Independent Directors, where they can exchange opinions and review their roles and discharge of duties every year. In 2022, one meeting of non-Executive Directors (July 25, 2022) and one meeting of Independent Directors (November 21, 2022) were convened. Summaries of such meetings are submitted to the Board of Directors for acknowledgment.



The number of the Meetings of the Board of Directors, Independent Directors, Non-executive Directors and Sub-committee held in 2022 and Director's attendance are shown in the table below.

Director's Meetings (As at December 31, 2022)

Name	Meetings in 2022									2022 Annual General Meeting of Shareholders
	Board of Directors			Independent Directors	Non-Executive Directors	Audit Committee	Nomination and Remuneration Committee	Corporate Governance and Sustainability Committee	Risk Management Committee	
	15 Times	2 Physical Meetings	13 e-Meetings	1 Times	1 Times	9 Times	6 Times	9 Times	7 Times	1 Times
1. Mr. Piyasvasti Amranand	15/15	2/15	13/15	1/1	1/1	-	-	-	-	1/1
2. Mr. Apisak Tantivorawong	15/15	2/15	13/15	1/1	1/1	9/9	-	-	-	1/1
3. Lieutenant General Nithi Chungcharoen*	15/15	2/15	13/15	1/1	1/1	-	5/6	4/4	-	1/1
4. Professor Somkit Lertpaithoon	15/15	2/15	13/15	1/1	1/1	-	-	9/9	-	1/1
5. Mr. Grisada Boonrach	15/15	2/15	13/15	1/1	1/1	-	-	-	7/7	1/1
6. Mrs. Watanan Petersik	15/15	2/15	13/15	1/1	0/1	9/9	-	9/9	-	1/1
7. Mr. Pakorn Nilprapunt	15/15	2/15	13/15	1/1	1/1	9/9	6/6	-	-	1/1
8. Mr. Somkiat Prajamwong	11/11	1/11	10/11	1/1	1/1	-	4/4	-	-	-
9. M.L. Chayotid Kridakon	9/10	1/10	8/10	1/1	0/1	-	-	4/5	-	-
10. Mr. Chadil Chavanalikhorn	1/1	-	1/1	-	-	-	-	-	-	-
11. Mr. Sarawut Kaewtathip	15/15	2/15	13/15	-	1/1	-	-	-	7/7	1/1
12. Mrs. Pantip Sripimol	15/15	2/15	13/15	-	1/1	-	-	5/5	2/2	1/1
13. Mr. Cherdchai Boonchoocha	1/1	-	1/1	-	-	-	-	-	-	-
14. Mr. Kongkrapan Intarajang	15/15	2/15	13/15	-	-	-	-	-	7/7	1/1
Directors who resigned in 2022										
1. Mr. Don Wasantapruerk	2/2	-	2/2	-	-	-	2/2	-	-	-
2. Mr. Chansin Treenuchagron	5/5	1/5	4/5	-	-	-	-	4/4	-	1/1
3. Mr. Noppadol Pinsupa	12/12	2/12	10/12	-	1/1	-	-	6/6	-	1/1
4. M.L. Peekthong Thongyai	13/13	2/13	11/13	-	1/1	-	-	-	6/7	1/1
5. Mr. Disathat Panyarachun	14/14	2/14	12/14	-	1/1	-	-	-	7/7	1/1

Remarks:

Directors who could not attend meetings due to other engagements and had notified the Chairman of the Board of Directors in advance of such meetings.

* Lieutenant General Nithi Chungcharoen performed his duties as an Independent Director through 2022 and resigned on January 1, 2023.

Remuneration of Directors

The Board of Directors has set up a fair and reasonable remuneration policy for its Directors in accordance with good corporate governance principles. The Nomination and Remuneration Committee determines suitable remuneration for Directors based on the Company's financial standing, the economic circumstances relevant to the Company's business, the principles and policies approved by shareholders, the responsibilities of the Board of Directors, the annual board performance assessment results, and the practices of other SET-listed

companies of a similar size in the same industry. Directors appointed to Sub-Committees are entitled to additional remuneration due to their additional responsibilities.

Directors' remuneration must be approved by the shareholders. At the 2022 Annual General Meeting of Shareholders, held on April 4, 2022, the shareholders passed a resolution approving the 2022 remuneration of Directors and Directors to Sub-Committees and their bonus for the year 2021 as follows:

(1) Remuneration for the Board of Directors and Sub-committees

Type of Remuneration	Remuneration Rate
1. Board of Directors	Monthly Remuneration ■ Chairman Baht 62,500 /Month ■ Director Baht 50,000 /Month/Director Remuneration for Meeting Attendance ■ Chairman Baht 50,000 /Meeting ■ Director Baht 40,000 /Meeting/Director
2. Sub-committees	Remuneration for Meeting Attendance ■ Chairman Baht 56,250 /Meeting ■ Director Baht 45,000 /Meeting/Director
3. Others	-None-

(2) With regard to the bonus for the year 2021, in accordance with the resolution of the 2022 Annual General Meeting of Shareholders, held on April 4, 2022, the Board of Directors as a group was to be awarded a bonus for the year when a dividend payment was made to the shareholders. The total sum of this bonus equaled 0.30% of the year's net profit and up to Baht 60 million. Each Director's bonus was calculated based on the time served in the corresponding year, and the Chairman's bonus was to be 25% higher than those of other Directors. In 2022, the Board of Directors as a group was awarded a bonus of Baht 60 million in total.



Remuneration for Individual Directors for 2022

Name	Monthly Remuneration for GC Directors (Baht)	Remuneration for Meeting Attendance (Baht)	Remuneration for Sub-Committees Meeting Attendance (Baht)				2021 Bonus paid in 2022 (Baht)*	Total (Baht)
			Audit Committee	Nomination and Remuneration Committee	Corporate Governance and Sustainability Committee	Risk Management Committee		
1. Mr. Piyasvasti Amranand	750,000.00	700,000.00	-	-	-	-	4,937,889.30	6,387,889.30
2. Mr. Apisak Tantivorawong	600,000.00	560,000.00	506,250.00	-	-	-	3,950,311.44	5,616,561.44
3. Lieutenant General Nithi Chungcharoen***	600,000.00	560,000.00	-	270,000.00	180,000.00	-	3,950,311.44	5,560,311.44
4. Professor Somkit Lertpaitoon	600,000.00	560,000.00	-	-	450,000.00	-	3,950,311.44	5,560,311.44
5. Mr. Grisada Boonrach	600,000.00	560,000.00	-	-	-	393,750.00	3,950,311.44	5,504,061.44
6. Mrs. Watanan Petersik	600,000.00	560,000.00	405,000.00	-	360,000.00	-	3,950,311.44	5,875,311.44
7. Mr. Pakorn Nilrapunt	600,000.00	560,000.00	405,000.00	270,000.00	-	-	3,950,311.44	5,785,311.44
8. Mr. Somkiat Prajamwong	445,000.00	400,000.00	-	180,000.00	-	-	-	1,025,000.00
9. M.L. Chayotid Kridakon	379,032.26	320,000.00	-	-	135,000.00	-	-	834,032.26
10. Mrs. Pantip Sripimol	600,000.00	560,000.00	-	-	180,000.00	90,000.00	431,170.00	1,861,170.00
11. Mr. Sarawut Kaewtathip	600,000.00	560,000.00	-	-	-	315,000.00	3,950,311.44	5,425,311.44
12. Mr. Kongkrapan Intarajang**	600,000.00	560,000.00	-	-	-	315,000.00	3,950,311.44	5,425,311.44
Directors who resigned and retired by rotation in 2021-2022 and earned remuneration in 2022								
1. Mr. Disathat Panyarachun*****	550,000.00	560,000.00	-	-	-	315,000.00	3,950,311.44	5,375,311.44
2. M.L. Peekthong Thongyai*****	500,000.00	520,000.00	-	-	-	270,000.00	1,007,576.21	2,297,576.21
3. Mr. Noppadol Pinsupa*****	448,333.33	480,000.00	-	-	270,000.00	-	1,007,576.21	2,205,909.54
4. Mr. Chansin Treenuchagron*****	220,967.74	200,000.00	-	-	180,000.00	-	3,950,311.44	4,551,279.18
5. Mr. Don Wasantapruerk****	122,580.65	80,000.00	-	112,500.00	-	-	3,950,311.44	4,265,392.09
6. Mr. Prapas Kong-ied*****	-	-	-	-	-	-	3,276,891.98	3,276,891.98
7. Mr. Wittawat Svasti-xuto*****	-	-	-	-	-	-	2,942,735.23	2,942,735.23
8. Mrs. Arawadee Photisaro*****	-	-	-	-	-	-	2,942,735.23	2,942,735.23
Grand Total	8,815,913.98	8,300,000.00	1,316,250.00	832,500.00	1,755,000.00	1,698,750.00	60,000,000.00	82,718,413.98

Remarks: The Company provides a corporate vehicle for the Chairman throughout his term for corporate-related activities only.

* Bonus for 2021 performance paid in 2022 for time served in 2021 within a budget of Baht 60 million.

** Remuneration for directorship only; Executive remuneration is not included.

*** Lieutenant General Nithi Chungcharoen performed his duties as an Independent Director through 2022 and resigned on January 1, 2023.

**** One Director who retired by rotation in 2022 was Mr. Don Wasantapruerk, who passed away on March 14, 2022.

***** The three Directors who resigned in 2021 were Mr. Wittawat Svasti-Xuto and Mrs. Arawadee Photisaro (effective October 1, 2021) and Mr. Prapas Kong-ied (effective November 1, 2021).

***** The three Directors who resigned in 2022 were Mr. Chansin Treenuchagron (effective May 14, 2022), M.L. Peekthong Thongyai (effective November 1, 2022), and Mr. Disathat Panyarachun (effective December 1, 2022).

***** One Director resigned in 2022 and was re-appointed in 2023 was Mr. Noppadol Pinsupa resigned on September 30, 2022 and was re-appointed as Director on January 23, 2023.

Remuneration Received by Those Serving as Independent Directors of a Parent Company

GC's Independent Director who served as Independent Directors of PTT Public Company Limited, the parent company, received remuneration as follows:

Name-Surname	PTT Public Company Limited (PTT)				
	Position	Remuneration for the Year 2022			
		Meeting Allowance (Including Monthly Allowance) (Baht)	Sub-Committee Meeting Allowance (Baht)	Bonus 2022 (Baht)	Total (Baht)
1. M.L. Chayotid Kridakon	Independent Director/Chairman of the Enterprise Risk Management Committee	1,260,000.00	412,500.00	3,056,008.83	4,728,508.83
2. Mr. Don Wasantapruek* (Jan - Mar 2022)	Independent Director/Chairman of the Nominating Committee	312,580.65	37,500.00	589,677.94	939,758.59

Remark: *Passed away on March 14, 2022

Directors' Remuneration for Directorship at Major Subsidiaries

The Company's Directors hold directorships at subsidiaries to ensure that their businesses are operated in compliance with GC Group's policies.

Name	Position	Total Remuneration
PTTGC International Private Limited (100% owned subsidiary)		
Mr. Kongkrapan Intarajang	Chairman	15,000 SGD
Global Green Chemicals Public Company Limited (72.29 shareholding)		
Mr. Kongkrapan Intarajang	Chairman	Baht 679,890

Governance of Subsidiaries and Affiliates

The Board of Directors has implemented the following governance mechanisms for overseeing the management and operation of GC's subsidiaries and affiliates to protect the Company's interests and investments.

- (1) GC has designated the Chief Executive Officer and President as an authorized person in accordance with GC's regulations on human resources management, whereby the CEO is authorized to nominate Executives or other persons to serve as Directors in companies under GC Group as stipulated in GC's Articles of Association, joint

venture agreements, or shareholders' agreements, taking into consideration the roles and responsibilities, experience, expertise, and qualifications and ensuring compliance with relevant laws, for companies under GC Group to approve for appointment.

- (2) GC enriched the knowledge and capabilities of the Executives assigned to take directorship in other companies under GC Group by organizing training programs so as to ensure that their preparedness and capacity to apply GC's policies in a manner that is proper, compliant with rules and regulations, and in accordance with the changing situations and trends.

- (3) Ensuring that any major policies of companies under GC, such as Corporate Governance Policy, Corporate Compliance Policy, Finance, Accounting, Tax and Budget Policy, Quality, Security, Safety, Occupational Health, Environment and Business Continuity Policy, Human Resources Management Policy, Sustainability Management Policy, Risk Management Policy and Internal Control Policy, as well as any another relevant policies, are in compliance with regulations of Stock Exchange of Thailand and the Securities and Exchange Commission and any other relevant laws.
- (4) GC has established GC Way of Conduct to serve as guidelines for the operation and governance of companies in which GC holds shares through personnel assigned to serve as Directors or Executives or assigned to supervise such companies, including GC's internal units which are responsible for supervising companies under GC Group, so as to ensure the operation of such companies is consistent with that of GC, has the same standard, transparency and good governance system that keeps the business operation across GC Group and drives the business towards sustainability.
- (5) GC has implemented multi-level governance, in which companies under GC Group are required to establish their Way of Conduct guidelines in line with those of GC for use in governing companies in which they hold shares, so as to establish a uniform operational standard across GC Group.
- (6) In 2022, GC promoted and enhanced the implementation of GC Way of Conduct as detailed below.
 - GC reviewed and improved GC Way of Conduct by applying various international standards, GC's operational standards, and best practices to the governance of companies under GC Group. GC also reviewed the group-level management of key activities as well as governance to ensure suitability for the risks, types of business, business models, and locations of such companies to maintain alignment with GC Group's investment objectives and business strategies.
 - GC established and communicated GC Way of Conduct 2022 to units which are responsible

for the management and governance of companies under GC Group and coordinators for the implementation of GC Way of Conduct among such companies in order to advance the adoption of GC's operational standards among them.

- GC prescribed GC Way of Conduct implementation assessments, in order to monitor compliance and establish operational standards in different areas for GC Group.
- GC prescribed that GC Way of Conduct implementation progress be monitored and reported to Executives on a yearly basis.
- The GC Way of Conduct Handbook (2022) was published both in Thai and English in an e-Book format. GC Way of Conduct Webpage was developed to be distributable on the Share Point system to create an additional and quick access for up-to-date information on GC Way of Conduct.

Ensure Compliance with Corporate Governance Policy and Practices

GC considers good corporate governance a priority and has thus established and included relevant policies and practices in its Corporate Governance and Business Code of Conduct Handbook. The Company also promotes its implementation to foster confidence among GC's stakeholders.

In 2022, GC conducted various activities to ensure compliance with the corporate governance practices of GC Group, and based on monitoring, it was found that GC fully complied with the practices, as summarized below.

Disclosure of Information and Transparency

GC is committed to transparent and timely disclosure of accurate and complete information, financial and non-financial, to stakeholders in conformity to applicable laws, rules, and regulations via the SET Link and the Company's website at www.pttgcgroup.com. Its Investors Relations (IR) and Corporate Secretary (CS) are in charge of information disclosure and addressing inquiries. GC carried out the following:

- Disclosure of Material Information in Form 56-1 One Report
 - 56-1 One Report Financial Information: GC's financial statements are audited by a professional auditor for the accuracy of their material information and conformance to financial auditing standards. Each set of financial statements has been approved by the Audit Committee and the Board of Directors before their disclosure to shareholders and the public. The Board of Directors' statement on the accountability of its financial reports is disclosed alongside the auditor's report in Form 56-1 One Report.
 - Non-financial Information: Non-financial information includes the operating structure of GC Group, risk management, business operations for sustainability, corporate governance, and material information about the Board of Directors, Sub-committees, Executives, and employees.
- Channels for the Disclosure of Essential Information in Thai and English
 - The SET Link
 - GC's regularly updated website, www.pttgcggroup.com, where channels for contacting the Board and other divisions are also fully and clearly displayed
 - Information and updates were disclosed to stakeholders via e-mail, exhibitions, press release and other activities, such as newspapers, and social media.

- The Investor Relations Department serves as the center of communication, where essential information is made known to shareholders, institutional and minor investors, analysts, and relevant regulatory authorities. It also oversees the quality of financial reporting processes and essential information that could affect the price of its securities, such as financial statements, performance results, earnings reports and quarterly and annual Management Discussion and Analysis (MD&A). These are all indicators of the Company's financial standing, performance, and future trends. The Investor Relations Department also manages the disclosure of information via the SET Community Portal to foreign and domestic investors. Furthermore, an Investor Relations Code of Conduct has been established to determine the roles and best practices that enable investor relations officers to treat all shareholders equitably.

In 2022, GC's Executives met with shareholders, financial analysts, investors, and employees through activities adapted for the new normal in order, including both virtual and in-person meetings, all conducted with suitable COVID-19 preventive measures in place, in order to present GC's performance. These activities included analyst meetings, domestic and international roadshows, and retail-investor events. GC also welcomed investors who visited the Company. Below is a summary of these events:

Investor Meetings

Domestic meetings	1 time
Meetings aboard	3 times
Investor meetings through virtual roadshows/conferences	31 times
Meetings at the Company	11 times
Meetings with financial analysts	4 times
Telephone conferences	16 times

Information Disclosure

Disclosure via SET Portal and Company Website	24 times
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Activities

Basic training with financial analysts	2 times
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Investors or interested persons may contact the Company via the following channels for more information:

- (1) Mail : Investor Relations Department,
PTT Global Chemical Public
Company Limited
555/1 Energy Complex, Building A,
4th-18th Floors, Vibhavadi Rangsit Road
Chatuchak, Bangkok 10900
- (2) Phone : 66 (0) 2265-8400 ext. 8172, 8665,
8513, 8533, and 8534
- (3) e-Mail : ir@pttgcgroup.com
- (4) Fax : 66 (0) 2265-8500
- (5) Website : www.pttgcgroup.com

In addition, the Company offers swift and convenient communication via e-mail. The e-mail address is displayed on the Company website under “Corporate Governance”. Shareholders, investors, and the public may contact the Board of Directors or the Chairman of the Corporate Governance Committee directly. They may also contact the Company Secretary for company information at cg@pttgcgroup.com.

Environmental, Occupational Health, and Safety Management

With its operations abiding by the quality, security, occupational health, environment, and business continuity policy (QSHEB policy) in accordance with international standards and based on good corporate governance principles and strict adherence to applicable standards, regulations and laws on safety, occupational health and environment, GC Group has won praise and honors. This is a testimony to GC’s commitment to business practices that strive for excellence.

Quality, Security, Safety, Occupational Health, Environment, and Business Continuity Policy

GC strives to become a world-class chemical industry leader that incorporates green innovation and technology into its business operations so as to serve as a model for sustainable development that takes into account the economy, society, and the environment. GC is also committed to improving the effectiveness of its performance in terms of quality, security, safety, occupational health, environment, and business continuity. The policy applies to all operations of GC which involves its Executives, employees, related persons, suppliers, and contractors, as detailed below:

1. Comply with laws and international practices related to quality, security, safety, occupational health, environment and business continuity.
2. Implement total quality management (TQM) with quality, knowledge and productivity management tools to satisfy customers and develop green innovations.
3. Implement risk management to prevent danger, work-related illnesses, accidental losses, injuries, and property damage, while fostering the B-CAREs safety culture and exercising Process Safety Management (PSM) to ensure the safety of everyone.
4. Be aware of security threats and prescribe emergency management guidelines so as to protect lives, assets, data, and business continuity.
5. Focus on good occupational health and working environment and promote good health and a happy workplace.
6. Indicate, assess, and prioritize environmental issues and formulate action plans to prevent impacts on the environment and ecosystems; preserve biodiversity by putting in place an integrated environmental management system for the management of energy, air, water, and waste; maximize resource efficiency and sustainability in accordance with the principle of circular economy, which stresses resource maximization across the value chain; continuously enhance the efficiency of its greenhouse gas emission reduction efforts and adaptability in the face of climate change; strive towards net-zero emissions by 2050; and foster an environmental culture by raising awareness and encouraging employees and stakeholders to participate in the corporate environmental culture.

All Executives, employees, related persons, suppliers, and contractors are responsible for achieving GC’s objectives and goals, serving as role models for developing, and maintaining GC’s quality, security, safety, occupational health, environment and business continuity (QSHEB) management system by supplying sufficient resources, so that Executives, employees, related persons, suppliers, and contractors may be involved in the implementation of this policy, undertake training, as well as use communications to foster cooperation both internally and between organizations to ensure GC’s sustainability. GC’s activities for environmental, occupational health, and safety management in 2022 are summarized below.

1. Safety Management

1.1) Personal Safety

GC considers safety and occupational health management one of the most vital issues in its business operations as improper safety management could result in production disruptions and impact the operation of stakeholders throughout the supply chain. To this end, GC has developed a Quality, Safety, Security, Occupational Health, Environment, and Business Continuity (QSHEB) Policy and introduced various standards and systems, such as the ISO 45001 safety standard, the Process Safety Management (PSM) Standard, and the Contractor Safety Management system (CSM) in order to enhance safety management and foster operational excellence. All performance is reported to the management team and the Board of Directors on a regular basis. Safety projects carried out in 2022 are as follows:

■ B-CAREs in Action by Operational Discipline (OD)

GC pursued its policy and strengthened its B-CAREs safety culture by translating the Operational Discipline (OD) Characteristics of employees at all levels and contractors into practice in accordance with their role at each level in the B-CAREs in Action by OD Project, with the goal of achieving Zero Incident, Zero Complaint, Zero Unplanned Shutdown (Zero ICU).

■ Pre-Task Planning Checkpoint

GC initiated the Pre-Task Planning Checkpoint Project, which was a list of dos and don'ts in each type of work involving risks and regular accidents based on a record of accidents from

2012-2021, such as work involving scaffolding, high-pressure water, and cleaning. This list was to be used by area owners and work owners to examine the readiness of the operators in order to further prevent and reduce accident rates. As a result of this initiative, the list was employed across all 18 sites of operations. In addition, GC conducted various personal safety and safety culture promotion projects, the most prominent among which included Engineering Control by Special Tools and Contractor Safety Management.

■ Engineering Control by Special Tools

GC initiated the Engineering Control by Special Tools Project to develop special tools for maintenance engineering in order to preemptively reduce hazardous contact and inculcate a safety culture among employees. Each area of operation was assigned to review or assess the risks for which special tools could be adopted to prevent direct manual contact, to add the use of special tools into each step in the work instructions, and to prepare sufficient special tools for usage. For this year, a total of 125 special tools, classified into 19 types, were developed, and a special tool list and library was also created to accommodate actual deployment. Examples of such special tools include handle locks and slugging wrenches. As a result of this program, the rate of hand injuries in 2022 reduced to 43% compared to 2021.

■ Contractor Safety Management

GC further enhanced its Contractor Safety Management (CSM) system, which was piloted in the GC6 refinery. As part of this project, the Approved Vendor List (AVL) registration system and performance assessment forms for new



Quality, Security, Safety, Occupational Health, Environment and Business Continuity Policy (QSHEB Policy)

For more information

<https://sustainability.pttgcgroup.com/storage/document/policies/20200408-pttgc-QSHEB-policy-en.pdf>

1. SPECIAL TOOL NETWORKING
2. SPECIAL TOOL
3. CONTRACTOR SAFETY MANAGEMENT



contractors were revised to place more importance on safety, thus making the procurement and contractor selection process more stringent. Furthermore, training was held for contractors to prepare them for operation and assessment. In addition to internal safety projects, GC recognized the significance of the safety of its personnel and their families outside of its areas of operation and thus initiated after-hours safety culture projects to ensure their safety both inside and outside of GC's sites.

The pilot project at the GC6 refinery, participated by 32 contractors, helped increase safety and reduce work-related accidents. Through this project, GC also obtained data that could be used to enhance operational efficiency, such as in the control of sub-contractors and the development of chemical and waste management.

■ GC Group SEEK Day 2022 (Safety, Environmental, Energy and Knowledge Management Day)

The activity was held to raise safety, occupational health, and environmental awareness under GC's process safety management and B-CAREs safety culture. The Zero TRIR (Zero Total Recordable Injury Rate) and Zero PSE (Zero Process Safety Event) awards were also presented by the CEO to sites with no Personal accidents and Process Safety accidents throughout a period of one year to highlight exemplary safety and environmental practices. In addition, a contest featuring exhibitions by different functions was held to promote an exchange of knowledge as well as foster a sense of pride and involvement in GC's safety, occupational health, and environmental achievements.

In addition, GC Group's plants won the Outstanding Safety, Occupational Health and Work Environment Award: Gold Level for the 24th consecutive year (1998-2022), testifying to GC's national outstanding safety performance.

As consequence of the extensive safety, occupational health, and environmental management, GC's 2022 safety performance was ranked in the first quartile internationally,

with the Total Recordable Injury Rate (TRIR) and the Lost Time Injury Frequency Rate (LTIFR), two major performance indicators, showing a downward trend. GC also launched an investigation into every incident to improve its work processes and develop effective preventive measures, with the ultimate goal of becoming a zero-accident organization.

1.2) Process Safety

GC has been working actively to elevate its process safety standards. In 2022, GC applied various innovations as well as developed and improved its successful pilots to perfect them, use them as development models, and extend them to other sites of operation. Key projects in 2022 were namely 3 OD/B-CAREs Projects Implementation, OD Baseline Assessment, and PSM Self Internal Audit and Bowtie Barrier Validation, as detailed below.

■ 3 OD/B-CAREs Project Implementation

GC assigned all its 21 sites of operation to carry out projects to improve or address issues related to operational discipline or the B-CAREs safety culture, such as the Engineering Control by Special Tools Project and the development of chemical sample collection equipment to obviate manual contact. Such projects were to be selected by order of importance, and for each site, at least three projects that had been approved had to be implemented. In 2022, a total of 77 projects were conducted, with GC overseeing and closely monitoring the progress of each initiative to ensure the achievement of the established goals. Among these, prominent projects include the Leadership by Example Project, in which Executives served as safety role models in their line walks to enhance safety management.

■ OD Baseline Assessment

GC assessed and analyzed the project piloted in its Olefin 1 Plant (GC2) in the past year to develop the operational discipline (OD) baseline and identify any gaps and defects. The data was applied to the assessment of all the remaining areas of operation to develop the OD of each specific area to reduce the overall rate of accidents.

■ PSM Self Internal Audit and Bowtie Barrier Validation

GC introduced a bow tie analysis to the assessment of potential hazards and accidents and impacts of catastrophic events or Major Accident Events (MAE). In 2022, GC assessed the effectiveness of the bow-tie analysis by verifying the data accuracy and completeness. Approved bow ties were then applied to actual operations and used to supplement internal audits for the annual process safety management in accordance with the regulations of the Industrial Estate Authority of Thailand (IEAT). The target was for the bow tie analysis to be utilized in risk assessment in 20 sites of operations and for there to be two bow ties for each site; the target was achieved as planned.

In addition, GC organized training programs relevant to the staff in each site of operations, such as fire and evacuation drills, held at a prescribed interval. Emergency plans were also consistently revised and improved to ensure that they are au courant and ensure GC's preparedness to handle emergencies and crises, such as a fire in an operation site or a leak of crude oil to the sea. As a result of its commitment to the consistent development and elevation of its process safety, GC had excellent process safety performance.

1.3) Fire-fighting and Emergency Crisis

■ Emergency Mutual Aid Group: EMAG

GC is a founding member of the Emergency Mutual Aid Group (EMAG), established as a center for industries in Map Ta Phut municipality, to cooperate and support others in emergencies. GC actively participated in drafting an Emergency Plan for Rayong and an Emergency Action Plan for Map Ta Phut Industrial Estate Group. In collaboration with a group of industrial plants in Map Ta Phut, GC conducted emergency drills at the provincial level and carried out evacuation drills in nearby communities. In addition, the Company designated employees with expertise in emergency response and mitigation to support

the Governor of Rayong, Rayong Province Disaster Prevention and Mitigation Office, Map Ta Phut Municipality, and a group of industrial plants in Map Ta Phut to help support the community in developing their emergency plans and conducting drills in case an accident arises in a plant and affects the community.

■ Security Drills for International Ships and Ports (NASMAX)

GC organized drills for international ship and port security plans (NASMAX) in collaboration with government agencies, local administrative organizations, and ships and ports, as well as identified maritime threats and established measures for preventing potential risks to ships or ports to assess threats and continuously improve the security measures of GC/ports to achieve maximum efficiency, in line with the International Ship and Port Facility Security Code (ISPS Code).

■ Business Continuity Management System (BCM)

The Company implemented the Business Continuity Management System (BCM) to ensure its readiness and ability to coordinate, respond to situations, and recover effectively after the incident so that business can continue operating smoothly. GC established a structure to define responsible parties in various fields in a form of the Business Continuity Plan (BCP), to be used as a business recovery standard for all GC Group's plants.

■ Proactive Fire Fighting Reliability Audit

GC conducted a proactive inspection of firefighting equipment to improve its readiness of utilization to meet standards as well as put in place a contingency plan for critical equipment or systems. GC also established guidelines for inspecting and testing the firefighting system, along with appropriate handbooks that had been revised, categorized, and made ready for application.

■ Integration of Technology into Safety Management

GC integrated technology and innovation into its safety management to improve the safety systems and enable a prompt risk analysis as well as quick, accurate monitoring, thus reducing the risk of production accident and workplace injuries.

2. Environmental Management

GC is a leader in the international chemical business that integrates green innovation and technology into its operations for sustainable development while preventing and minimizing impact on the environment, communities, and society throughout the value chain. GC also aims to become a leader in the management and development of green product design and operates its business in compliance with national and international environmental standards and requirements as well as the National Economic and Social Development Plan No. 12 (2017-2021), the 20-year National Strategic Plan (2017-2036), and the Sustainable Development Goals (SDGs) set by the United Nations (UN) in the following ways:

2.1) Strict Compliance with Environmental Standards and Requirements

GC values the prevention of environmental impacts. To this end, it puts in place control and protection measures from the design stage before a project begins and carries out a comprehensive environmental impact study covering different aspects of the project to produce a detailed Environmental Impact Assessment report (EIA). GC also strictly complies with measures to prevent and reduce impacts as well as regularly reports the results of the implementation to regulatory agencies. Furthermore, the Company has adopted the ISO 14001 Environmental Management System as a baseline standard for its operations as well as applied several other international standards, guidelines, and best practices, such as the Guidance on Chemical Risk Assessment of the International Council of Chemicals Association (ICCA). GC also conducts water shortage risk assessments using the Aqueduct Water Risk Atlas by the World Resources Institute (WRI) as well as prescribes annual environmental performance data verification by external verifiers.

2.2) Proactive Environmental Management (PEM) and Development of Key Performance Indicators for Sustainability

Since 2008, GC has systematically adopted the philosophy of resource management alongside sustainable business operations known as Eco-efficiency from the Manual of the United Nations Conference on Trade and Development (UNCTAD) as an indicator of its environmental performance. The intention is to improve resource efficiency and reduce environmental impacts caused by its activities and production processes in compliance with the BS 8001: 2017 standard of circular economy practices. In tandem, GC has also developed an Environmental Performance Database under the framework of Global Reporting Initiative (GRI) Standards, which is in line with UN SDG 12: Responsible Consumption and Production. GC is Thailand's first petrochemical and refinery organization to continuously conduct Greenhouse Gas (GHG) emissions accounting and report GHG production and reduction across all plants across GC Group in accordance with the ISO 14064-1 standard.

In addition, GC has developed proactive environmental management plans in both plants and its surrounding areas by applying the circular economy principles as a basis for driving resource efficiency in the organization to keep the environmental quality above the standard and reduce impacts on the environment and communities. Examples of its activities in this regard are as follow:

■ Resource and Waste Management

GC strives to manage resources and waste according to the concept of circular economy, which places emphasis on maximizing resource efficiency. This initiative begins in the product development stage, in which GC minimizes waste by exchanging leftover products, feedstock, and fuels from production between plants to create added value. GC also raises awareness among all concerned parties, both internal and external, by applying the concept of circular economy and expanding towards a green culture and green resource and waste management, employing the 5Rs (Reduce, Reuse, Recycle, Refuse, Renewable) to reduce

waste and maximize resource efficiency across the value chain, and ultimately achieve the goal of zero industrial waste to landfill. These initiatives have been carried out since 2015 and are still ongoing. Waste and wastewater are also recovered and processed for reuse. Moreover, GC has continuously implemented the Green Turnaround Management Project, in which measures have been established to prevent and reduce environmental impacts resulting from the maintenance of machinery and equipment. For example, GC began treating wastewater generating from the cleaning of equipment and machinery during a turnaround in its plants to reduce the amount of waste disposal by incineration. and began reducing the landfilling of non-hazardous waste and municipal waste by processing them into Refuse Derived Fuels (RDFs), thus maximizing their use. GC also cooperated with employees in each area of operation in assessing and sorting non-hazardous waste and municipal waste that could be reused as fuels as well as separating waste generated in production and from offices by type and delivering it to waste disposers who re-utilized it as fuels.



Waste Management

For More Information:
<https://sustainability.pttgcgroup.com/en/environment/waste-management/waste-management-target-and-performance>

■ Air Quality Control

GC has carried out projects to control air pollution both process areas and fence lines. It has also applied air pollution reduction innovation and technology through collaborations with the public sector and petrochemical operators to maximize efficiency.

Control and Reduction of Volatile Organic Compounds (VOCs)

GC controls and reduces Volatile Organic Compounds (VOCs) at the source, beginning with the annual inventory of VOCs emission sources and the implementation of Preventive Maintenance (PM) for VOC trapping vapor

treatment equipment to ensure its efficiency and readiness at all times, thus allowing GC to keep VOCs under the prescribed legal limits. The Company also immediately repairs equipment to reduce potential impacts and implements a maintenance program of equipment to minimize VOCs released to the atmosphere. GC has also installed a Vapor Recovery Unit (VRU) and a Vapor Return Line to transport the vapors of hydrocarbons which might potentially be released into the atmosphere and bring them back into the storage tank for proper utilization or management. To further control and reduce VOCs, GC along with five other petrochemical industrial estates, and a port in Map Ta Phut, have introduced a Code of Practice (CoP) to their areas of operation to manage the release of benzene vapors and 1, 3-butadiene. This includes proactive air quality surveillance and monitoring both in and around GC's sites during operating hours and turnarounds. Vapor control measures have also been introduced, in which the vapor level must be measured before equipment activation to ensure that it is within the control value, which is set to be more stringent than that mandated by the law. In addition, GC has installed equipment, such as an efficient vapor treatment system, to recover and prevent vapor from being released into the environment as well as prescribed the measurement and control of VOCs during decontamination at the vents of the vapor treatment system and sampling points of other equipment as well as during the transfer of liquid waste to hauler vehicles for disposal. In addition, GC has required pipe system testing prior to activation as well as the covering of all connecting points to prevent leakage of VOCs into the environment, with the goal of ensuring that GC's activities create no impacts on the environment and the areas in the vicinity of its sites.



Air Quality Control

For More Information:
<https://sustainability.pttgcgroup.com/en/environment/air-quality/emissions-reduction-target-and-performance>

2.3) Leadership in Sustainable Environmental Managements

Operating on the basis of sustainability, GC actively prioritizes and drives solutions as well as mitigation of impacts of climate change and water management issues, which have grown increasingly severe, so as to achieve the goal of the Paris Agreement and the United Nations' Sustainable Development Goals (SDGs).

■ Climate Strategy

GC strives to become a world-class leader in the management of Greenhouse Gas (GHG) emissions as well as support Thailand's GHG targets and the direction of the Paris Agreement under the United Nations Framework Convention on Climate Change (COP27). It has also affirmed its commitment to GHG reduction to meet the United Nations' SDG 13: Climate Action. To this end, GC has set a goal to achieve net-zero emissions under the Scopes 1 and 2 by 2050 through efficiency-driven resource management. The Company also implement a long-term business restructuring towards having 40% of its business as a low-carbon business by 2030 while maintaining portfolio-driven growth and nature-based solutions and integrating technology alongside compensation-driven involvement of stakeholders. Thanks to its climate policy and continuous climate actions, GC received the highest rating of A-list in Leadership Level under the assessment framework of the Carbon Disclosure Project (CDP), one of the world's most reliable sustainability assessment institutions – a testament to GC's commitment to climate change management.



Net Zero

For More Information:
<https://sustainability.pttggroup.com/storage/document/net-zero/20211119-pttgc-gc-s-decarbonization-pathways.pdf>



ENVIRONMENT DAY ACTIVITY

■ Water Management

GC strives to contribute to the achievement of the UNSDG 6: Clean Water and Sanitation and focuses on sustainable management of water and water crises, both internally and externally, through its One Water Strategy and governance under the supervision of the Water Management Taskforce and the Supply Chain Management Taskforce to achieve water stewardship, resilience, and maximum efficiency in production. GC also fosters the participation of stakeholders to minimize impacts of water scarcity and maintain an adequate reserve for consumption. As droughts are increasingly intensified by climate change and the demand for water among the industrial sector, the agricultural sector, and communities has been rising continuously, GC's production may be faced with a water crisis, both in terms of quantity and quality. To this end, GC assesses water risks to identify water stress areas, using the Aqueduct Water Risk Atlas, so as to reduce the need to draw freshwater from natural sources and decrease water consumption in the production process as well as monitor the water situation in reservoirs and promote water conservation in collaboration with the public and industrial sectors and communities to conserve water and preserve water quality. In addition, GC discloses its water management and impacts in a transparent manner, in line with the international requirements of the GRI Standards. As a result, GC was given the highest rating of A-list under the assessment framework of the Carbon Disclosure Project (CDP), one of the world's most reliable sustainability assessment institutions, testifying to its commitment to water security initiatives.



Water Management

For More Information:
<https://sustainability.pttggroup.com/en/environment/sustainable-water/sustainable-water-strategy-target-and-performance>

■ Product Stewardship

GC seeks to operate a customer-centric business and create green products that are safe for consumers and in line with the concept of circular economy, while also taking into account social and environmental impacts throughout the product life cycle so as to meet consumer needs, elevate the quality of life, and foster sustainable growth for GC. As a result of climate change and the COVID-19 pandemic in the previous year, customer behaviors and needs shifted towards products that were safe for health and the environment. In response, GC has developed products to cater to the needs of customers and consumers by adopting the Eco-design Guidelines and the Eco-design Criteria, based on the ISO 14062 standard, along with the principle of product Life Cycle Assessment (LCA) to minimize social and environmental impact across the value chain. To this end, a life cycle assessment has been conducted on all products to better serve customer needs for environmentally friendly products in the future. In addition, GC Group' products have been certified with the Carbon Footprint of Products (CFP), Carbon Footprint Reduction (CFR), and the Carbon Footprint of Circular Economy Product (CE-CFP) labels by the Thailand Greenhouse Gas Management Organization (Public Organization) (TGO) under the Ministry of Natural Resources and Environment. GC also has also encouraged all companies under GC Group to have all their products certified with the Water Footprint (WF) label by the Water and Environment Institute for Sustainability, the Federation of Thai Industries in order to enhance the competitiveness of the Thai industrial sector in the global market and prepare for ASEAN and international trade measures in the long term.

outside the organization. GC has established an environmental taskforce (e-Taskforce) comprising environment specialists in GC Group to foster a robust environment management network and enhance environmental awareness and responsibility among its personnel across all sites of operation through the promotion of a environmental culture activities, such as the World Environment Day and Thai Environment Day. GC has also cooperated with the government sector on national projects, such as by cooperating with government agencies and representing the petrochemical sector in formulating the code of practice for the control of benzene and 1, 3-butadiene as well as by working continuously with agencies overseeing the water situation and management in the northeastern region of Thailand.

As testimony of its initiatives to expand its sustainable environmental management across its networks in all sectors, all of GC's plants have been certified Eco Factories by the Federation of Thai Industries since 2015 and obtained the Green Industry Level 5 certificate from the Ministry of Industry since 2016. This highest level of certification demonstrates GC's commitment to becoming a green network leader.

As a result, in 2022, GC earned the top score for environmental management in the Dow Jones Sustainability Indices (DJSI) in the chemical business category for the fourth consecutive year. It was also placed on the A-list of the Carbon Disclosure Project (CDP), which was the highest tier. These accolades not only testify to GC's success in incorporating into account quality, safety, occupational health, and environmental concerns into its business operations throughout the supply chain but also demonstrate its leadership in the chemical industry and its position as an innovative organization with social responsibility and the aspiration to elevate the quality of life as well as a model for cultivating awareness and promoting the adoption of relevant practices to achieve tangible results in a sustainable manner.

2.4) Expanding Sustainable Environmental Management

GC has integrated environmental management by cooperating with stakeholders both within and

IT Governance and Cybersecurity

GC has adopted COBIT 5 (IT Framework); ISO standards, namely ISO 27001, ISO 27701, and ISO 22301; and TQA (Thailand Quality Award) in its information technology (IT) and cybersecurity management through its Integrated Management System (GCMS) and has been utilizing GC Way of Conduct in establishing GC Group's IT standards. GC also places emphasis on the different aspects of management, namely the quality and availability of data and information, the standard control and specifications of hardware and software, IT and cybersecurity, and availability in case of emergency. The management is divided into three levels as follows:

Governance Level

- GC Group's Digital and IT Steering Committee (DISC) is responsible for defining the group's digital and IT direction, policies, and goals to ensure uniformity and the level of standard comparable to that of leading international companies in the same industry, with the Chief Executive Officer serving as the chairman of DISC.
- The Digital & IT Investment Management Committee (DIM) is responsible for reviewing the objectives of investment projects, technology selection, and returns on investment.

Management Level

- Information Security Management System Committee (ISMS Committee) is responsible for ensuring that GC's information security, cybersecurity, and cloud security are consistent with the international standards and keeping risks within the risk appetite.

- The Enterprise Architecture Committee (EA Committee) is responsible for the management of the Company's IT structure to ensure its alignment with usage requirements and currency as well as maximum utilization.
- The Management Level undertakes its oversight duties through data and information management policies, such as policies on Information Security (IS), Cybersecurity, Cloud Security, Service Level Agreement (SLA), Secure System Development Life Cycle (SSDLC), and Data Protection.

Operation Level

- Establishing systems, procedures, and services for users; publishing and storing them on the internet as reference for users; and sending out IT updates via e-Mail every two weeks, except emergencies, for which users will be given an immediate notification.
- Assessing IT resource risk every year to ensure the resources are sufficient to protect the accuracy, integrity, reliability, and currency of data and information.
- Monitoring performance both internally and externally to validate the work processes; using the results to further improve the Company's IT management and services and keep IT security up to date; and reporting progress to Executives and responsible Sub-committees regularly.



GC's key IT and cybersecurity management activities can be summarized as follows:

- **Data and Information Availability:** GC has established data and information usage plans in line with its corporate strategic plans and surveyed the needs of all business groups to formulate IT strategic plans. In addition, a Data Recovery site (DR Site) has been set up for 24-hour backup of important information, which can be readily retrieved. GC has also formulated disaster recovery plans for the main data system in accordance with business continuity management standards (ISO 22301), along with recovery procedures for handling an emergency that impacts the main data system. Additionally, IT disaster recovery drills are conducted every year.
- **Standard Control and Specifications of Hardware and Software:** GC has introduced policies to control hardware and software standards, which require, for instance, the replacement of IT equipment every three years and the installation of a server monitoring system that notifies

administrators via SMS and e-Mail upon detecting irregularities for prompt troubleshooting.

- **Data Security and Cybersecurity System Optimization:** Due to greater use of digital technology both in production systems and operation networks with internet connectivity and in remote work during the COVID-19 pandemic, there have been greater risks of cyber threats, such as theft of key data and possible unplanned shutdowns of the production system, which could affect GC's business continuity, credibility, as well as corporate image and reputation.

In response, GC has established a data security and cybersecurity management process in line with its IT security policy and seeks to foster an understanding and awareness among personnel at all levels through information security training so as to enable them to properly handle cyber threats. The process consists of information security and cybersecurity governance, control, verification, and monitoring, as detailed below:

Level of Management	Role	Relevant Sub-committee / Unit
Governance	■ Oversee management ■ Define strategic directions and goals	■ GC Group's Digital & IT Steering Committee (DISC) ■ Information Security Management System Committee (ISMSC)
Management	■ Manage data and information in compliance with ISO 27001 ■ Monitor and verify information integrity and accuracy	■ Enterprise Risk Management Committee (ERMC) ■ Cybersecurity Unit
Operation	■ Establish systems, procedures, and services for users to comply with ■ Evaluate, monitor, and report risk assessment performance to the Enterprise Risk Management Committee (ERMC)	■ Cybersecurity Unit

Information Security and Cybersecurity Governance

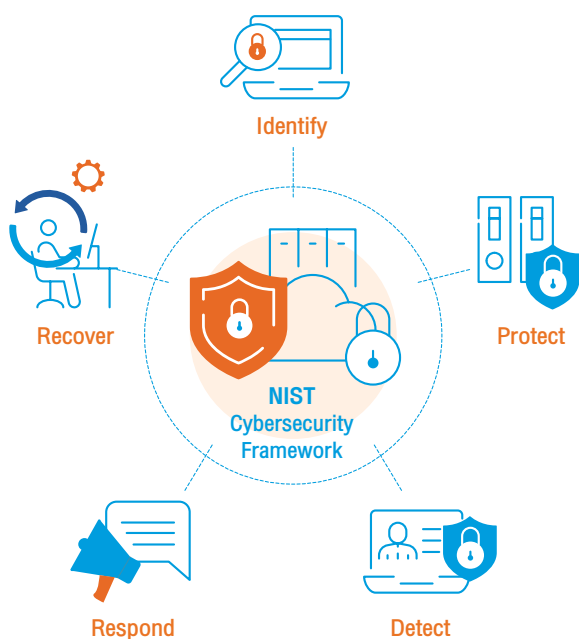
To establish clear operational directions and ensure transparent management from policy to operational levels, GC governs and manages its information security system in compliance with the ISO/IEC 27001:2013 standard and the cybersecurity framework developed by the US National Institute of Standards

and Technology (NIST). The management can be divided into three levels: (1) Governance, (2) Management, and (3) Operation. In 2022, restructuring was undertaken, in which a cybersecurity unit was appointed to enhance the efficiency of information security and cybersecurity management.

GC's information security and cybersecurity governance comprises five management components, in line with the information security and cybersecurity management guidelines and process set forth by the NIST Cyber Security Framework.

In addition, GC has appointed Senior Vice President – Transformation Excellence to serve as Chief Information Security Officer (CISO), with the following roles:

1. To serve as Chairman of the Information Security Management System Committee (ISMSC)
2. To establish information security goals and policies in line with GC's strategic plans
3. To develop information security policies, standards, processes, and guidelines to maintain the confidentiality, integrity, and availability of GC's information
4. To coordinate, control, and report cybersecurity incidents to GC's top management and the National Cyber Security Agency (NCSA).



Information Security and Cybersecurity Control

GC has established information security and cybersecurity policies and measures in line with the international ISO 27001 standard and raised awareness among its personnel to bolster the security and stability of its information security and cybersecurity management system as well as prevent violation of the Computer-related Crime Act. In 2022, GC extended the scope of application for ISO 27001 certification to cloud storage, internet gateways, the development of the security system for its IT system for personal data related to the recruitment process. The three additional principal elements under the extended scope are:

1. Cloud Infrastructure as a Service
2. Cyber Zone / Internet Zone Network
3. Applications Supporting Recruitment Process, such as SAP HCM and Success Factor

Additionally, GC has put in place preparations and mitigated risks from cyber threats and thefts by establishing and monitoring Key Risk Indicators (KRI) in three dimensions, which are people, business, and technology. In addition, GC fosters knowledge of safe IT usage and awareness of cyber threats and thefts through infographics and e-Learning materials so that its personnel can apply it to their work and daily life.

Information Security and Cybersecurity Auditing and Monitoring

GC has its information security and cybersecurity systems and guidelines revised and reviewed annually to ensure alignment with the ISO/IEC 27001:2013 standard prescribed by the external agencies. In the past year, the assessment revealed that GC's information and cyber processes and infrastructure were up to standard, and that no non-compliance was detected.

As a result of such implementations, GC was able to efficiently safeguard its data and the data of its business partners in 2022, as reflected in the limited number of cyber threats and data safety complaints.

Insider Information

An Insider Information Policy has been established and included in the Corporate Governance and Business Code of Conduct Handbook. It has also been published on the Company's website for shareholders' ready access. Directors, Executives and employees are constantly reminded to comply with the policy, under which they are prohibited from using material insider information not yet publicly disclosed for personal gain or the benefit of others, for trading GC's securities, or in a manner that either directly or indirectly harms the interests of GC. The details of the policy appear under "Policy and Practices Related to Shareholders and Stakeholders."

In 2022, GC oversaw and monitored the compliance of its use of insider information with relevant laws as well as its policies and practices. In addition, all Executives and employees were informed of the matter via e-Mail and required to learn about insider information policies and practices as well as signed a statement acknowledging their obligations in GC's Hook Acknowledgement & Learning System. Furthermore, the Board of Directors has been informed of the GC's insider information policies and practices through e-Mails sent by the Company Secretary. In 2022, no Directors, Executives, or relevant employees violated such policies and practices. In addition, it was not found that any Directors or Executives traded securities during GC's blackout period. Changes in the shareholding of the Board of Directors, Executives, their spouses, and their minors appear under "Board of Directors" and "Executives."

Prevention of Conflicts of Interest

GC prioritizes the interests of the Company and its stakeholders in its business operation as an important policy and has thus established best practices to demonstrate its commitment to transparency and accountability. Under these practices, it is the duty of GC's Directors, Executives, and employees at all levels, including related persons and people with business relations, to avoid involving in a conflict of interest or acting in such a manner that may bring about a conflict of interest. In case such avoidance is impossible, responsible units must supervise the transaction to ensure its transparency for the best interests of the Company.

GC has established standards and guidelines for delivery of duties and engagement in activities that may involve stake or conflicts of interest, as follows:

1. Refrain from any action that will cause one to have stake or conflicts of interest with the Company, such as by contacting with trade partners of the Company, exploiting an opportunity or information received in one's capacity as an employee for personal benefits, operating a business which competes with the Company, and engaging in external work in a manner that affects the work in their purview.
2. In case the Company's employee or its related person must enter a transaction with the Company for the benefit of the Company, the undertaking of such transaction must be on an arm's-length basis with normal commercial terms.
3. The consideration and disclosure of any stakes, connected transactions, or conflicts of interest must be carried out strictly and carefully in accordance with applicable laws and regulations of the Security and Exchange Commission and the Thailand's Stock Exchange, whereby the Director, Executive and/or employee having conflicts of interests must be excluded from the review of the transaction. If it is necessary for such person to provide information and details to supplement the review, such person shall not vote nor give any opinion in the consideration for the approval of such transaction for the sake of the independence of the review.
4. A business transaction must be carried out with honesty, integrity, reasonability, and independence within the scope of corporate governance and in the best interest of the Company.
5. In the event of an undertaking or circumstance that may cause or deem to give rise to conflicts of interest with the Company, the aforesaid transaction must be reported using the form specified by the Company and filed to the supervisor through the chain of command and to Corporate Governance Department of PTT Global Chemical Public Company Limited or must be reported through the electronic system designated by relevant corporate governance regulating units without delay in order to initiate a review process to determine whether conflicts of interest against the Company are involved and what further process should involve.

In addition, GC places importance on reporting, regardless of the possibility of the incidents leaning towards involving conflicts of interest, and has required the submission of annual reports as well as reports of any conflicts of interest arose during the year.

GC's activities for the prevention of conflicts of interests in 2022 are summarized below:

- GC conducted follow-ups and successfully achieved 100% submission of annual conflict of interest disclosure reports by GC Groups' Executives and employees through its intranet system.
- GC conducted follow-ups and successfully achieved 100% submission of annual conflict of interest disclosure reports by its directors using its conflict of interest reporting form.
- Ensuring that the Directors and Executives under the definitions as prescribed in the Notification of the Capital Market Supervisory Board to declare the record of Conflict of Interest upon taking office for the first time. Such record of Conflict of Interest is also to be revised annually or whenever there is any amendment upon the record during the year.
- GC conducted follow-ups and successfully had 100% of its Executives and employees learn about policies and practices on the prevention of conflicts of interest and sign a statement acknowledging their obligations on its Hook Acknowledgement & Learning System.
- The Internal Audit Unit conducted audits on GC's procedures and communications as well as random audits on transactions that may involving conflicts of interest on a quarterly basis and found that they were in compliance with relevant practices.
- GC organized training sessions on related-party transactions and the acquisition and disposition of assets for GC Group's business coordinators in order to communicate the criteria, steps, and procedures for carrying out a related-party transaction between GC or a company in GC Group (in which GC holds over 51% of shareholding) and a person with relations to GC.
- GC governed and encouraged units that might be required to conduct transactions with a person with relations to GC, such as the procurement unit and the marketing, commercial, and supply chain unit, as well as other companies under GC Group, to put in place steps and processes for reviewing a list of related persons prior to entering any transaction in order to comply with GC's Related Party Transaction Manual.

Anti-corruption

GC Group places great importance on anti-corruption efforts and strives to comply with laws against fraud and corruption as well as bribery of both Thai and foreign public officials or officers of private organizations. The Company also seeks to cultivate anti-corruption consciousness in its employees at all levels to combat corruption of all forms.

To this end, GC has established an Anti-corruption Policy and included it as part of GC Group's Corporate Governance Policy to ensure that GC Group's operations comply with the policy and establish an operational standard for Directors, Executives, employees, and other persons acting in the interest of GC. Any non-compliance with the policy of GC Group will result in disciplinary action and penalties as stipulated by relevant laws.

Principles

All Directors, Executives, employees, contractors, and any other persons acting in the interests of GC Group have the duties to comply with applicable anti-corruption laws, rules, and regulations as well as GC's Corporate Governance and Business Code of Conduct Handbook, policies, rules, practices, and guidelines; perform their duties with transparency; and refrain from any act which can demonstrate intent to commit fraud or corruption. They are also prohibited from requesting, committing, or condoning corruption for their personal benefits or the benefits of related persons, including friends and acquaintances. They must also be ready for an audit by an auditor or a relevant competent authority at all times. GC's subsidiaries may consider adopting such policies and measures to their own operation as deemed appropriate.

GC's Anti-corruption Measures

1. GC has appointed an anti-corruption promotion working team, responsible for ensuring that GC's anti-corruption measures are implemented efficiently in accordance with the Company's commitment as a member of the Thai Private Sector Collective Action Against Corruption (CAC).
2. GC reviews, examines, and improves its anti-corruption measures and reports to the Corporate Governance and Sustainability Committee annually in order to measure their effectiveness as well as improve their alignment with the ever-changing corruption risks.

3. GC has prescribed corruption risk assessments and set up preventive measures against risks in operational control, environmental control, and financial control, as well as measures for document storage.
4. GC has established guidelines for auditing internal control relevant to the recording of financial transactions, the preparation of books of account, and the safeguarding of information. Any material issues detected are reported to the Board of Directors.
5. As a policy, GC is politically neutral and does not provide financial support, resources, or other assets either directly or indirectly to politicians or political parties or other political groups for the benefit of such politicians or political parties or groups.
6. As a policy, GC does not make any facilitation payment to ease its business activity either directly or indirectly and does not engage in or accept any act in exchange of business facilitation.
7. GC has established suitable and clear criteria for the hiring of government officers in order to prevent such hiring to be in exchange for undue benefits and has established measures to disclose information related to such hiring to the general public for transparency.
8. GC has established human resource management policies and procedures regarding nomination and selection, performance evaluation, remuneration, and promotion that reflect its anti-corruption commitment.
9. GC shall not demote, discipline, or cause any adverse effect on personnel who refuse to be involved in fraud or corruption, even though such refusal may cause GC Group to lose business opportunities. This policy is clearly communicated to all personnel.
10. GC consistently organizes trainings on anti-corruption actions and awareness for its personnel.
11. GC communicates its anti-corruption policies and practices to its subsidiaries, affiliates, other companies in which GC has controlling power, customers, suppliers, business partners, and stakeholders, as well as to the general public through various communication channels in order to keep them informed and enable them to adopt the anti-corruption measures.
12. GC adopts No Gift policy to align with the anti-corruption policy on the receiving/giving of gifts, organizing of banquets, or any other forms

of benefits. This serves as guidelines to ensure that personnels within GC Group can conduct themselves appropriately.

13. The implementation of anti-corruption policies is in accordance with the guidelines specified in the Corporate Governance and Business Code of Conduct Handbook, as well as other regulations, policies, rules, and guidelines defined by the Company.
14. GC reviews its anti-corruption policies every three years to coincide with the re-certification of the Thai Private Sector Collective Action Against Corruption (CAC) or at an appropriate interval in accordance with the amendments of applicable laws, regulations, and rules. Any revision is proposed to the Board of Directors for consideration and approval.

Disciplinary Actions

1. GC has put in place disciplinary actions for Directors, Executives, or employees who do not comply with its anti-corruption policies. These include the discharge of Directors from office and other disciplinary actions in accordance with the rules on disciplinary actions for Executives and employees; and legal actions in accordance to the applicable laws, rules, regulations, and corporate governance practices related to such act.
2. In the event that a person related to GC Group, or any customer, supplier, or business partner does not comply with the anti-corruption measures, GC Group may consider terminating any transaction with such person.

GC declared its intention to join the Thai Private Sector Collective Action Against Corruption (CAC) on July 18, 2012 and was first certified as a member on July 4, 2014. It was recertified for the third time on June 30, 2020.

In 2022, GC carried out activities that demonstrated its commitment to anti-corruption efforts. A summary is provided below:

- The anti-corruption promotion working team cooperated with relevant and responsible unit to review GC's anti-corruption measures and corruption risk assessments that were currently deployed in the operational processes and update the self-assessment forms, reference documents, and corruption risk assessment table. As well as establishing the working paper.

- GC developed and deployed the Automated CAC Checklist to improve the work process and optimize the development of a database of GC's implementation of anti-corruption measures as well as monitor, process, analyze, and verify data and provide recommendations on the CAC Checklist through an online system.
- GC prescribed a procedure for monitoring transactions that required particular care and transactions with government agencies.
- GC supported its subsidiaries in applying as a member of CAC by providing assistance and recommendations in their declaration of intention in becoming CAC members and by organizing training on execution of an anti-corruption self-assessment procedures.
- GC consistently provided training, knowledge, and communications.

Internal Activities

- GC organized a training program entitled "Anti-Corruption for Executive Program: Moving Forward to Zero Tolerance for Fraud & Corruption" for division managers and vice presidents within GC Group to enhance their understanding of anti-corruption actions and foster a culture of good corporate governance against all forms of corruption, both directly and indirectly. The training was led by Mr. Thodsaporn Rattanamastip, Executive Vice President - Fraud Management, Risk Management Section, Bank of Ayudhaya Plc.
- GC organized a training program entitled "Ethical Leadership: Turning Ethics into Action for Senior Staff" for senior personnel through the UP e-Learning system, featuring the invited speaker Assoc. Prof. Opas Kitkamhang, Ph. D., Dean of Faculty of Business Administration, Siam Technological College, to ensure they understood their roles as leaders in discharging their duties with responsibility and ethics and in making decisions on the basis of responsibility and ethics.

- GC held a mandatory program entitled "Hook Acknowledgment and Learning" through its e-Learning system for employees at all levels across GC Group for them to learn about GC's corporate governance and compliance with laws, rules, regulations, and GC's code of ethics.
- GC communicated, in a Tone at the Top manner, about GC's Corporate Governance and Business Code of Conduct through Hook Talk video clips at the monthly Town Halls, and before various internal meetings. Topics included conflicts of interest, risk management and internal control, the use of insider information and data confidentiality, complaint handling and whistleblower protection measures, compliance, the No-Gift Policy, and business code of ethics.

Activities for External Stakeholders

- GC joined the CAC Change Agent Program to expand its network of business transparency to its suppliers. A total of 10 suppliers declared their intention to join the program, thus earning GC a CAC Change Agent Award. GC also communicated with its suppliers to encourage them to become CAC members through supplier conferences, for which the assessment score for corporate governance and compliance communication was 88.87%.
- GC informed all business partners of GC Group's No-Gift Policy, under which GC would not request/receive any gift, reward, entertainment, or other forms of benefits from its business partners to avoid acts that might lead to discrimination or a conflict of interest and to jointly uphold operational transparency and efficiency.

1. [ACT DAY 2022](#)
2. [Hook Acknowledgment and e-Learning](#)
3. [CAC Change Agent Award](#)



- GC published on GC's website and put up signs across its headquarters in clearly accessible spots to communicate the No-Gift Policy to all visitors and the general public.
- GC provided channels for external parties to submit inquiries and recommendations regarding corporate governance and business code of conduct via e-Mail to the Corporate Governance Unit at cg@pttgcgroup.com.
- GC Group's Executives and employees participated in the following activities with external agencies:
 - GC participated in the 2022 Anti-corruption Day, held under the concept "Leaders and Anti-corruption Efforts" by the Anti-Corruption Organization of Thailand (ACT) on September 6, 2022, at Bang Sue Central Station to empower GC Group's Executives and employees in spearheading anti-corruption endeavors.
 - GC participated in the 2022 International Anti-corruption Day (Thailand), held by the Office of the National Anti-Corruption Commission (NACC) virtually on December 9, 2022, to demonstrate the commitment of GC Group's Executives and employees to transparent and corruption-free business practices.
 - GC participated in the CAC Change Agent & SME Day 2022, held by the Thai Private Sector Collective Action Against Corruption with the goal of strengthening the network of business transparency and accountability on August 26, 2022, at Bangkok Marriott Marquis Queen's Park.
- GC put in place whistleblowing channels for the reporting of policy violations or corruption, along with whistleblower protection measures. (Further details appear under "Whistleblowing.")

- GC prepared the 2022 anti-corruption performance report to track the implementation of its anti-corruption measures and plans for the year 2022, which was submitted to the Corporate Governance and Sustainability Committee and the Audit Committee for acknowledgment.

In addition, in 2022, GC was undergoing the third re-certification by CAC. It also conducted an annual review of all 71 items on its anti-corruption self-assessment form along with the supporting evidence, which was later assessed by an internal auditor. The results were reported to the Audit Committee for their review to ensure that GC had comprehensive, suitable, and adequate anti-corruption measures in place and that it operated its business under CAC-prescribed CG principles.

Whistleblowing

GC recognizes the important roles of all stakeholders in its Corporate Governance. Whenever they witness any violation of the Business Code of Conduct, any form of fraud and corruption, or any other case, all stakeholders may submit a report, notification, or complaint directly to either the Chairman of the Corporate Governance and Sustainability Committee, the head of Internal Audit, or the Company Secretary, or via the GC-provided complaint channels, or any other channels that they trust.

Chairman of the Corporate Governance
and Sustainability Committee

Head of Internal Audit

Company Secretary

: PTT Global Chemical Public Company Limited
555/1 Energy Complex, Building A, 18th Floor
Vibhavadi Rangsit Road, Chatuchak,
Bangkok 10900

e-Mail: whistleblower@pttgcgroup.com

Website: www.pttgcgroup.com

Hook Acknowledgment and e-Learning Whistleblower



Whistleblowing Policy Procedure

GC has formulated and announced the following Whistleblower Policy Procedure:

- (1) Complaint Screening: The responsible department screens the essential information under the

established policy. The complaints can may be anonymously filed as long as they provide clear reasons and sufficient evidence. If the whistleblower has provided his or her name or contact information, he or she will be notified by the Company.

- (2) Investigation: For valid complaints, the head of Internal Audit will appoint an investigation committee under the Company's work regulations to conduct an investigation and fact-finding as well as to determine disciplinary action according to GC's regulations so as to ensure fairness to all parties.
- (3) Reporting: Once the complaint has been dealt with, the whistleblower will be notified of the outcome if the contact information is provided. The outcome will also be reported to the Corporate Governance and Sustainability Committee and the Audit Committee.

Whistleblower and Witness Protection

Whistleblowers or witnesses who collaborate in the investigation will be provided with the following protection under the Whistleblower Policy:

- (1) A whistleblower, a stakeholder, or any person who cooperates in good faith in the investigation will be protected from retaliation (non-retaliation).
- (2) Information of the whistleblower or of any persons involved will be classified as confidential according to GC's regulations on information classification and security of confidential documents.
- (3) The Company will formulate suitable mitigation measures for the whistleblower or the affected party.

Complaint Statistics

In 2022, the Company received a total of 74 complaints, divided into nine categories as follows:

Category	Number of complaints	Progress
Business Code of Conduct	1	1 case with no violation
Non-comply	4	4 cases with no violation
Fraud or Corruption	None	
Use of Insider Information	None	
Conflicts of Interest	None	
Voice of Customer	63	57 cases have been resolved.
Voice from Community	5	4 cases have been resolved.
Employee	None	
Safety, Occupational Health and Environment	1	1 case has been resolved.

Audit Committee Report

The Audit Committee has held the meetings, the details of which are as set out in "Meeting Attendance and Remuneration of Individual Directors".

In this regard, details of the performance of the Audit Committee in 2022 are as set out in "Audit Committee Report".

Summary of Other Sub-committees' Performance

The other Sub-committees of the Company consist of the Corporate Governance and Sustainability Committee, the Nomination and Remuneration Committee, and the Risk Management Committee. Details on the number of meetings of these Sub-committees and the meeting attendance of each individual member appear under "Meeting Attendance and Remuneration of Individual Directors."

Details on the performance of duties of these Sub-committees for the year 2022 appear under "Report of the Corporate Governance and Sustainability Committee", "Report of the Nomination and Remuneration Committee" and "Report of the Risk Management Committee."

AUDIT COMMITTEE REPORT

PTT Global Chemical Public Company Limited, GC, has appointed the Audit Committee whom, together with the Internal Audit Function that operates in accordance with the Internal Audit Charter, provide support to the business activities of GC's Board of Directors as well as promote GC's good corporate governance, risk management and internal control, compliance with business-related laws and regulations, and the disclosure of information and issuance of the Annual Report, to further augment the trust and confidence of the stakeholders.

The Audit Committee is composed of three independent directors with in-depth expertise and wide range experience in accounting, finance, law, etc. The Audit Committee independently and objectively executes its duties as prescribed by the Audit Committee Charter and as entrusted by the Board of Directors, in alignment with the announcements of the Stock Exchange of Thailand, Best Practice Guidelines for Audit Committee, and Corporate Governance Code for Listed Companies.

In 2022, the Audit Committee maintained concentration on uplifting internal audit achievements to further enhance trust and increase added value to the organization through Internal Audit Function's activities with consideration on the highest benefit for the stakeholders, of which major activities can be summarized as follows:

- Granting approval to the internal audit approach and principle, through Assurance and Consulting services in relation to good corporate governance, risk management and internal control to support the achievement of domestic and overseas business objectives of the Company and the group.
- Supporting the Internal Audit Function in developing internal audit guidelines to uplift the quality of the internal audit works to add value to the organization which supports the achievement of the organization's strategic goals through strategy-based auditing approach and embedding internal audit activities as part of the key drivers to support organization sustainable growth.
- Continuing the support for the Internal Audit Function in utilizing technology into internal audit works such as Advanced Analytics, Process Mining, Machine Learning, etc., investigating information that meet the criteria of the Detection Rules and analyzing them to add internal control for the Automated Audit process that is quick and prompt response.
- Encouraging and fostering the uplift of personnel potential to proficiency in knowledge and skills required for the new age internal audit works. Overseeing the formation of the Competency Development Framework to enable the Internal Auditors to achieve expertise in specific areas such as Business Acumen aligned with the organization strategy, and Digital and Data Acumen through application of technology.
- Highlighting the significance of corporate sustainability and coverage of all business facets such as Environmental, Social and Governance, as well as preparedness for compliance with Sustainability Reporting Standards, to fortify confidence in all stakeholders.
- Supporting the application of significant external risks that impact the organization's operations into the process of formulating internal audit activities in a timely manner.

In 2022, nine meetings of the Audit Committee were held from which major topics of significance can be summarized as follows:

1. Review of financial reports

The Audit Committee reviewed the Company's quarterly and annual financial statements, items that may pose conflicts of interests in and among various business groups, material issues and special items, and other significant information, including clarification from the Auditor and Management. This is to ensure that the financial report is accurate, complete, and reliable, and that sufficient information is disclosed in the notes to the financial statements, is beneficial for the readers of the report, and comply with financial reporting standards and related laws. In accordance with the above, the Audit Committee thus concurred with the financial report that the Auditor has reviewed, audited, and reported with no conditions.

Furthermore, the Audit Committee had an exclusive meeting with the Auditor without the presence of the Management to independently deliberate the reception of information and the supply of information from the

Management, review of significant information for the preparation of the financial report, Key Audit Matters, follow-up on the schedule for the application of the new financial reporting standards and also the related sustainability standards, and independence in carrying out duties and responsibilities of the Auditor. The Auditor has confirmed that they have received full cooperation from the Management in auditing the financial report and that there were no significant observations of note nor were there any suspicious activities.

2. Review of risk management

The Audit Committee has acknowledged the risk management information from the report presented to the Board of Directors of the company and reviewed the risk management from the report by the Internal Audit Function, so they can be ensured that the company has efficiently identified the significant risks that may impact the operations of the company and has assigned a corresponding responsible party, with adequate risk management measures in place that comprehensively covers all short and long term risks.

3. Review of internal control

The Audit Committee has reviewed the internal control of the Company and the group both domestic and overseas from the Internal Audit report, progress report by the Management on recommendations from the Audit Committee and from the review on internal control in the company and the group's finance and accounting by the Auditor – that no significant issues or discrepancies that could impact the financial report. Furthermore, the Audit Committee also reviewed the sufficiency and adequacy of internal control in accordance with the appraisal form of the Securities and Exchange Commission as fulfilled by the Management that also did not yield any significant issues or discrepancies that could impact the company's objectives. All of these have reasonably ensured that the Company and the group has an adequate, effective, and suitable internal control system that is conducive to business operations of the Company and the group in attaining envisioned goals and objectives.

4. Review of corporate governance

The Audit Committee has reviewed the company's corporate governance through the whistleblower report of the Company and the group, and the progress report on anti-fraud and anti-corruption measures as well as overseeing the comprehensive disclosure of information in accordance with the regulations of the Stock Exchange of Thailand, to keep the company and the group's operations in line with good corporate governance practices and sustainably adding value to the Company and the group. Furthermore, the Audit Committee also encouraged the Group companies to join the Thai Private Sector Collective Action Against Corruption: CAC and reviewed the verification of the self-assessment in anti-corruption measures by proposing suggestions to the Company and the group to initiate new anti-corruption campaigns and also to be a model for listed companies in good corporate governance to build further trust in the stakeholders.

5. Supervision of internal audit

The Audit Committee oversaw internal audit operations to ensure that they are independent, objective, and able to create value for the Company and the group through internal audit activities, and that there a quality assessment of the Internal Audit according to International Professional Practices Framework, assessing the Internal Audit Maturity, approved the Internal Audit Strategy, Goals and Annual Audit Plan together with support sufficient and adequate capital resources of the Internal Audit Function. The Audit Committee also reviewed and acknowledged internal audit findings, provided insight, advice and followed-up on significant findings on a regular basis.

6. Review of compliance with applicable laws

The Audit Committee has reviewed the business operations of the Company and the group for compliance with securities and exchange laws, regulations of the Stock Exchange of Thailand, laws related to industries, environment, Personal Data Protection Laws, and other domestic or international laws related to the Company and the group's operations, through the reports of the Internal Audit Function, as well as directing the monitoring of new domestic and international laws that may become applicable and bear impact to the Company and the group both domestic and overseas businesses in the future.

7. Review of the Appointment of Auditors

The Audit Committee has scrutinized and proposed the appointment of qualified auditors based on their qualifications, capabilities, auditing experience, proposed auditing guidelines, performance, and independence per accounting ethics stated by the Federation of Accounting Professions, in accordance with the regulations of the Securities and Exchange Commission, including appropriate auditing fees. The Audit Committee then proposed the appointment of the Auditor to the Board of Directors with proposed remuneration fee for their consideration and approval and to be submitted for final approval in the General Meeting of Shareholders.

In 2022, the Shareholders approved of the appointment of KPMG Phoomchai Audit Ltd. (KPMG) as auditor of the Company for 2022.

8. Consideration the connected transactions and conflicts of interest for adherence to laws and regulations of the Stock Exchange of Thailand

The Audit Committee has reviewed and commented on the connected transactions or transactions that are or may be conflicting in the interest of the Company by relying on the principle of reasonableness, objectivity, transparency, and highest benefits to the Company and the stakeholders as well as overseeing the complete, accurate and adequate disclosure of information in accordance with the regulations of the Stock Exchange of Thailand. In 2022, that were no significant connected transactions and occasions of deviations from contractual obligations that demanded disclosure of information in accordance with the regulations of the Stock Exchange of Thailand. Furthermore, from the review of the connected transactions reports which performed by the Internal Audit Function on the topic of Audit of Connected Transactions, no significant findings been found that could impact the achievement of the Company's major objectives. Additionally, the Audit Committee did not receive any report of discrepancies from the review of the disclosure of connected transactions from the auditor reports.

9. Others

The Audit Committee has regularly reviewed the Audit Committee Charter on an annual basis to ensure alignment with the principles and best practice guidelines as prescribed by the Securities and Exchange Commission and has reported the Audit Committee's performance to the Board of Directors at regular intervals. Furthermore, the Audit Committee underwent the group and individual assessments of performance and reported the results to the Board of Directors, as a means of further uplifting and improving the performance of the Audit Committee.

The Audit Committee duly performed their duties as prescribed by the Audit Committee Charter and as delegated from the Board of Directors in its entirety based on objectivity, independence, and with consideration to the stakeholders on an equal basis.

The Audit Committee has thus concluded that the Company has disclosed the financial report that is accurate and reliable, with sufficient disclosure of information in accordance with accounting and generally accepted financial reporting standards, complying to related laws, regulations, and rules for business practices, with good corporate governance, adequate and sufficient risk and internal control management, internal audit activities, as well as monitoring emerging risks for preparedness in handling current and future.

The Audit Committee wishes to express their gratefulness to the Board of Directors, Executive Officers, the Auditor, and all related entities for the strong support they received throughout 2022.

On Behalf of the Audit Committee

(Signed) Apisak Tantivorawong

(Mr. Apisak Tantivorawong)

Chairman of the Audit Committee

REPORT OF THE CORPORATE GOVERNANCE AND SUSTAINABILITY COMMITTEE

Dear Shareholders,

The Corporate Governance and Sustainability Committee places great emphasis on ensuring GC's compliance with corporate governance and sustainable development guidelines and has continuously strived to achieve an environmental, social, and governance balance in line with international standards. The Corporate Governance and Sustainability Committee comprises its Chairman, Professor Somkit Lertpaithoon, and its members, namely Mrs. Watanan Petersik, Mrs. Pantip Sripimol, M.L. Chayotid Kridakon, and Mr. Chadil Chavanalikhorn, who was appointed on December 19, 2022, to replace the resigning director, Mr. Noppadol Pinsupa.

In 2022, the Corporate Governance and Sustainability Committee performed its duties as stipulated in the Corporate Governance and Sustainability Committee Charter and executed tasks as assigned by the Board of Directors. The Corporate Governance and Sustainability Committee held a total of nine meetings. A summary of its activities is provided below.

1. Corporate Governance

1.1 Ensuring Compliance with Requirements, Laws, Rules, Regulations, and Best Practices

- Overseeing and monitoring GC Group corporate governance to ensure compliance with international standards and criteria set forth by domestic regulatory agencies.
 - Overseeing the preparation of the 2022 Annual General Meeting of Shareholders via electronic means (e-AGM) to ensure COVID-19 related compliance with announcements, orders, and measures issued by the government, applicable laws, corporate governance principles, and best practices. To this end, GC received the "Excellent" assessment score of 100 on the 2022 AGM checklist, for an eleventh consecutive year and received Investors' Choice Award 2022, from the Thai Investors Association (TIA).
 - Offering guidelines for establishing criteria for allowing shareholders to propose meeting agenda items and nominate candidates for election as Director of the Company in advance of the 2023 Annual General Meeting of Shareholders.
 - Supervising GC's disclosures to ensure the completeness of material information in accordance to the criteria stipulated by regulators, i.e., Form 56-1 One Report, Integrated Sustainability Report and other information published on the Company's website. As a result, in 2022 GC received an "Excellent" rating on the Corporate Governance Report of the Thai Listed Companies (CGR) of Thai Institute of Directors Association (IOD) and won ASEAN Asset Class, ASEAN Top 20, and Top 3 of Thai PLCs awards for the year 2021 based on the ASEAN Corporate Governance Scorecard (ACGS) from the Institute of Corporate Directors of Southeast Asia.
 - Monitoring and giving advice on undergoing corporate governance assessment by regulators both in Thailand and overseas in accordance with corporate governance practices, namely the ASEAN Corporate Governance Scorecard, the Corporate Governance Report of Thai Listed Companies (CGR) of the IOD, and the AGM Checklist.
 - Reviewing the appropriateness of the adoption of the Corporate Governance Code for Listed Companies 2017 (CG Code), providing comments and suggestions to the Board of Directors to improve and develop their performance of duties in accordance with the business situation and context, and disclosing relevant information in Form 56-1 One Report.
 - Successfully encouraging 10 business partners to join Thai Private Sector Collective Action Against Corruption (CAC) Member, earning GC a CAC Change Agent Award, and monitoring the progress of GC's subsidiaries in becoming members of the Thai Private Sector Collective Action Against Corruption (CAC).

- Ensuring the compliance of GC's operations with relevant laws, rules, and regulations.
 - Promoting the efficiency improvement of compliance management in line with ISO 37301 Compliance Management System.
 - Ensuring GC's compliance with the Personal Data Privacy Act (PDPA), such as by establishing a personal data protection policy, asking for permission for the storage, use, and disclosure of the personal data of directors, executives, and employees, and sending a privacy notice to shareholders.
 - Promoting communication to employees on compliance assessment to develop an understanding of process-level compliance risk establishment and connection and control adequacy assessment.
 - Overseeing complaint administration through the Whistleblower channel to ensure compliance with the Whistleblower Policy, monitoring complaints filed through other channels with respect to shareholders and investors, the environment, communities, suppliers, customers and corporate image through quarterly reports, and encouraging other companies in GC Group to establish their own whistleblower system.
- Promoting GRC (Governance, Risk management, Internal control and Compliance) operations. In 2022, GC initiated GRC FiT 2.0 to integrate and improve GRC management processes to establish more systematic and efficient data connectivity for the management of the Governance, Risk management and Internal control, and Compliance units.

1.2 Ensuring Compliance with Corporate Governance Policy and Practice in GC Group

- Overseeing and monitoring the effectiveness of compliance with the CG policy/Corporate Governance & Business Code of Conduct and other relevant manuals, such as the Related Party Transaction Manual.
- Consistently promoting the improvement and development of CG management guidelines and practices, such as by introducing digital platforms to improve the process (smart governance) and improving the whistleblowing system to create a single database of internal non-compliance acts.
- Providing suggestions and monitoring the management of complaints received through the whistleblower channel and other channels with respect to shareholders and investors, the environment, communities, suppliers, corporate image, and customers.
- Supporting and providing suggestions on the establishment of operational standards for companies in GC Group in alignment with GC Way of Conduct, such as by improving practices to better align with GC Way of Conduct New Design & Structure, arranging sessions for communication and exchange of information, and assessing the alignment of allnex's operations with GC Way of Conduct.
- Promoting the fostering of an ethical behavioral standard and an integrity culture by supporting relevant training and communication for employees at all levels throughout the year.
- Overseeing, monitoring, and advising on GC's stakeholder engagement, requiring units and functions responsible for each group of stakeholders to report a summary of previous activities and a future plan that is consistent with GC's policies and practices.
- Reviewing policies and practices in the Corporate Governance and Business Code of Conduct Handbook to ensure that they are up to date, congruent with domestic and international standards, and appropriate for application across the company.
- Commenting and advising on CAC recertification and approving GC's anti-corruption plan for 2023 to ensure its consistency with relevant regulations, such as the criteria issued by CAC and the NACC Integrity Award under the Office of the National Anti-Corruption Commission (NACC).
- Reviewing and approving GC's corporate governance plan for 2023 to serve as guidelines for executing, monitoring, and assessing GC's corporate governance performance in a tangible manner.

2. Sustainable Development

Supervising and monitoring GC's sustainable development to ensure alignment with both GC's business directions and international standards and achieve a balance among the Environmental, Social, and Governance (ESG) aspects.

- Overseeing GC's sustainable development to maintain alignment with its strategies and monitoring the performance to ensure consistency with its business goals as well as the Sustainable Development Goals (SDGs).
- Providing guidelines and recommendations on decarbonization plans for efficient implementation as well as on business activities related to the circular economy.
- Promoting integration between corporate social responsibility and decarbonization plans, such as reforestation projects and plastic waste management, under Circular Economy model which generates income and enhances the quality of life in communities in a sustainable way.
- Promoting the revision of material issues as well as operational processes, plans, indicators related to sustainable development to better align with the situation, stakeholder expectations, and emerging global challenges, and providing suggestions on undergoing sustainable development ranking by an external.
- Overseeing the disclosure of material issues and key sustainable development achievements in GC's Integrated Sustainability Report, website, and communication channels.

3. Reporting the Performance, Assessment, and Development of Directors

- Reporting the performance as well as group and self-assessment results of the Corporate Governance and Sustainability Committee for 2022 to the Board of Directors for acknowledgment.
- Reviewing and revising the Corporate Governance and Sustainability Committee Charter to ensure alignment with the roles and responsibilities and any applicable rules and regulations.
- Reviewing the Corporate Governance and Sustainability Committee's assessment forms (group assessment and self-assessment) to ensure alignment with the current situation and compliance with international standards and criteria of domestic regulatory agencies.
- Continuously ensuring Director development under good corporate governance principles by encouraging directors to attend training courses of the Thai Institute of Directors Association (IOD).
- Pre-setting the dates for its meetings for the entire year of 2023 to consider and acknowledge the Company's performance and report/provide any recommendations to the Board of Directors and the Management.
- Considering and providing comments to the Board of Directors on the employment of former executives from the level of Chief Operation Officer or Senior Executive Vice President upward.

The Corporate Governance and Sustainability Committee places great importance on ensuring GC's strict compliance with the Corporate Governance Policy and Business Code of Conduct. The Corporate Governance and Sustainability Committee is also committed to continually enhance corporate governance practices on par with international standards and believes that good corporate governance and sustainable development are the vital factor in promoting operational efficiency and business sustainability, which will enable GC to earn the confidence of its stakeholders as well as international recognition.

On behalf of the Corporate Governance and Sustainability Committee

(Signed) Somkit Lertpaithoon

(Professor Somkit Lertpaithoon)

Chairman of the Corporate Governance
and Sustainability Committee

REPORT OF THE NOMINATION AND REMUNERATION COMMITTEE

Dear Shareholders,

In 2022, the Nomination and Remuneration Committee comprised three independent directors to ensure the independent performance of duties in accordance with good corporate governance principles, namely Lieutenant General Nithi Chungcharoen, serving as the chairperson, Mr. Pakorn Nilrapunt, and Mr. Somkiat Prajamwong, both serving as members of the Committee.

The Nomination and Remuneration Committee performed its duties and provided useful suggestions on criteria and guidelines for nomination and selection, remuneration, and the performance assessment of GC's Directors and Chief Executive Officer and President (CEO) as stipulated in its charter and executed tasks as assigned by the Board of Directors. In 2022, the Committee held a total of six meetings. A summary of its activities is given below.

1. Nomination and Selection of Directors and Sub-committee Members

- Reviewing and amending the criteria and procedures for the selection and appointment of Directors to ensure completeness, precision and alignment with the charter and GC's guidelines for the selection and appointment of Directors and sub-committee members.
- Establishing guidelines and criteria for the creation of GC Director Pool, which compiles a list of knowledgeable experts on various areas beneficial to GC's business operations for use in nominating qualified candidates for independent directorship.
- Reviewing the Board Skills Matrix so that it remains appropriate and in alignment with the assessment criteria of the Dow Jones Sustainability Indices (DJSI), SEC's Corporate Governance Code for Listed Companies 2017 (CG Code), IOD's good practices of the nomination committee, the Global Industry Classification Standard (GICs), and the Skills Matrix guidelines of the State Enterprise Policy Office, which will be taken into consideration in the selection of Directors and members of Sub-committees to ensure that the composition of the Board of Directors is diverse with respect to knowledge, skills, and experience beneficial to the business strategies.
- Nominating and selecting qualified candidates to replace Directors due to resign by rotation at the 2022 Annual General Meeting of Shareholders, to present to the Board of Directors and the Annual General Meeting of Shareholders for consideration and approval under the criteria and processes for nomination and appointment of Directors. The Committee took into consideration the qualifications required by applicable laws and criteria, GC's Articles of Association, good corporate governance principles, and the Board Skills Matrix. The Committee also considered the Director's Pool of the State Enterprise Policy Office and the Thai Institute of Directors Association. Shareholders were also given over three months period prior to the AGM to nominate candidates for vacant positions. Since there were no submissions of candidates from shareholders, the Committee resolved to nominate Mr. Somkiat Prajamwong to be elected as Director and replace a retiring Director as well as nominate Mr. Apisak Tantivorawong, Mrs. Watanan Petersik, Mr. Chansin Treenuchagron, and Mr. Kongkrapan Intarajang to be re-elected as Directors for another term. The candidates possessed all the required qualifications and did not have any prohibited characteristics according to relevant laws and criteria. They also possessed knowledge, competency, and experience that aligned with the Company's business strategies. The Board of Directors and the 2022 AGM thus resolved to approve the appointment of these candidates as Directors as instructed by the Committee.
- Nominating and selecting qualified candidates to replace Directors who resigned during 2022, namely M.L. Chayotid Kridakon, Mr. Cherdchai Boonchoochaui, Mr. Chadil Chavanalikhorn, and Lieutenant General Nimit Suwannarat. The list of candidates was presented to the Board of Directors for consideration and approval under the criteria and processes for nomination and appointment of Directors. The Board of Directors approved the appointment of the candidates as Directors as instructed by the Committee.
- Nominating Directors to fill vacant positions on four Sub-committees, namely the Audit Committee, the Nomination and Remuneration Committee, the Corporate Governance and Sustainability Committee, and the Risk Management Committee and presenting a list of candidates to the Board of Directors for consideration and approval under the criteria and processes for nomination and appointment of Sub-committee members. The Committee took into consideration the qualifications of each Directors in accordance with relevant laws and regulations of the Securities and Exchange Commission (SEC) and the Stock Exchange of Thailand (SET), GC's Articles of Association, and the charters of Sub-committees. The Board Skills Matrix and specialized experience that could benefit their role on the Sub-committees were also taken into account.

2. Performance Assessment of the Board of Directors and Chief Executive Officer and President

- Appointing an external independent consultant to provide recommendations on the revision of Board performance assessment forms, namely group assessment, self-assessment, and peer-assessment for the year 2022 to ensure completeness, currency and alignment with DJSI assessment criteria, the ASEAN Corporate Governance Scorecard, CG Code, the Board Toolkit of the Institute of Thai Directors (IOD), the criteria of the Stock Exchange of Thailand, as well as the leading practices of listed companies and to conduct an annual board performance assessment, so as to improve, monitor, and optimize the Board performance for better operational efficiency.
- Monitoring the reporting of the Board performance for 2022 and establishing the Board's key performance indicators (Board KPIs) for 2023, ensuring their alignment with DJSI's assessment criteria and CG Code.
- Considering the 2022 performance assessment form of the Chief Executive Officer and the President (CEO KPIs) and assessing his performance to determine suitable and fair remuneration.

3. Remuneration of Directors, Sub-committee Members, and Chief Executive Officer and President

- Determining the 2022 remuneration for the Board of Directors and for the members of each Sub-committee as well as the payment of Board's annual bonus to propose to the Board of Directors and the Annual General Meeting of Shareholders (AGM) for consideration and approval. The proposed remuneration was determined in accordance with good corporate governance principles, based on GC's operating results, the current economic situation relevant to GC's businesses, the principles and policies approved by shareholders, the duties and responsibilities of the Board of Directors, the results of Board performance assessment, compared to the remunerations of Directors working at other listed companies of a similar size in the same industry and at other listed companies under the PTT Group. The Board of Directors and the 2022 AGM resolved to approve the Board's remuneration and bonus payment as instructed by the Committee.
- Determining the remuneration of the Chief Executive Officer and President (CEO) for 2022 based on transparent, fair, and reasonable criteria, taking into account his performance against the assessment of CEO KPIs, before proposing the remuneration to the Board of Directors for consideration and approval.

4. The Committee's Meeting, Assessment, and Reporting of the Performance

- Pre-setting the dates for its meetings for 2023, arranging at least four meetings per year. Ad-hoc meetings were allowed to be held if necessary. In these meetings, the Committee considered and acknowledged the Company's performance and reports as well as provided any recommendations to the Board of Directors and the Management.
- Reviewing and amending the Nomination and Remuneration Committee Charter with regards to the topics of the composition and qualifications upon vacancies as well as the scope of duty and meeting requirements to ensure clarity, completeness, and compliance with relevant laws and GC's Articles of Association as well as its practices to ensure that the Committee can perform their duties without interruption.
- Reviewing and amending the Committee's performance assessment forms, namely group assessment and self-assessment for 2022 to ensure its completeness, suitability, and alignment with the revised Nomination and Remuneration Committee Charter.
- Reporting the committee's performance and assessment results for 2022 to the Board of Directors for acknowledgment before disclosing them in the Form 56-1 One Report.

The Nomination and Remuneration Committee has performed its duties with accountability, ethics, and independence in accordance with good corporate governance principles in order to ensure that procedures of nomination and selection, remuneration and performance assessment of GC's Directors and Chief Executive Officer and President (CEO) are transparent, appropriate and fair. This is to help optimize the Board efficiency in steering GC's operation in line with the established visions, strategies, and directions efficiently, as well as to build confidence among the shareholders, investors, and all stakeholders.

On behalf of the Nomination and Remuneration Committee

(Signed) Nithi Chungcharoen

(Lieutenant General Nithi Chungcharoen)

Chairman of the Nomination and Remuneration Committee

REPORT OF THE RISK MANAGEMENT COMMITTEE

Dear Shareholders,

Throughout 2022, GC was faced with crises and challenges due to a series of unforeseen and unavoidable circumstances and events that resulted in high volatility in product prices and spread, such as the Russia-Ukraine war, oil and energy price fluctuations, the ongoing COVID-19 pandemic, and concerns over a looming recession, all of which impacted businesses across different industries worldwide. In response, GC implemented various measures to manage and minimize the impact of such risks on its ability to accomplish business goals in different dimensions in order to maintain its competitiveness, and achieve sustainable growth. In the previous year, the Risk Management Committee monitored and provided suggestions on GC's risk and crises management measures covering long-term and short-term key issues as well as emerging risks that may affect GC's business in the future in order to mitigate potential impacts and acquire business opportunities as well as foster value for the business and all stakeholders in a sustainable way. In addition, in 2022, GC was ranked first in the Dow Jones Sustainability Indices (DJSI) for risk and crisis management – a testament to GC's internationally recognized risk management standard.

The Risk Management Committee performed its full duties within its scope of roles and responsibilities as prescribed in its charter. In 2022, the Committee convened a total of seven meetings to provide comments and suggestions and acknowledge agenda items under its responsibility as detailed below.

- Reviewing the risk management policy, the risk appetite, and the risk management frameworks and practices, consisting of management frameworks for corporate risks, price and spread risks, foreign exchange risks, subsidiaries risks, and investment risks, to ensure their applicability to the business circumstances and flexibility for proper implementation.
- Monitoring and providing opinions and suggestions on GC's corporate risk and crisis management in 2022 to ensure that it covered both risks resulting from external factors and internal operations along with risks and opportunities related to sustainable business practices; monitoring risk trends through leading key risk indicators and lagging key risk indicators; advising the Management on the revision of risk management measures to ensure its alignment with the current circumstances; and reporting the performance of the Risk Management Committee to the Board of Directors on a regular basis to ensure the adequacy, suitability, and timeliness of its measures and gain opportunities to generate value for the business in a sustainable way.
- Providing recommendations and monitoring the outcome of commodity hedging for price and spread risk management as well as FX hedging on a monthly basis to ensure that the measures are flexible and suitable for the situation.
- Overseeing and providing recommendations on GC's 2023 corporate risk factors and mitigation measures to be in line with economic conditions, industrial trends, and other uncertainties to ensure the Company's ability to accomplish its targets according to its strategies and business objectives in the face of more volatile and complicated business environment.
- Reviewing the information on risk management and risk factors disclosed in the Annual Registration Statements to assure shareholders that GC had analyzed risks that might affect its business targets and put systematic management measures in place.

For the year 2023, the Committee will continue to monitor both domestic and international situations and provide adequate and appropriate recommendations on all aspects of GC's risk management, to ensure that GC has suitable and effective risk management with a proper risk appetite that will enable the achievement of business goals and the sustainable value in the long term.

On behalf of the Risk Management Committee

(Signed) Grisada Boonrach

(Mr. Grisada Boonrach)

Chairman of the Risk Management Committee

INTERNAL CONTROL AND CONNECTED TRANSACTIONS

Internal Control

PTT Global Chemical Public Company Limited (GC) implements an Internal Control System in accordance with the international standards of the Committee of Sponsoring Organizations of the Treadway Commission (COSO) to achieve internal control objectives relating to operations, reporting, and compliance with laws and regulations.

In the Board of Directors Meeting 2/2023 held on February 13, 2023, the GC's system was evaluated based on an internal control assessment report prepared by executives following Securities and Exchange Commission's (SEC) guidelines. Together with the results of the Audit Committee's internal control review, the Board of Directors viewed that GC's internal control was adequate and effective for its businesses. No significant problems or material shortcomings were detected that could interfere with the achievement of internal control objectives. GC's Internal Control System functioned properly in an adequate manner. The operation and process were efficiently managed with sufficient numbers of qualified and competent employees. In addition, GC implemented a monitoring system to ensure the achievement of business objectives with effective and efficient operations, reliable reporting, and compliance with applicable laws and regulations as well as the safeguarding of GC's assets against misuse or unauthorized use by the Board of Directors, executives, and employees.

In 2022, GC improved its internal control procedures and processes to increase efficiency, optimize resource utilization, and promote sound internal control system that enhances the robustness and speed of risk identification. In accordance with COSO, GC's Internal Control System consists of five components as follow:

1. Control Environment

The Board of Directors and executives strive to promote a corporate culture that focuses on integrity and ethics. They also govern business conduct to ensure alignment with the organizational vision and mission along with

sufficient and appropriated control environment as detailed below.

- The Board of Directors establish the Corporate Governance Policy, Business Code of Conduct, Corporate Compliance Policy and Anti-Corruption Policy and Guidance, setting out preferred practices for the Board of Directors, executives, and employees. Executives and employees are required to provide their signatures in Hook Acknowledgement & Learning System to acknowledge the Corporate Governance and Business Code of Conduct Handbook and pledge their compliance with the policy, principles, and business ethics. The Company also places emphasis on communicating these policies, subsequent penalties and arranging the online system for reporting any potential conflict of interest annually to executives and employees. GC has also expanded the online system to subsidiaries to strengthen good corporate governance.
- GC continuously builds awareness of Ethic and Business Code of Conduct among executives and employees through training courses, orientation, e-Mail communications, video clips, and other activities. One of the key meetings is Management Talk (Hook Talk), conducted by top management in order to communicate Ethics and Business Code of Conduct to employees and promote a good corporate governance culture. In addition, GC announces corporate governance principles and code of conduct on the Company's website to communicate the policy to suppliers/vendors, joint-venture partners, and company representatives and encourages them to operate their businesses with integrity. In 2022, the Company expanded online Ethical Leadership training to employees to foster awareness of the leader's role in fulfilling duties with ethics and responsibilities.
- The Board of Directors is independent from executives and responsible for supervising overall operations as well as expressing views on the direction for strategy formulation of business and operating plans. Furthermore, the Board of directors regularly monitors GC's performance and its sub-committees to ensure that GC achieves its objectives

and goals. In addition, GC is committed to drive long-term sustainable business practices, which focus on the Environment, Society, and corporate Governance (ESG) in accordance with the Sustainable Development Goals (SDGs) by applying the circular economy principles and providing a clear pathway to improve people's quality of life through a transition to a low-carbon business, with the goal of reducing net greenhouse gas emissions to zero (Net Zero) by 2050.

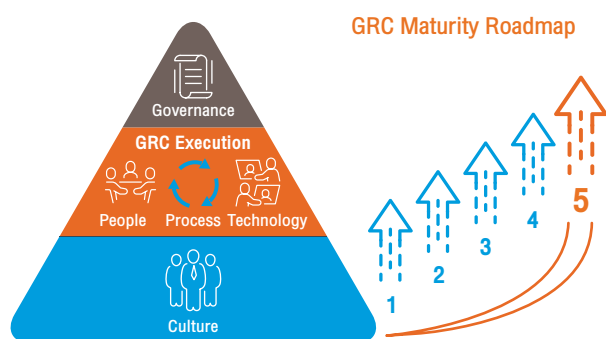
- GC's corporate structure is grouped into business units and functions to ensure efficient business operations and good governance, with checks and balances put in place to ensure duties and responsibilities are delegated appropriately. Furthermore, all employees acknowledge their roles, authorities, responsibilities, and accountabilities. In 2022, GC restructured the organization and the group businesses in line with its long-term business direction to reduce redundancy, promote agile and well-coordinated operations, and to achieve its goals and maximize the benefits of the Company.
- GC has specified the qualifications for all positions, which form the basis of recruitment and personnel development in alignment with corporate culture. Succession plans are in place for key management positions to ensure business continuity. GC has performance management system that encouraged regular communication and monitors performance targets on a quarterly basis. The performance targets are also subjected to revision to ensure fair rewards and motivate employees. GC has also utilized the 360-degree evaluation as a tool for evaluating employee performance against GC SPIRIT 4 Core Behaviors. As the Company aims to be a learning organization, it encourages all employees to enhance their capabilities and knowledge through the e-Learning platform "UP," allowing easy access to vital knowledge for all personnel. In 2022, GC developed Expert House as a mechanism to help employees maximize their potential through continual self-directed learning to develop required knowledge in response to changes in the business. In addition, GC values the wellbeing, both in terms of physical and mental health, of its employees and

ensures that they have a good quality of living and a positive work experience by conducting employee engagement and satisfaction surveys to design and improve a healthy work environment continuously.

- GC has established the Internal Control Policy stipulating that all employees shall be accountable for their internal control activities. The policy is consistently communicated to executives and employees through training courses, public communication, and other activities to ensure everyone has an accurate understanding of their roles and responsibilities in relation to the internal control system. In addition, GC has implemented Three Lines Model, international best practice, as a framework for governance. It defines the job owners function as the first line of defense to ensure compliance with the policies and guidelines. The Internal Control, Corporate Risk Management, Corporate Governance Corporate Compliance, and other support divisions, the second line of defense, are responsible for managing and supporting of other functions so as to bring their operations up to the established standard. Lastly the Internal Audit, the third line of defense, is tasked with auditing other functions to ensure the proper and suitable internal control implementation and strengthen corporate governance and risk management.
- GC applies Governance, Risk Management & Internal Control and Compliance principles (GRC) to the Company's business processes to ensure efficient and effective operations. The Company also appoints GRC personnel to work closely with major business units to strengthen and ensure GRC integration. GRC principle is also deployed to subsidiaries through GRC committees to govern, review, monitor, and assess GRC performance. Additionally, GRC Health Check survey is annually conducted to assess the understanding and compliance of employees, and the results are subsequently used to analyze and plan GRC execution to improve efficiency. Furthermore, the Company regularly communicates through various channels, such as GRC Newsletter, tone and the top communication in CEO townhalls, as well as new learning programs developed for self-learning through the e-Learning Platform "UP" for executives and all employees in GC group. In 2022, GC organized GRC's Day to raise executives' and employees' awareness and understanding of GRC concepts, placing emphasis on applying GRC principles to the operations to enhance organization



capabilities in dealing with risks and fostering sustainable growth achievement. For GRC processes integration throughout an organization, the Company also worked with independent consultants to evaluate the GRC maturity and develop a roadmap that addressed governance, execution, and culture according to the Three Lines Model principle, including the use of technology to boost the effectiveness of information analysis and linkage across multiple parts. This project began in 2022 and will continue into 2025.

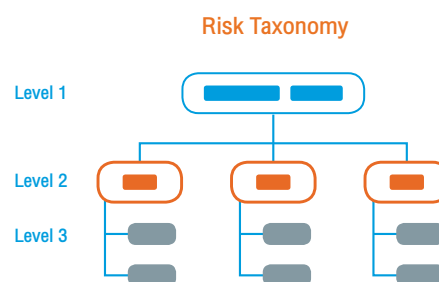


2. Risk Assessment

The Board of Directors and executives emphasize on risk management to ensure the achievement of both short-term and long-term goals. The Risk Management Committee is appointed by the Board of Directors, while the Enterprise Risk Management Committee and taskforces are appointed by the Chief Executive Officer & President to manage business risks and specific issues to directly enhance management agility and allow the close monitoring of various situations. GC's risk management is structured as such to ensure the suitability, efficiency, and effectiveness of its risk management.

GC has announced a Risk Management Policy and has implemented Integrated Enterprise Risk Management systematically and continuously throughout the organization according to such international risk management frameworks and guidelines as ISO 31000 and COSO ERM 2017. The risk assessment is conducted in various aspects, including current business-related risk factors, future business-related risk factors, emerging risk factors, and the potential for fraud and corruption, and mitigation plans are developed accordingly. Risk factors and mitigation plans are reviewed and monitored regularly to ensure

alignment with short-term and long-term GC's goals. GC has also developed Key Risk Indicators (KRIs), which are linked to Key Performance Indicators (KPIs), to evaluate the Company's short-term and long-term goals, monitor changes in risk factors, and efficiently manage risk in a timely manner. In 2022, GC established an Enterprise Risk Taxonomy, which is a risk factors classification, covering all potential risks of the Company according to the COSO ERM 2017 standard, and implemented it to identify risk factors in a comprehensive and standardized manner. This allows us to gather data for multi-level risk analysis (roll up & roll down) as well as aggregates risk levels analysis to improve risk management efficiency.



In addition, GC has established business continuity management guidelines that are consistent with the business continuity management policy and prescribed annual drills of the Business Continuity Plan (BCP) at both business unit and corporate levels. The events that could disrupt business operations and affect business continuity are simulated to ensure that GC is well prepared to cope with such crises effectively. The results of the drills are utilized to improve preemptive plans. In 2022, GC conducted two BCP drills at the corporate level involving the simulations of a cyberattack on GC's computer system and natural gas shortages due to storm-induced damage. GC also established a channel for communicating and gathering all BCM data.

Details are described under "Risk Management."

3. Control Activities

GC has defined control activities to mitigate risks resulting from failure to achieve its goals and ensures that the residual risks are within an acceptable level. These include:

- GC has prescribed preventive and detective control in alignment with internal control principles, such as segregation of duties and delegation of authority, to ensure checks and balances as well as policies and guidelines on transactions involving or potentially involving a conflict of interest and to ensure that the business is operated in a transparent, fair, and auditable manner for the utmost benefit of the organization.
- GC has established rules, regulations, policies, and manuals in writing as well as a clear scope of authority of the Chief Executive Officer & President, executives, and employees at each level, along with clearly defined operational procedures to serve as guidance. Furthermore, implementation is reviewed regularly to ensure compliance with such rules, regulations, policies, and manuals.
- GC has implemented SAP GRC – Access Control to control crucial processes to ensure that SAP operating system access rights are in accordance with best practices on the segregation of duties. GC also uses automated audit to detect and follow up on irregular transactions and notify designated officers to promptly rectify problematic transactions. Moreover, the Company has introduced digital tools to increase operational efficiency and effectiveness, such as Robotics Process Automation (RPA), to the procurement process to reduce time, processes, and human errors. In 2022, GC expanded the implementation of blockchain technology in the bank guarantee management process to accounts payable and receivable processes, in which the smart contracts and API features are employed to increase speed, accuracy, and transparency. Additionally, GC has developed a non-feedstock procurement system through which all contacts with suppliers are conducted in order to enable efficient monitoring and contract management as well as the storage of procurement data for further analysis.
- In 2022, GC carried on the FiT project from 2021, focusing on business transformation; operational efficiency enhancement with respect to costs, quality, and agility through the application of digital technology to operational processes in alignment with GRC principles; as well as human development for emerging jobs, in order to bolster its capabilities in support of its future changes in the business.
- GC has appointed the Information Security Management Committee (ISMSC) to supervise and support operations and ensure compliance with ISO/IEC 27001 and ISO/IEC 27701 standards, as well as to oversee the development of information security, cyber security, and cloud security frameworks that meet international standards. The committee is also tasked with establishing an Information Technology Security Policy. In addition, GC conducts assessment under the NIST Cybersecurity Framework (CSF), which assists organizations in planning timely threat prevention, detection and response without interrupting the business operation. Furthermore, GC regularly organizes cyberthreat prevention training sessions and issues communications to all employees to update its data security standards to the current situation. In 2022, GC conducted penetration testing on critical processes, in which cyber-attacks against computer systems were simulated to enable experts to identify and remove exploitable vulnerabilities to decrease risks from emerging threats.
- GC has developed a governance process “GC Way of Conduct”, which GC regularly communicates to and the implementation of which is regularly monitored among subsidiaries in GC Group in order to ensure compliance with GC’s policies, guidelines, and business strategies. Assessments are conducted to evaluate the implementation for further improvement, and of the progress of this program is regularly reported to top management for acknowledgment. In 2022, GC developed an e-Book version of GC Way of Conduct, revised operational frameworks to align with international standards and the GC’s operational standards, and restructured the content for clarity, as well as defined subsidiary governance according to business types, locations, and the business model for greater ease of understanding and suitability.



4. Information and Communication

GC values the quality of its information and communication systems, which play a vital role in supporting the effectiveness of its Internal Control System. GC's approach to information and communication management is detailed below.

- GC has established information classification and guidelines for the storage of vital and controlled documents, including operational information from both internal and external sources. This is to ensure the accuracy, completeness, adequacy, and prompt availability of GC's vital information.
- GC has implemented SAP ECC 6.0 in processing key business data to eliminate a large number of legacy systems, and enhance the efficiency of reporting to the management.
- GC has developed various programs to centralize data management, storage, and linkage in order to maximize data utilization and ensure data availability for further use or future reference. An example includes the compilation of data on various process improvement projects and GC's investments in the "IdeaMANI" (Multi Access for New Initiatives). In 2022, GC developed an AI platform for product development for the purpose of data storage and research.
- GC has announced a personal data protection policy and appointed a dedicated unit responsible for data protection. Additionally, the Company has implemented a personal data management system within GC Group and issued handbooks on personal information management in compliance with the Personal Data Protection Act B.E. 2562 to provide clear guidance for efficient implementation.
- GC has prescribed data governance to ensure efficiency of data acquisition, utilization, availability and well manage for confidentiality. The Company focuses on four components to ensure sustainable data governance and management, consisting of 1) defining and implementing data governance policies, standards, and management processes throughout the data life cycle; 2) developing technologies for big data management to support GC's growth; 3) delivering vital information to users for efficient utilization; and 4) fostering awareness and understanding of

data governance among employees through various forms of communication. In 2022, GC appointed the data steward of each data domain to control and ensure that the data quality is consistent with the data governance policy.

- In 2022, GC developed and promoted the utilization of data analytics within the organization. To this end, GC communicated through Inspiration Talks to promote data thinking and a data mindset. Then the Data Talks were utilized to delve into data management and related digital technologies. Additionally, the Data DIY Project was launched to enable employees to submit their own data management projects using digital tools. Furthermore, the Company encouraged the use of data analytics in the operations as a tool for analyzing,



tracking, and forecasting data for greater speed and more accurate and efficient results, such as in inventory target optimization to predict and manage the buffer stock and in catalyst life extension analysis to increase productivity and reduce losses.

- GC has formed a working team entitled "GC EYE" to analyze external factors that may affect business impacts and communicate them to executives and relevant parties through a mobile application platform. GC also organized GC EYE FORUM, where external experts were invited to give lectures on various topics.
- GC has put in place guidelines and steps for communicating information appropriately to the Board of Directors, executives, employees, and stakeholders to support efficient operations and internal controls.

- Key information on GC's operating results and documents for board meetings are delivered to Directors in advance to allow sufficient time for them to study and review the materials for decision making. When necessary, the Board of Directors may request additional information from the relevant management team. Furthermore, GC has employed the Digital Join system for easy and swift delivery of information and meeting documents to the Board of Directors, using communication devices equipped with a data security system.
- GC has established various channels for internal communication, including the organization's intranet and email. Vital information is communicated through online orientation, and communications from the top executives are conveyed to employees through various channels, such as CEO Town Halls and CEO Special Talks, which are held through Microsoft Team Live Streaming. Other communication channels include regular meetings held in each business unit and line of work to drive and foster awareness of GC's key agenda among employees.
- GC communicates with external stakeholders through the Company's website, Facebook, Twitter, and GC's official LINE account. In addition, designated units are responsible for disclosing important information to all stakeholders regularly. A Customer Solutions Center (CSC) was established as a one-stop service center to provide information relating to GC products and services to customers and interested parties. In 2022, GC added ESG communications on Company's website to disclose information about its business operations and performance regarding ESG and sustainability as GC strives towards becoming a high-value chemicals and low carbon business to meet future demands.
- GC allows shareholders to propose agenda items for the Annual General Meeting of Shareholders (AGM) and nominate qualified candidates to be elected as Directors to enhance good corporate governance regarding the rights and equitable treatment of shareholders. GC arranged the 2022 Annual General Meeting of Shareholders via an electronic means in compliance with the Emergency Decree on Electronic Meeting B.E.

2563. GC also organized analyst meetings to announce the Company's quarterly performance.

- GC has established whistleblowing channels and a clear whistleblower system management to assure employees and external individuals that every complaint will be handled with transparency, fairness, and confidentiality in a timely manner. Subsidiaries are also continuously encouraged to institute whistleblower policies and guidelines.

Monitoring Activities

GC continually monitors and evaluates the adequacy of its internal controls. Development and improvement plans are also in place to ensure efficient and effective internal controls as shown below.

- GC carries out corporate-level control assessments and process-level control self-assessments annually, using an online system. The Internal Control Unit is responsible for reviewing the adequacy and appropriateness of the assessments in coordination with GRC personnel and for providing recommendations for rectifying any internal control deficiencies. Any detected deficiencies must be reported to executives for acknowledgment in a timely manner, and the remediation progress is monitored to ensure that the issue is resolved within the specified timeframe.
- The Internal Audit Unit, an independent unit reporting directly to the Audit Committee, is in charged with conducting audits to ensure the adequacy and consistent implementation of GC's internal control and evaluating the effectiveness of the internal control in various activities according to the audit plan, which has been approved by the Audit Committee and is in line with GC's strategic direction and key risks that may affect the operation. The Internal Audit is also responsible for providing recommendations related to internal control to executives, who then prescribe rectification as instructed and report the audit results to the Audit Committee on a regular basis. Internal controls for financial reporting are reviewed by external auditors who report to the Audit Committee quarterly and yearly. In 2022, the Internal Audit Unit introduced detection rules to key processes for searching and detecting irregular information or transactions in order to support automated audit.

- GC has continuously monitored and reported compliance performance through assessments and by compiling laws, rules, and regulations relevant to GC's operations, known as the compliance universe, to serve as a database and guideline for process owners.
- GC has been certified as a member of the Thai Private Sector Collective Action Coalition Against Corruption (CAC) and has appointed an anti-corruption working group to annually conduct anti-corruption self-assessment. GC has also joined the CAC Change Agent project and has invited its

business partners to undergo certification, demonstrating the emphasis GC has placed on expanding the network of business transparency to its business partners. In 2022, GC developed the CAC Automated Checklist, an online anti-corruption assessment that enables relevant parties to complete the questionnaire and assess their risks more conveniently and promptly. The data can be used for further analysis to formulate and enhance the efficiency and effectiveness of GC's anti-corruption and internal control operations.

Connected Transaction

Connected Transaction between Related Companies

For the 2022 accounting period, GC conducted significant business transactions with its subsidiaries and related companies with common shareholders and/or Directors. Connected transactions with other entities which may result in conflicts of interest are based on market or contractual prices (the prices agreed in previous contracts) - if there are no reference market prices. Details of the relationships with these companies are as follows:

Company	Relationship As at 31 st December 2022	Connected Transaction	2020	2021	2022
(million baht)					
1. PTT Public Company Limited (PTT)	■ Major shareholder holding 45.18% of the shares in GC ■ Common Director: 1. Mom Luang Chayotid Kridakon ■ Directors who are PTT Executives: 1. Mr. Chadil Chavanalikhorn 2. Mr. Cherdchai Boonchoochaey 3. Mr. Kongkrapan Intarajang ■ Common Management: 1. Mr. Kongkrapan Intarajang 2. Miss Pattaralada Sa-NGasang ■ Sales/Purchase transaction of products and services	Statements of Income Transactions			
		Sales of goods or rendering of services	17,738	19,503	12,431
		Purchases of goods or receiving of services	176,071	272,177	377,709
		Other income	519	10,068	64
		Interest expense	16	18	20
		Other expense	74	160	57
		Statements of Financial Position Balances			
		Trade accounts receivable - related parties	2,056	2,063	1,116
		Other accounts receivable - related parties	168	497	400
		Trade accounts payable - related parties	12,427	47,288	38,281
		Other accounts payable - related parties	57	103	191
		Lease liabilities - related parties	355	560	545

Company	Relationship As at 31 st December 2022	Connected Transaction	2020	2021	2022
(million baht)					
2. Global Power Synergy Public Company Limited (GPSC)	- Other related company (GC holds 10% of the shares) - Major shareholder (PTT) holds 47.27% of the shares - Executive who is Director of GPSC: 1. Mr. Kongkrapan Intarajang - Sales/Purchase transaction of products and services	Statements of Income Transactions			
		Sales of goods or rendering of services	99	118	105
		Purchases of goods or receiving of services	9,025	10,232	13,981
		Interest income	4	-	-
		Other income	103	16	10
		Interest expense	1	2	2
		Other expense	2	3	2
		Statements of Financial Position Balances			
		Trade accounts receivable - related parties	13	26	22
		Other accounts receivable - related parties	105	141	121
		Trade accounts payable - related parties	1,082	1,019	1,217
		Other accounts payable - related parties	8	7	9
		Payables to contractors - related parties	3	4	-
		Lease liabilities - related parties	70	71	71
3. PTT Digital Solutions Company Limited (PTT DIGITAL)	- Associate company (GC holds 40% of the shares) - Major shareholder (PTT) holds 20% of the shares - Executives who are Directors of PTT DIGITAL: 1. Mr. Pirun Krimwongrut 2. Mrs. Chatsuda Kanjanarat - Services transaction	Statements of Income Transactions			
		Purchases of goods or receiving of services	4	1	-
		Other income	46	59	50
		Other expense	470	450	604
		Statements of Financial Position Balances			
		Other accounts receivable - related parties	13	33	15
		Trade accounts payable - related parties	-	-	1
		Other accounts payable - related parties	144	140	183
		Payables to contractors - related parties	66	57	34
4. PTT Energy Solutions Company Limited (PTTES)	- Associate company (GC holds 20% of the shares) - The Company was dissolved on 29 December 2022 and in process of liquidation - Major shareholder (PTT) holds 40% of the shares - Executive who is Director of PTTES: 1. Mrs. Jeeranee Pimthanothai - Services transaction	Statements of Income Transactions			
		Sales of goods or rendering of services	6	8	5
		Purchases of goods or receiving of services	93	95	86
		Other income	-	-	1
		Other expense	8	-	-
		Statements of Financial Position Balances			
		Trade accounts receivable - related parties	-	4	-
		Other accounts receivable - related parties	1	-	-
		Other accounts payable - related parties	4	1	-

Company	Relationship As at 31 st December 2022	Connected Transaction	2020	2021	2022
(million baht)					
5. TOPNEXT International Co., Ltd. (TX) (Formerly TOP Solvent Co., Ltd.)	- Subsidiary of TOP - Sales/Purchase transaction of products	Statements of Income Transactions			
		Sales of goods or rendering of services	176	264	254
		Purchases of goods or receiving of services	105	174	330
		Other expense	-	-	2
		Statements of Financial Position Balances			
		Trade accounts receivable - related parties	15	16	17
		Trade accounts payable - related parties	8	22	28
		Other accounts payable - related parties	5	-	-
6. Dhipaya Insurance Public Company Limited (TIP)	- Major shareholder (PTT) holds 13.46% of the shares until August 2021 - Services transaction	Statements of Income Transactions			
		Purchases of goods or receiving of services	732	824	-
		Other income	444	1	-
		Other expense	48	42	-
		Statements of Financial Position Balances			
		Other accounts receivable - related parties	1,064	-	-
		Trade accounts payable - related parties	2	-	-
		Other accounts payable - related parties	10	-	-
7. Thai Paraxylene Company Limited (TPX)	- Subsidiary of TOP - Sales/Purchase transaction of products	Statements of Income Transactions			
		Purchases of goods or receiving of services	-	-	3,719
8. Thai Oil Public Company Limited (TOP)	- Major shareholder (PTT) holds 45.03% of the shares - Sales/Purchase transaction of products and services	Statements of Income Transactions			
		Sales of goods or rendering of services	2,286	2,666	3,995
		Other income	-	1	-
		Other expense	-	-	1
		Statements of Financial Position Balances			
		Trade accounts receivable - related parties	147	207	392
9. Business Services Alliance Company Limited (BSA)	- GC holds 25% of the preference shares - Major shareholder (PTT) holds 100% of the shares - Common Director: 1. Mr. Chadil Chavanalikikorn - Sales/Purchase transaction of products and services	Statements of Income Transactions			
		Purchases of goods or receiving of services	122	133	94
		Other expense	125	140	117
		Statements of Financial Position Balances			
		Other accounts receivable - related parties	1	1	1
		Trade accounts payable - related parties	40	43	67
		Other accounts payable - related parties	46	77	38
		Payables to contractors - related parties	1	1	4

Company	Relationship As at 31 st December 2022	Connected Transaction	2020	2021	2022
(million baht)					
10. PTT Oil and Retail Business Public Company Limited (PTTOR)	- Major shareholder (PTT) holds 75% of the shares - Sales/Purchase transaction of products and services	Statements of Income Transactions			
		Sales of goods or rendering of services	99,346	123,579	183,386
		Purchases of goods or receiving of services	88	122	147
		Other income	69	78	10
		Other expense	3	4	3
		Statements of Financial Position Balances			
		Trade accounts receivable - related parties	4,521	9,155	9,800
		Other accounts receivable - related parties	86	64	79
		Trade accounts payable - related parties	8	13	13
		Other accounts payable - related parties	20	10	3
11. PTTEP Siam Limited (PTTEPS)	- Subsidiary of PTTEP - Sales/Purchase transaction of products and services.	Statements of Income Transactions			
		Sales of goods or rendering of services	6	2	1
		Statements of Financial Position Balances			
12. PTTEP International Limited (PTTEPI)	- Subsidiary of PTTEP - Services transaction	Statements of Income Transactions			
		Sales of goods or rendering of services	1	-	-
13. PTT Exploration and Production Public Company Limited (PTTEP)	- Major shareholder (PTT) holds 63.79% of the shares - Sales/Purchase transaction of products and services	Statements of Income Transactions			
		Sales of goods or rendering of services	8	14	45
		Other expense	4	4	-
		Statements of Financial Position Balances			
		Trade accounts receivable - related parties	2	3	15
		Other accounts receivable - related parties	-	2	-
		Lease liabilities - related parties	3	-	-
14. PTT Tank Terminal Company Limited (PTT TANK)	- Major shareholder (PTT) holds 100% of the shares - Sales/Purchase transaction of products and services	Statements of Income Transactions			
		Sales of goods or rendering of services	48	70	105
		Other expense	-	8	5
		Statements of Financial Position Balances			
		Trade accounts receivable - related parties	5	15	12
		Other accounts payable - related parties	-	2	-

Company	Relationship As at 31 st December 2022	Connected Transaction	2020	2021	2022
(million baht)					
15. PTT International Trading Pte. (PTTT)	- Major shareholder (PTT) holds 100% of the shares - Sales/Purchase transaction of products	Statements of Income Transactions			
		Sales of goods or rendering of services	9,962	19,354	29,772
		Purchases of goods or receiving of services	33	378	4,354
		Other income	5	28	19
		Other expense	-	3	5
		Statements of Financial Position Balances			
		Trade accounts receivable - related parties	1,217	1,004	1,854
		Other accounts receivable - related parties	-	89	203
		Trade accounts payable - related parties	-	176	268
		Other accounts payable - related parties	174	263	109
16. PTT LNG Company Limited (PTTLNG)	- Major shareholder (PTT) holds 100% of the shares - Sales/Purchase transaction of products and services	Statements of Income Transactions			
		Sales of goods or rendering of services	6	8	47
		Other income	-	3	10
		Statements of Financial Position Balances			
		Trade accounts receivable - related parties	5	3	38
		Other accounts receivable - related parties	-	3	-
17. PTTEP Services Limited (PTTEP Services)	- Subsidiary of PTTEP - Services transaction	Statements of Income Transactions			
		Other expense	1	-	-
18. Labix Company Limited (LABIX)	- Subsidiary of TOP - Sales/Purchase transaction of products and services	Statements of Income Transactions			
		Sales of goods or rendering of services	2	-	-
19. Sak Chaisidhi Co., Ltd. (SAKC)	- Subsidiary of TOP - Sales/Purchase transaction of products and services	Statements of Income Transactions			
		Sales of goods or rendering of services	1,309	803	227
		Statements of Financial Position Balances			
20. Sport Services Alliance Company Limited (SSS)	- Major shareholder (PTT) indirectly holds shares - Executive who is Director of SSS: 1. Mr. Pirun Krimwongrut - Services transaction	Statements of Income Transactions			
		Other expense	11	12	12
21. UBE Chemicals (Asia) Public Co., Ltd. (UCHA)	- Associate of IRPC - Sales/Purchase transaction of products and services	Statements of Income Transactions			
		Sales of goods or rendering of services	22	3,384	3,468
		Statements of Financial Position Balances			
		Trade accounts receivable - related parties	2	308	97

Company	Relationship As at 31 st December 2022	Connected Transaction	2020	2021	2022
(million baht)					
22. Energy Complex Company Limited (ENCO)	- Major shareholder (PTT) holds 50% of the shares - Services transaction	Statements of Income Transactions			
		Sales of goods or rendering of services	48	51	52
		Other income	2	2	-
		Interest expense	3	2	5
		Other expense	146	128	127
		Statements of Financial Position Balances			
		Trade accounts receivable - related parties	8	9	22
		Other accounts receivable - related parties	1	3	3
		Other accounts payable - related parties	5	17	3
		Lease liabilities - related parties	54	179	123
23. IRPC Polyol Company Limited (IRPCP)	- Joint venture of IRPC - Sales/Purchase transaction of products	Statements of Income Transactions			
		Sales of goods or rendering of services	57	905	569
		Statements of Financial Position Balances			
		Trade accounts receivable - related parties	30	94	5
		Other accounts receivable - related parties	29	-	-
24. IRPC Public Company Limited (IRPC)	- Major shareholder (PTT) holds 45.05% of the shares - Sales/Purchase transaction of products and services	Statements of Income Transactions			
		Sales of goods or rendering of services	12,056	16,383	30,940
		Purchases of goods or receiving of services	6,168	9,246	25,422
		Other income	26	18	45
		Other expense	-	1	1
		Statements of Financial Position Balances			
		Trade accounts receivable - related parties	1,008	2,527	1,782
		Other accounts receivable - related parties	25	2	27
		Trade accounts payable - related parties	618	1,488	1,732
25. TOP Solvent (Vietnam) LLC. (TSV)	- Subsidiary of TOP - Sales/Purchase transaction of products	Statements of Income Transactions			
		Sales of goods or rendering of services	165	176	189
		Purchases of goods or receiving of services	-	-	26
		Statements of Financial Position Balances			
		Trade accounts receivable - related parties	17	16	13
		Trade accounts payable - related parties	-	4	3

Company	Relationship As at 31 st December 2022	Connected Transaction	2020	2021	2022
(million baht)					
26. Sarn Palung Social Enterprise Company Limited (SPSE)	- Other related company (GC holds 15% of the shares) - Major shareholder (PTT) holds 20% of the shares - Executive who is Director of SPSE: 1. Mr. Chaya Chandavas - Services transaction	Statements of Income Transactions			
		Other expense	2	3	2
		Statements of Financial Position Balances			
		Other accounts payable - related parties	1	2	1
27. Glow Energy Public Company Limited (GEN)	- Subsidiary of GPSC - Sales/Purchase transaction of products and services	Statements of Income Transactions			
		Sales of goods or rendering of services	315	98	409
		Purchases of goods or receiving of services	3,388	3,437	4,294
		Other income	5	1	1
		Other expense	3	3	4
		Statements of Financial Position Balances			
		Trade accounts receivable - related parties	33	2	26
		Other accounts receivable - related parties	2	2	2
		Trade accounts payable - related parties	299	349	383
		Other accounts payable - related parties	1	1	3
28. Glow SPP 2 Company Limited (GSPP2)	- Subsidiary of GPSC - Sales/Purchase transaction of products and services	Statements of Income Transactions			
		Sales of goods or rendering of services	11	10	11
		Purchases of goods or receiving of services	80	77	107
		Other income	-	1	1
		Other expense	2	2	2
		Statements of Financial Position Balances			
		Trade accounts receivable - related parties	2	3	3
29. Glow SPP 3 Company Limited (GSPP3)	- Subsidiary of GPSC - Sales/Purchase transaction of products and services	Statements of Income Transactions			
		Sales of goods or rendering of services	8	8	9
		Statements of Financial Position Balances			
		Trade accounts receivable - related parties	2	1	2
30. Glow SPP 11 Company Limited (GSPP11)	- Subsidiary of GPSC - Sales/Purchase transaction of products and services	Statements of Income Transactions			
		Sales of goods or rendering of services	4	5	5
		Statements of Financial Position Balances			
		Trade accounts receivable - related parties	1	1	1

Company	Relationship As at 31 st December 2022	Connected Transaction	2020	2021	2022
(million baht)					
31. Glow IPP Company Limited (GIPP)	- Subsidiary of GPSC - Sales/Purchase transaction of products and services	Statements of Income Transactions			
		Sales of goods or rendering of services	3	3	3
		Statements of Financial Position Balances			
		Trade accounts receivable - related parties	-	1	1
32. GHECO-One Company Limited (GHECO1)	- Subsidiary of GPSC - Sales/Purchase transaction of products and services	Statements of Income Transactions			
		Sales of goods or rendering of services	10	19	9
		Statements of Financial Position Balances			
		Trade accounts receivable - related parties	2	4	2
33. AI and Robotics Ventures Company Limited (ARV)	- Subsidiary of PTTEP - Services transaction	Statements of Income Transactions			
		Other expense	10	-	-
34. PTTEP SP Limited (PTTEPSP)	- Subsidiary of PTTEP - Sales/Purchase transaction of products and services	Statements of Income Transactions			
		Sales of goods or rendering of services	1	-	1
35. Combined Heat and Power Producing Co., Ltd. (CHPP)	- Subsidiary of GPSC - Sales/Purchase transaction of products and services	Statements of Income Transactions			
		Sales of goods or rendering of services	-	6	29
		Statements of Financial Position Balances			
		Trade accounts receivable - related parties	-	2	1
36. PTT International Trading USA Inc. (PTTTUSA)	- Major shareholder (PTT) holds 100% of the shares - Services transaction	Statements of Income Transactions			
		Other income	-	1	1
		Statements of Financial Position Balances			
		Other accounts receivable - related parties	-	-	5
37. PT.Tirta Surya Raya (PTSR)	- Subsidiary of TOP - Sales/Purchase transaction of products	Statements of Income Transactions			
		Sales of goods or rendering of services	-	22	2
		Purchases of goods or receiving of services	-	-	4
		Statements of Financial Position Balances			
		Trade accounts payable - related parties	-	-	1
38. Siam Management Holding Co., Ltd. (SMH)	- Subsidiary of PTTGM - Sales transaction of investment	Statements of Income Transactions			
		Other income	-	1,778	-

Company	Relationship As at 31 st December 2022	Connected Transaction	2020	2021	2022
(million baht)					
39. PTT International Trading London Ltd (PTTTLDN)	- Major shareholder (PTT) holds 100% of the shares - Sales/Purchase transaction of products	Statements of Income Transactions			
		Sales of goods or rendering of services	-	-	8
		Other income	-	11	24
		Statements of Financial Position Balances			
		Trade accounts receivable - related parties	-	-	8
		Other accounts receivable - related parties	-	11	24
40. PTT Treasury Center Company Limited (PTTCC)	- Major shareholder (PTT) holds 100% of the shares - Services transaction	Statements of Income Transactions			
		Interest expense	-	19	202
		Statements of Financial Position Balances			
		Borrowings from related parties	-	55,600	-
41. Thai Petroleum Pipeline Co., Ltd. (THAPPLINE)	- Associate of PTTOR - Sales/Purchase transaction of products and services	Statements of Income Transactions			
		Sales of goods or rendering of services	-	1	3
		Other income	-	2	2
		Statements of Financial Position Balances			
		Other accounts receivable - related parties	-	2	-
42. Trans Thai-Malaysia (Thailand) Limited (TTMT)	- Major shareholder (PTT) holds 50% of the shares - Sales/Purchase transaction of products and services	Statements of Income Transactions			
		Sales of goods or rendering of services	-	-	1
43. Carigali - PTTEPI Operating Company Sdn Bhd. (CPOC)	- Joint operation of PTTEP - Services transaction	Statements of Income Transactions			
		Sales of goods or rendering of services	-	-	1
		Statements of Financial Position Balances			
		Trade accounts receivable - related parties	-	-	1
44. PTT Green Energy Pte. Ltd. (PTTGE)	- Major shareholder (PTT) holds 100% of the shares - Services transaction	Statements of Income Transactions			
		Sales of goods or rendering of services	-	-	6
45. PTTEP Energy Development Company Limited (PTTEPED)	- Subsidiary of PTTEP - Sales/Purchase transaction of products and services	Statements of Income Transactions			
		Sales of goods or rendering of services	-	-	11
		Statements of Financial Position Balances			
		Trade accounts receivable - related parties	-	-	3
46. PTT MEA Ltd. (PTTMEA)	- Subsidiary of PTTT - Sales/Purchase transaction of products	Statements of Income Transactions			
		Sales of goods or rendering of services	-	-	2
		Other income	-	-	6
		Statements of Financial Position Balances			
		Trade accounts receivable - related parties	-	-	2
		Other accounts receivable - related parties	-	-	6
47. Nuovo Plus Co., Ltd. (NUOVOPLUS)	- Subsidiary of PTTGM - Sales/Purchase transaction of products and services	Statements of Income Transactions			
		Sales of goods or rendering of services	-	-	1
		Statements of Financial Position Balances			
		Trade accounts receivable - related parties	-	-	1

MEASURE AND PROCEDURE FOR APPROVAL OF CONNECTED TRANSACTIONS

The Company's Articles of Association state that a Director can acquire or dispose of GC assets or perform any business transaction involving GC either by himself or herself or on behalf of others only with the approval from the Audit Committee and the Board of Director. However, any Director who personally gains from any acquisition or disposal of GC assets or any transaction of GC is not allowed to vote on that matter.

After receiving approval from the Audit Committee and the Board of Directors, GC can perform any business transactions or acquire or dispose of major assets in line with the announcement of the Stock Exchange of Thailand (SET) and the Securities and Exchange Commission, Thailand (SEC). This also applies to GC's subsidiaries in the SET announcement concerning connected transactions of listed companies as well as the buying and selling of registered company assets.

NECESSITY AND JUSTIFICATION OF CONNECTED TRANSACTIONS

The sales of products by GC to connected companies have been carried out mainly so that they may process its products into their own products for sale at prices corresponding to long-term off-take agreements or spot prices. Prices must prove mutually beneficial and be based on market prices without any undue transfer of interests or extraordinary items to both parties. When providing services to connected companies, transactions must cover transportation or storage costs of products. The charges for services are both market-based and benefit-based without any undue transfer of interests or extraordinary items.

For the product and feedstock supply and/or services as well as the volume of products, feedstock or services given by connected companies must meet the needs and business operation of GC. Prices of products trading or services are as agreed upon by GC and connected companies without any undue transfer of interest or extraordinary items. In addition, GC is required to purchase feedstock from connected companies because the capacity and quality of such feedstock meet its needs. GC also saves on transportation expenses since the feedstock can be transferred safely by GC's pipeline systems from their plants in Map Ta Phut Industrial Estate, Rayong.

OPINION OF INDEPENDENT DIRECTORS

The Independent Directors agreed with the Board of Directors.

POLICY AND TREND ON FUTURE CONNECTED TRANSACTIONS

Future connected transactions between GC and connected companies will be conducted as part of the normal course of business with no special favors and no transfer of benefits. For the pricing policy between GC and connected companies, the price of products or feedstock purchased will be set in agreement and or linked to market prices. In addition, service charges paid to connected companies will also be at arm's length. The price of products sold or purchased between GC and connected companies will, as a rule, be linked to market prices.

Disclosure of the Company's connected transactions must be in compliance with the rules and regulations of the Securities and Exchange Commission, Thailand (SEC) and the Stock Exchange of Thailand (SET). The audit standards for connected parties will be as specified by the Federation of Accounting Professions under The Royal Patronage of His Majesty the King.

03

FINANCIAL REPORTS AND FINANCIAL STATEMENTS

While pursuing profit growth is a business objective, GC is resolute in its mission to foster social and environmental sustainability in a balanced manner as a global corporate citizen to fill the world with happiness and smiles.

GC Chemistry for Better Living





REPORT OF THE BOARD OF DIRECTORS' ACCOUNTABILITY TO FINANCIAL REPORT

The consolidated financial statements of PTT Global Chemical Public Company Limited and its subsidiaries were prepared in accordance with relevant laws and regulations of the Securities Exchange Commission as well as financial reporting standards prescribed by the Federation of Accounting Professions, accounting laws, and generally accepted accounting practices in Thailand.

The Company's Board of Directors is accountable for the financial report of PTT Global Chemical Public Company Limited and its subsidiaries, prepared to provide reasonable assurance that the financial report fairly presents the financial position, financial performance, and cash flows. The accounting data is sufficiently and accurately recorded to preserve the Company's assets and prevent fraud and irregularity. The financial report has been prepared according to appropriate accounting policy and consistent practices, and in compliance with the Thai Financial Reporting Standards. Material information has been sufficiently disclosed in notes to financial statements, and the auditor expressed an opinion on the financial statements of PTT Global Chemical Public Company Limited and its subsidiaries in the auditor's report.

(Signed) Mr. Piyasvasti Amranand

(Mr. Piyasvasti Amranand)

Chairman

(Signed) Mr. Kongkrapan Intarajang

(Mr. Kongkrapan Intarajang)

Chief Executive Officer
& President

INDEPENDENT AUDITOR'S REPORT

To the Shareholders of PTT Global Chemical Public Company Limited

Opinion

I have audited the consolidated and separate financial statements of PTT Global Chemical Public Company Limited and its subsidiaries (the "Group") and of PTT Global Chemical Public Company Limited (the "Company"), respectively, which comprise the consolidated and separate statements of financial position as at December 31, 2022, the consolidated and separate statements of income and comprehensive income, changes in equity and cash flows for the year then ended, and notes, comprising a summary of significant accounting policies and other explanatory information.

In my opinion, the accompanying consolidated and separate financial statements present fairly, in all material respects, the financial position of the Group and the Company, respectively, as at December 31, 2022 and their financial performance and cash flows for the year then ended in accordance with Thai Financial Reporting Standards (TFRSs).

Basis for Opinion

I conducted my audit in accordance with Thai Standards on Auditing (TSAs). My responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the Consolidated and Separate Financial Statements section of my report. I am independent of the Group and the Company in accordance with the Code of Ethics for Professional Accountants including Independence Standards issued by the Federation of Accounting Professions (Code of Ethics for Professional Accountants) that is relevant to my audit of the consolidated and separate financial statements, and I have fulfilled my other ethical responsibilities in accordance with the Code of Ethics for Professional Accountants. I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my opinion.

Key Audit Matters

Key audit matters are those matters that, in my professional judgment, were of most significance in my audit of the consolidated and separate financial statements of the current period. These matters were addressed in the context of my audit of the consolidated and separate financial statements as a whole, and in forming my opinion thereon, and I do not provide a separate opinion on these matters.

Business Acquisition

Refer to Notes 3 (a) and 4 to the consolidated and separate financial statements

The Key Audit Matter	How the matter was addressed in the audit
On December 29, 2021, the Group completed the acquisition of investment in a subsidiary operating in special coating resins and crosslinkers business resulting in the recording of goodwill in the consolidated statements of financial position as at December 31, 2021. The Group has hired an independent appraiser to determine the fair value of the identifiable assets acquired and liabilities assumed from the business acquisition. In 2022, the assessment of the fair value of assets acquired and liabilities assumed has been completed. Therefore, the fair value of such transaction have been adjusted. The acquisition method of accounting for business combinations is complex and requires the Group to determine the fair value of assets and liabilities acquired, and consideration transferred with any resulting differences recognised as goodwill or gain on bargain purchase. I considered this to be key audit matter as the business combination is material and identification and determination of fair value of the assets acquired and liabilities assumed involved significant judgment.	Key audit procedures included: ■ Read the sale and purchase agreement and inquired of management to understand key terms and conditions. ■ Evaluated the appropriateness of the identification of the assets acquired, liabilities assumed and consideration transferred which was prepared by the independent appraiser. ■ Evaluated the independence and competency of independent appraiser. ■ Involving KPMG specialist in assessing the valuation methodology and financial parameters applied to the discount rate of the intangible assets. ■ Evaluated significant assumptions in determining fair values with reference to internal and external information and mathematical accuracy. ■ Evaluated the adequacy of the disclosures in accordance with the relevant Thai Financial Reporting Standards.

The measurement of inventories valuation

Refer to Notes 3 (g) and 9 to the consolidated and separate financial statements

The Key Audit Matter	How the matter was addressed in the audit
Inventories of the Group and the Company are significant balances to the consolidated and separate financial statements. The raw materials and finished goods are commodities that contain significant price volatility which may cause the net realisable value to be lower than its cost resulting in an inventory write-down. I considered this as a key audit matter.	Key audit procedures included: ■ Gain understanding and performing tests of design and implementation as well as operating effectiveness of the relevant controls over the inventories valuation measurement process. ■ Assessed the appropriateness of the methodology used to calculate the net realisable value of inventories at the reporting period, considered the reasonableness of the market prices used by reference to expected selling price of commodity, and tested the accuracy of the calculation. ■ Assessed the adequacy of the disclosure in relation to the estimation of allowance for diminution in value of inventories in notes to the financial statements.

Other Matter

The consolidated and separate financial statements of the Group and the Company for the year ended December 31, 2021 were audited by another auditor who expressed an unmodified opinion on those statements on February 14, 2022.

Other Information

Management is responsible for the other information. The other information comprises the information included in the annual report, but does not include the consolidated and separate financial statements and my auditor's report thereon.

My opinion on the consolidated and separate financial statements does not cover the other information and I will not express any form of assurance conclusion thereon.

In connection with my audit of the consolidated and separate financial statements, my responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the consolidated and separate financial statements or my knowledge obtained in the audit, or otherwise appears to be materially misstated. If, based on the work I have performed, I conclude that there is a material misstatement of this other information, I am required to report that fact. I have nothing to report in this regard.

Responsibilities of Management and Those Charged with Governance for the Consolidated and Separate Financial Statements

Management is responsible for the preparation and fair presentation of the consolidated and separate financial statements in accordance with TFRSs, and for such internal control as management determines is necessary to enable the preparation of consolidated and separate financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated and separate financial statements, management is responsible for assessing the Group's and the Company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Group and the Company or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the Group's and the Company's financial reporting process.

Auditor's Responsibilities for the Audit of the Consolidated and Separate Financial Statements

My objectives are to obtain reasonable assurance about whether the consolidated and separate financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes my opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with TSAs will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated and separate financial statements.

As part of an audit in accordance with TSAs, I exercise professional judgment and maintain professional skepticism throughout the audit. I also:

- Identify and assess the risks of material misstatement of the consolidated and separate financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for my opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Group's and the Company's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's and the Company's ability to continue as a going concern. If I conclude that a material uncertainty exists, I am required to draw attention in my auditor's report to the related disclosures in the consolidated and separate financial statements or, if such disclosures are inadequate, to modify my opinion. My conclusions are based on the audit evidence obtained up to the date of my auditor's report. However, future events or conditions may cause the Group and the Company to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the consolidated and separate financial statements, including the disclosures, and whether the consolidated and separate financial statements represent the underlying transactions and events in a manner that achieves fair presentation.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express an opinion on the consolidated financial statements. I am responsible for the direction, supervision and performance of the group audit. I remain solely responsible for my audit opinion.

I communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that I identify during my audit.

I also provide those charged with governance with a statement that I have complied with relevant ethical requirements regarding independence, and to communicate with them all relationships and other matters that may reasonably be thought to bear on my independence, and where applicable, actions taken to eliminate threats or safeguards applied.

From the matters communicated with those charged with governance, I determine those matters that were of most significance in the audit of the consolidated and separate financial statements of the current period and are therefore the key audit matters. I describe these matters in my auditor's report unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, I determine that a matter should not be communicated in my report because the adverse consequences of doing so would reasonably be expected to outweigh the public interest benefits of such communication.

(Signed) Vairoj Jindamaneepitak

(Vairoj Jindamaneepitak)

Certified Public Accountant

Registration No. 3565

KPMG Phoomchai Audit Ltd.

Bangkok

13 February 2023

STATEMENT OF FINANCIAL POSITION

PTT GLOBAL CHEMICAL PUBLIC COMPANY LIMITED AND ITS SUBSIDIARIES

Assets	Note	Consolidated		Separate	
		financial statements		financial statements	
		31 December		31 December	
		2022	2021	2022	2021
(in Baht)					
Current assets					
Cash and cash equivalents	7	25,939,621,879	55,613,241,053	5,185,969,355	33,304,227,557
Current financial assets	27	6,022,947,785	19,380,910,606	4,355,469,646	19,054,028,078
Trade accounts receivable	8	45,253,559,742	50,540,468,307	30,450,413,726	32,344,345,314
Other receivables		6,145,802,710	6,043,596,478	4,309,556,312	6,350,627,794
Short-term loans to related parties	6	-	-	13,324,745,754	2,828,988,826
Current portion of long-term loans to related parties	6	584,652,100	52,514,143	49,698,971,731	52,514,143
Inventories	9	76,619,115,612	71,553,283,109	44,304,863,288	36,980,087,494
Receivable from oil fuel fund		3,163,956,419	810,729,488	3,163,956,419	810,729,488
Value-added tax receivable		6,702,327,148	2,395,610,343	4,960,421,884	176,237,768
Current derivative assets	27	470,271,720	1,308,079,086	414,032,527	1,297,793,040
Other current assets		1,106,480,540	1,393,526,001	775,629,351	860,712,287
Total current assets		172,008,735,655	209,091,958,614	160,944,029,993	134,060,291,789
Non-current assets					
Investments in subsidiaries	10	-	-	160,846,376,483	107,307,337,592
Investments in joint ventures	11	35,627,970,016	34,329,199,417	16,101,465,730	15,372,927,810
Investments in associates	11	20,942,889,252	10,510,990,013	13,617,733,371	5,165,938,913
Non-current financial assets	27	24,461,656,245	29,156,576,134	22,594,954,612	27,371,974,437
Long-term loans to related parties	6	203,706,548	709,611,195	203,706,548	103,797,010,864
Investment properties	13	6,074,385,326	6,073,511,176	1,826,854,739	1,740,783,392
Property, plant and equipment	14	296,321,451,437	301,042,148,725	185,796,307,359	177,490,859,203
Right-of-use assets	15	25,616,601,739	11,381,192,775	17,158,159,564	7,506,943,399
Goodwill	16	73,745,551,403	75,720,519,910	-	-
Intangible assets	17	60,231,576,974	65,130,813,099	5,294,033,163	5,452,753,262
Deferred tax assets	23	2,817,535,638	3,157,717,166	-	-
Non-current derivative assets	27	145,101,047	62,686,509	101,445,463	62,686,509
Other non-current assets		1,768,325,436	1,113,812,552	254,632,118	281,986,728
Total non-current assets		547,956,751,061	538,388,778,671	423,795,669,150	451,551,202,109
Total assets		719,965,486,716	747,480,737,285	584,739,699,143	585,611,493,898

The accompanying notes are an integral part of these financial statements.

STATEMENT OF FINANCIAL POSITION

PTT GLOBAL CHEMICAL PUBLIC COMPANY LIMITED AND ITS SUBSIDIARIES

Liabilities and equity	Note	Consolidated		Separate	
		financial statements		financial statements	
		31 December		31 December	
		2022	2021	2022	2021
		(in Baht)			
Current liabilities					
Short-term borrowings from financial institutions	18	4,318,186,158	2,423,446,246	2,000,000,000	-
Trade accounts payable		57,613,450,996	70,110,500,971	43,053,857,284	50,695,043,003
Other payables		23,718,067,395	27,911,474,300	8,125,481,647	10,670,074,656
Payables to contractors		3,716,775,624	3,057,879,975	3,313,970,465	2,960,367,331
Current portion of long-term borrowings					
from financial institutions	18	9,298,871,850	4,305,116,387	7,683,368,302	997,978,060
Current portion of long-term borrowings					
from other parties	18	42,328,943	45,955,862	-	-
Current portion of long-term borrowings					
from related party	6, 18	-	-	-	16,645,292,631
Current portion of debentures	18	-	33,484,375,947	-	16,924,370,884
Current portion of lease liabilities	18	1,953,637,337	1,618,566,872	1,003,030,506	1,197,347,473
Short-term borrowings from related parties	6, 18	-	-	2,153,627,283	10,088,874,563
Income tax payable		952,504,547	1,471,453,755	-	-
Current provisions		706,730,706	666,114,941	-	-
Current derivative liabilities	27	1,621,774,035	1,861,550,383	1,560,829,596	1,331,169,027
Other current liabilities		34,072,120	46,602,616	-	-
Total current liabilities		103,976,399,711	147,003,038,255	68,894,165,083	111,510,517,628
Non-current liabilities					
Long-term borrowings from financial institutions	18	86,753,745,110	92,933,237,707	41,118,208,288	31,875,582,459
Long-term borrowings from other parties	18	161,956,197	210,206,396	-	-
Long-term borrowings from related party	6, 18	-	55,600,000,000	90,675,665,336	106,996,823,620
Debentures	18	176,973,868,084	76,016,443,449	89,930,003,698	34,969,273,442
Lease liabilities	18	22,351,583,893	8,737,551,202	16,085,344,037	6,314,581,265
Deferred tax liabilities	23	19,715,861,457	25,760,592,205	726,304,065	4,903,516,822
Non-current provisions for employee benefits	19	9,165,655,220	11,120,601,931	4,833,407,422	4,571,647,977
Other non-current provisions		1,192,863,888	1,578,529,452	-	-
Non-current derivative liabilities	27	351,775,118	17,933,787	351,775,118	-
Other non-current liabilities		494,074,958	899,436,256	273,970,041	660,546,306
Total non-current liabilities		317,161,383,925	272,874,532,385	243,994,678,005	190,291,971,891
Total liabilities		421,137,783,636	419,877,570,640	312,888,843,088	301,802,489,519

The accompanying notes are an integral part of these financial statements.

STATEMENT OF FINANCIAL POSITION

PTT GLOBAL CHEMICAL PUBLIC COMPANY LIMITED AND ITS SUBSIDIARIES

Liabilities and equity	Note	Consolidated		Separate	
		financial statements		financial statements	
		31 December		31 December	
		2022	2021	2022	2021
		(in Baht)			
Equity					
Share capital:					
Authorised share capital					
<i>(4,508,849,117 ordinary shares, par value</i>					
<i>at Baht 10 per share)</i>		45,088,491,170	45,088,491,170	45,088,491,170	45,088,491,170
Issued and paid-up share capital					
<i>(4,508,849,117 ordinary shares, par value</i>					
<i>at Baht 10 per share)</i>		45,088,491,170	45,088,491,170	45,088,491,170	45,088,491,170
Share premium		36,936,829,684	36,936,829,684	36,936,829,684	36,936,829,684
Share premium on treasury shares		1,553,065,959	1,553,065,959	1,553,065,959	1,553,065,959
Difference arising from business combination					
under common control	5	636,103,835	636,103,835	40,172,822	77,453,518
Difference arising from the change in the ownership					
interest in an investment	10	(913,304,188)	-	-	-
Put option over non-controlling interest	10	-	(1,286,083,982)	-	-
Retained earnings					
Appropriated					
Legal reserve	20	4,512,930,269	4,512,930,269	4,512,930,269	4,512,930,269
Loan repayment reserve		807,802,564	807,802,564	807,802,564	807,802,564
Projects expansion reserve		12,446,994,126	12,446,994,126	12,446,994,126	12,446,994,126
Unappropriated		194,806,197,911	213,213,982,065	171,801,792,832	180,098,471,379
Other components of equity		(4,575,098,495)	4,331,721,796	(1,337,223,371)	2,286,965,710
Equity attributable to owners of the Company		291,300,012,835	318,241,837,486	271,850,856,055	283,809,004,379
Non-controlling interests		7,527,690,245	9,361,329,159	-	-
Total equity		298,827,703,080	327,603,166,645	271,850,856,055	283,809,004,379
Total liabilities and equity		719,965,486,716	747,480,737,285	584,739,699,143	585,611,493,898

The accompanying notes are an integral part of these financial statements.

STATEMENT OF INCOME

PTT GLOBAL CHEMICAL PUBLIC COMPANY LIMITED AND ITS SUBSIDIARIES

	Note	Consolidated financial statements		Separate financial statements	
		For the year ended		For the year ended	
		31 December		31 December	
		2022	2021	2022	2021
		(in Baht)			
Revenues from sale of goods and rendering of services	21, 24	683,953,678,709	468,953,182,988	498,767,466,616	379,941,440,907
Cost of sale of goods and rendering of services		(629,951,565,261)	(409,783,254,914)	(479,323,106,133)	(348,950,755,062)
Gross profit		54,002,113,448	59,169,928,074	19,444,360,483	30,990,685,845
Investment income		1,014,702,496	11,229,136,531	20,696,649,006	24,492,455,250
Net gain from sale of investment in joint venture and associate	11	-	10,201,106,624	-	12,382,867,826
Gain from capital return of subsidiaries	10	-	-	493,296,193	-
Gain from change in ownership interest in subsidiary	10	847,962,520	-	-	-
Other income		2,931,072,968	1,106,944,913	3,035,081,151	2,036,951,814
Selling and distribution costs		(18,199,813,431)	(6,701,004,341)	(2,699,177,770)	(2,019,772,999)
Administrative expenses		(20,773,490,695)	(15,026,336,751)	(7,957,672,782)	(9,861,805,235)
Loss on impairment of assets		(22,164,579)	(1,891,717,008)	(97,125,770)	(3,853,559,867)
Net derivative loss	27	(23,025,447,667)	(5,942,033,436)	(22,602,370,439)	(4,972,358,490)
Net foreign exchange loss		(344,639,547)	(263,044,261)	(2,295,532,423)	(1,330,373,704)
Profit (loss) from operating activities		(3,569,704,487)	51,882,980,345	8,017,507,649	47,865,090,440
Finance costs		(9,835,326,771)	(5,945,134,552)	(8,525,146,510)	(5,324,814,178)
Share of profit of joint ventures accounted for using equity method	11	80,751,724	4,155,316,877	-	-
Share of profit of associates accounted for using equity method	11	3,415,269,704	2,685,268,657	-	-
Profit (loss) before income tax expense		(9,909,009,830)	52,778,431,327	(507,638,861)	42,540,276,262
Tax (expense) income	23	2,273,105,524	(7,228,351,078)	3,097,149,992	(5,411,579,383)
Profit (loss) for the year		(7,635,904,306)	45,550,080,249	2,589,511,131	37,128,696,879
Profit (loss) attributable to:					
Owners of the Company		(8,752,206,589)	44,982,387,544	2,589,511,131	37,128,696,879
Non-controlling interests		1,116,302,283	567,692,705	-	-
		(7,635,904,306)	45,550,080,249	2,589,511,131	37,128,696,879
Earnings (loss) per share	25	(1.94)	10.01	0.57	8.26

The accompanying notes are an integral part of these financial statements.

STATEMENT OF COMPREHENSIVE INCOME

PTT GLOBAL CHEMICAL PUBLIC COMPANY LIMITED AND ITS SUBSIDIARIES

	Consolidated		Separate		
	financial statements		financial statements		
	For the year ended		For the year ended		
	31 December		31 December		
Note	2022	2021	2022	2021	
	(in Baht)				
Profit (loss) for the year	(7,635,904,306)	45,550,080,249	2,589,511,131	37,128,696,879	
Other comprehensive income (loss)					
Items that will or may be reclassified subsequently to profit or loss					
Exchange differences on translating financial statements	(4,810,696,770)	786,249,719	-	-	
Loss on measurement of financial assets	(21,478,895)	(1,553,247)	(21,478,895)	(1,553,247)	
Gain (loss) on cash flow hedges	(44,995,737)	35,100,913	(46,668,683)	(940,548,243)	
Share of other comprehensive income of joint ventures accounted for using equity method	11	41,082,731	315,122,937	-	-
Share of other comprehensive income of associates accounted for using equity method	11	58,367,639	243,541,397	-	-
Total items that will or may be reclassified subsequently to profit or loss	(4,777,721,032)	1,378,461,719	(68,147,578)	(942,101,490)	
Items that will not be reclassified to profit or loss					
Gain on remeasurements of defined benefit plans	1,477,008,625	293,180,073	361,417,128	173,984,103	
Gain (loss) on investments in equity instruments designated at FVOCI	(3,831,730,047)	3,648,840,100	(3,556,041,503)	3,214,491,483	
Share of other comprehensive income (loss) of joint ventures accounted for using equity method	11	(212,015,554)	74,770,585	-	-
Share of other comprehensive income of associates accounted for using equity method	11	17,488,938	35,946,752	-	-
Total items that will not be reclassified to profit or loss	(2,549,248,038)	4,052,737,510	(3,194,624,375)	3,388,475,586	
Other comprehensive income (loss) for the year, net of tax	(7,326,969,070)	5,431,199,229	(3,262,771,953)	2,446,374,096	
Total comprehensive income (loss) for the year	(14,962,873,376)	50,981,279,478	(673,260,822)	39,575,070,975	
Total comprehensive income (loss) attributable to:					
Owners of the Company	(16,097,505,260)	50,386,279,753	(673,260,822)	39,575,070,975	
Non-controlling interests	1,134,631,884	594,999,725	-	-	
	(14,962,873,376)	50,981,279,478	(673,260,822)	39,575,070,975	

The accompanying notes are an integral part of these financial statements.

STATEMENT OF CHANGES IN EQUITY

PTT GLOBAL CHEMICAL PUBLIC COMPANY LIMITED AND ITS SUBSIDIARIES

		Issued and paid-up share capital	Treasury shares	Share premium	Share premium on treasury shares	Difference arising from business combination under common control	Difference arising from the change in the ownership interest in investments	Put option over non-controlling interest	Legal reserve
Note									
Year ended 31 December 2021									
	Balance as at 1 January 2021	45,088,491,170	(1,187,603,325)	36,936,829,684	1,386,740,109	1,690,706,891	(3,407,679,334)	(1,286,083,982)	4,512,930,269
Transactions with owners, recorded directly in equity									
<i>Distributions to owners of the parent</i>									
	Sale of treasury shares	-	1,187,603,325	-	166,325,850	-	-	-	-
26	Dividends	-	-	-	-	-	-	-	-
	Total distributions to owners of the parent	-	1,187,603,325	-	166,325,850	-	-	-	-
<i>Changes in ownership interests in subsidiaries and associate</i>									
	Increase investment in subsidiaries	-	-	-	-	-	-	-	-
10	Impact of business restructuring	-	-	-	-	(1,054,603,056)	-	-	-
11	Changes in ownership interest in associate	-	-	-	-	-	3,407,679,334	-	-
4	Acquisition of businesses	-	-	-	-	-	-	-	-
	Total changes in ownership interests in subsidiaries and associate	-	-	-	-	(1,054,603,056)	3,407,679,334	-	-
	Total transactions with owners, recorded directly in equity	-	1,187,603,325	-	166,325,850	(1,054,603,056)	3,407,679,334	-	-
Comprehensive income for the year									
	Profit	-	-	-	-	-	-	-	-
	Other comprehensive income	-	-	-	-	-	-	-	-
	Total comprehensive income (loss) for the year	-	-	-	-	-	-	-	-
	Balance at 31 December 2021	45,088,491,170	-	36,936,829,684	1,553,065,959	636,103,835	-	(1,286,083,982)	4,512,930,269
Year ended 31 December 2022									
	Balance as at 1 January 2022	45,088,491,170	-	36,936,829,684	1,553,065,959	636,103,835	-	(1,286,083,982)	4,512,930,269
Transactions with owners, recorded directly in equity									
<i>Distributions to owners of the parent</i>									
26	Dividends	-	-	-	-	-	-	-	-
	Total distributions to owners of the parent	-	-	-	-	-	-	-	-
<i>Changes in ownership interests in subsidiaries</i>									
10	Increase investment in subsidiary	-	-	-	-	-	-	-	-
10	Decrease investment in subsidiary	-	-	-	-	-	-	-	-
10	Acquisition of non-controlling interests without a change in control	-	-	-	-	-	(913,304,188)	1,286,083,982	-
10, 11	Changes in ownership interest in subsidiary and associate with a change in control	-	-	-	-	-	-	-	-
	Total changes in ownership interests in subsidiaries	-	-	-	-	-	(913,304,188)	1,286,083,982	-
	Total transactions with owners, recorded directly in equity	-	-	-	-	-	(913,304,188)	1,286,083,982	-
Comprehensive income for the year									
	Loss	-	-	-	-	-	-	-	-
	Other comprehensive income (loss)	-	-	-	-	-	-	-	-
	Total comprehensive income (loss) for the year	-	-	-	-	-	-	-	-
	Balance at 31 December 2022	45,088,491,170	-	36,936,829,684	1,553,065,959	636,103,835	(913,304,188)	-	4,512,930,269

The accompanying notes are an integral part of these financial statements.

Consolidated financial statements

Retained earnings				Other components of equity								
Loans repayment reserve	Projects expansion reserve	Treasury shares reserves (in Baht)	Unappropriated	Translation reserve	Change in fair value of financial assets reserve	Cash flow hedge reserve	Share of other comprehensive income (loss) of joint ventures	Share of other comprehensive income (loss) of associates	Total other components of equity	Equity attributable to owners of the parent	Non- controlling interests	Total equity
807,802,564	12,446,994,126	1,187,603,325	183,652,322,579	(913,805,605)	(12,990,707)	26,477,264	497,407,851	(411,035,579)	(813,946,776)	281,015,107,300	7,978,852,197	288,993,959,497
-	-	(1,187,603,325)	1,187,603,325	-	-	-	-	-	-	1,353,929,175	-	1,353,929,175
-	-	-	(13,458,875,686)	-	-	-	-	-	-	(13,458,875,686)	(620,860,475)	(14,079,736,161)
-	-	(1,187,603,325)	(12,271,272,361)	-	-	-	-	-	-	(12,104,946,511)	(620,860,475)	(12,725,806,986)
-	-	-	-	-	-	-	-	-	-	-	282,182,600	282,182,600
-	-	-	-	-	-	-	-	-	-	(1,054,603,056)	-	(1,054,603,056)
-	-	-	(3,519,337,172)	-	-	-	-	111,657,838	111,657,838	-	-	-
-	-	-	-	-	-	-	-	-	-	-	1,126,155,112	1,126,155,112
-	-	-	(3,519,337,172)	-	-	-	-	111,657,838	111,657,838	(1,054,603,056)	1,408,337,712	353,734,656
-	-	(1,187,603,325)	(15,790,609,533)	-	-	-	-	111,657,838	111,657,838	(13,159,549,567)	787,477,237	(12,372,072,330)
-	-	-	44,982,387,544	-	-	-	-	-	-	44,982,387,544	567,692,705	45,550,080,249
-	-	-	369,881,475	763,361,363	3,647,877,959	40,518,487	311,635,959	270,616,966	5,034,010,734	5,403,892,209	27,307,020	5,431,199,229
-	-	-	45,352,269,019	763,361,363	3,647,877,959	40,518,487	311,635,959	270,616,966	5,034,010,734	50,386,279,753	594,999,725	50,981,279,478
807,802,564	12,446,994,126	-	213,213,982,065	(150,444,242)	3,634,887,252	66,995,751	809,043,810	(28,760,775)	4,331,721,796	318,241,837,486	9,361,329,159	327,603,166,645
807,802,564	12,446,994,126	-	213,213,982,065	(150,444,242)	3,634,887,252	66,995,751	809,043,810	(28,760,775)	4,331,721,796	318,241,837,486	9,361,329,159	327,603,166,645
-	-	-	(11,271,581,548)	-	-	-	-	-	-	(11,271,581,548)	(474,039,605)	(11,745,621,153)
-	-	-	(11,271,581,548)	-	-	-	-	-	-	(11,271,581,548)	(474,039,605)	(11,745,621,153)
-	-	-	-	-	-	-	-	-	-	-	16,200,000	16,200,000
-	-	-	-	-	-	-	-	-	-	-	(135,464,934)	(135,464,934)
-	-	-	-	119,332,893	-	-	-	-	119,332,893	492,112,687	(500,630,317)	(8,517,630)
-	-	-	(64,626,345)	-	-	-	-	(224,185)	(224,185)	(64,850,530)	(1,874,335,942)	(1,939,186,472)
-	-	-	(64,626,345)	119,332,893	-	-	-	(224,185)	119,108,708	427,262,157	(2,494,231,193)	(2,066,969,036)
-	-	-	(11,336,207,893)	119,332,893	-	-	-	(224,185)	119,108,708	(10,844,319,391)	(2,968,270,798)	(13,812,590,189)
-	-	-	(8,752,206,589)	-	-	-	-	-	-	(8,752,206,589)	1,116,302,283	(7,635,904,306)
-	-	-	1,680,630,328	(4,816,903,294)	(3,853,208,942)	(45,587,615)	(368,789,120)	58,559,972	(9,025,928,999)	(7,345,298,671)	18,329,601	(7,326,969,070)
-	-	-	(7,071,576,261)	(4,816,903,294)	(3,853,208,942)	(45,587,615)	(368,789,120)	58,559,972	(9,025,928,999)	(16,097,505,260)	1,134,631,884	(14,962,873,376)
807,802,564	12,446,994,126	-	194,806,197,911	(4,848,014,643)	(218,321,690)	21,408,136	440,254,690	29,575,012	(4,575,098,495)	291,300,012,835	7,527,690,245	298,827,703,080

STATEMENT OF CHANGES IN EQUITY

PTT GLOBAL CHEMICAL PUBLIC COMPANY LIMITED AND ITS SUBSIDIARIES

	Note	Issued and paid-up share capital	Treasury shares	Share premium	Share premium on treasury share	Difference arising from business combination under common control
Year ended 31 December 2021						
Balance as at 1 January 2021		45,088,491,170	(1,187,603,325)	36,936,829,684	1,386,740,109	77,453,518
Transactions with owners, recorded directly in equity						
<i>Distributions to owners of the parent</i>						
Sale of treasury shares		-	1,187,603,325	-	166,325,850	-
Dividends	26	-	-	-	-	-
Total distributions to owners of the parent		-	1,187,603,325	-	166,325,850	-
Comprehensive income for the year						
Profit		-	-	-	-	-
Other comprehensive income (loss)		-	-	-	-	-
Total comprehensive income (loss) for the year		-	-	-	-	-
Balance at 31 December 2021		45,088,491,170	-	36,936,829,684	1,553,065,959	77,453,518
Year ended 31 December 2022						
Balance as at 1 January 2022		45,088,491,170	-	36,936,829,684	1,553,065,959	77,453,518
Transactions with owners, recorded directly in equity						
<i>Distributions to owners of the parent</i>						
Dividends	26	-	-	-	-	-
Total distributions to owners of the parent		-	-	-	-	-
<i>Changes in ownership interests in subsidiaries</i>						
Transfers of businesses	5	-	-	-	-	(37,280,696)
Total changes in ownership interests in subsidiaries		-	-	-	-	(37,280,696)
Total transactions with owners, recorded directly in equity		-	-	-	-	(37,280,696)
Comprehensive income for the year						
Profit		-	-	-	-	-
Other comprehensive income (loss)		-	-	-	-	-
Total comprehensive income (loss) for the year		-	-	-	-	-
Balance at 31 December 2022		45,088,491,170	-	36,936,829,684	1,553,065,959	40,172,822

The accompanying notes are an integral part of these financial statements.

Separate financial statements					Other components of equity			
Retained earnings								
Legal reserve	Loans repayment reserve	Projects expansion reserve <i>(in Baht)</i>	Treasury shares reserves	Unappropriated	Change in fair value of financial assets reserve	Cash flow hedge reserve	Total other components of equity	Total equity
4,512,930,269	807,802,564	12,446,994,126	1,187,603,325	155,067,062,758	771,155	13,804,562	14,575,717	256,338,879,915
-	-	-	(1,187,603,325)	1,187,603,325	-	-	-	1,353,929,175
-	-	-	-	(13,458,875,686)	-	-	-	(13,458,875,686)
-	-	-	(1,187,603,325)	(12,271,272,361)	-	-	-	(12,104,946,511)
-	-	-	-	37,128,696,879	-	-	-	37,128,696,879
-	-	-	-	173,984,103	3,212,938,236	(940,548,243)	2,272,389,993	2,446,374,096
-	-	-	-	37,302,680,982	3,212,938,236	(940,548,243)	2,272,389,993	39,575,070,975
4,512,930,269	807,802,564	12,446,994,126	-	180,098,471,379	3,213,709,391	(926,743,681)	2,286,965,710	283,809,004,379
4,512,930,269	807,802,564	12,446,994,126	-	180,098,471,379	3,213,709,391	(926,743,681)	2,286,965,710	283,809,004,379
-	-	-	-	(11,271,581,548)	-	-	-	(11,271,581,548)
-	-	-	-	(11,271,581,548)	-	-	-	(11,271,581,548)
-	-	-	-	23,974,742	-	-	-	(13,305,954)
-	-	-	-	23,974,742	-	-	-	(13,305,954)
-	-	-	-	(11,247,606,806)	-	-	-	(11,284,887,502)
-	-	-	-	2,589,511,131	-	-	-	2,589,511,131
-	-	-	-	361,417,128	(3,577,520,398)	(46,668,683)	(3,624,189,081)	(3,262,771,953)
-	-	-	-	2,950,928,259	(3,577,520,398)	(46,668,683)	(3,624,189,081)	(673,260,822)
4,512,930,269	807,802,564	12,446,994,126	-	171,801,792,832	(363,811,007)	(973,412,364)	(1,337,223,371)	271,850,856,055

STATEMENT OF CASH FLOWS

PTT GLOBAL CHEMICAL PUBLIC COMPANY LIMITED AND ITS SUBSIDIARIES

	Consolidated financial statements		Separate financial statements	
	31 December		31 December	
	2022	2021	2022	2021
	(in Baht)			
Cash flows from operating activities				
Profit (loss) for the year	(7,635,904,306)	45,550,080,249	2,589,511,131	37,128,696,879
<i>Adjustments to reconcile profit (loss) to cash receipts (payments)</i>				
Tax expense (income)	(2,273,105,524)	7,228,351,078	(3,097,149,992)	5,411,579,383
Depreciation and amortisation	27,562,773,273	22,738,223,413	13,925,422,752	15,545,434,102
Investment income	(1,005,990,634)	(642,073,978)	(20,679,120,765)	(13,474,258,536)
Net gain from sale of investment in joint ventures and associate	-	(10,201,106,624)	-	(12,382,867,826)
Gain from capital return of subsidiaries	-	-	(493,296,192)	-
Gain from change in ownership interest in subsidiary	(847,962,520)	-	-	-
Loss from change in ownership interest in associate	74,696,719	-	-	-
Finance costs	9,835,326,771	5,945,134,552	8,525,146,510	5,324,814,178
Loss on derivatives	1,438,379,352	1,293,833,763	1,359,398,918	897,582,018
Loss on foreign exchange rates	2,714,342,318	6,266,945,743	7,977,694,034	6,350,502,373
Gain on fair value adjustment of financial assets	(8,711,862)	(10,587,062,553)	(17,528,241)	(11,018,196,714)
(Reversal of) impairment credit loss	98,855,709	20,744,068	(2,075,863)	-
Loss on obsolete and written-off inventories	799,280,794	344,158,515	743,547,960	293,155,115
Loss on inventories devaluation	1,859,978,551	216,663,984	1,521,012,539	223,574,346
Impairment loss on assets	55,357,163	1,891,717,008	97,125,770	3,853,559,867
(Gain) loss on disposal of property, plant and equipment and right-of-use assets	(1,005,510,224)	724,767,790	(600,316,468)	382,251,787
Provision expenses	-	443,570,129	-	-
Non-current provisions for employee benefits	657,132,297	622,577,678	344,734,753	357,443,091
Other income	-	(16,951,225)	-	(16,951,225)
Share of profit of joint ventures accounted for using equity method, net of tax	(80,751,724)	(4,155,316,877)	-	-
Share of profit of associates accounted for using equity method, net of tax	(3,415,269,704)	(2,685,268,657)	-	-
	28,822,916,449	64,998,988,056	12,194,106,846	38,876,318,838
Changes in operating assets and liabilities				
Trade accounts receivable	4,383,179,781	(12,879,449,351)	11,432,095,542	(9,763,632,322)
Other receivables	22,374,770	(581,574,492)	(19,930,894)	(855,860,372)
Inventories	(8,235,564,039)	(20,020,509,539)	(7,827,974,108)	(14,908,594,562)
Value-added tax receivable	(4,313,569,094)	(839,824,166)	(4,443,635,770)	(176,237,768)
Other current assets	(2,471,665,048)	(1,458,458,919)	(2,246,968,110)	(880,196,175)
Other non-current assets	(745,723,213)	(37,922,909)	(32,747,890)	(19,611,037)
Trade accounts payable	(12,028,549,419)	37,806,268,634	(15,309,951,607)	35,881,064,714
Other payables	(5,322,647,916)	5,839,346,864	(3,897,844,405)	4,184,306,026
Current provisions	52,182,890	19,692,001	-	-
Other current liabilities	27,150,165	24,281,964	-	-
Provisions for employee benefits	(465,057,686)	(198,429,727)	(139,549,730)	(131,874,033)
Other non-current provisions	60,572,086	213,016	-	-
Other non-current liabilities	(457,627,952)	180,293,980	(191,832,857)	106,967,585
Net cash generated from (used in) operations	(672,028,226)	72,852,915,412	(10,484,232,983)	52,312,650,894
Taxes received (paid)	(2,754,444,557)	(4,203,034,368)	361,555,074	(2,869,834,163)
Net cash from (used in) operating activities	(3,426,472,783)	68,649,881,044	(10,122,677,909)	49,442,816,731

The accompanying notes are an integral part of these financial statements.

STATEMENT OF CASH FLOWS

PTT GLOBAL CHEMICAL PUBLIC COMPANY LIMITED AND ITS SUBSIDIARIES

	Consolidated financial statements		Separate financial statements	
	31 December		31 December	
	2022	2021	2022	2021
	(in Baht)			
Cash flows from investing activities				
Interest received	619,093,100	432,017,884	4,116,371,687	465,866,861
Dividends received	2,900,853,133	2,207,407,729	9,363,123,219	10,094,634,546
Acquisition of property, plant and equipment and intangible assets	(21,371,880,022)	(16,074,140,395)	(11,969,332,566)	(8,284,582,339)
Proceeds from sale of property, plant and equipment	1,278,187,628	195,899,262	741,838,169	62,521,546
(Increase) decrease of investment in debt instruments	13,458,324,356	(4,771,375,955)	14,873,255,678	(4,851,375,954)
Increase of investment in equity instruments	(335,403,494)	(257,913,979)	-	-
Acquisition of investments in subsidiaries, joint ventures and associates	(8,224,499,459)	(134,410,843,700)	(65,931,801,610)	(36,862,425,568)
Net cash payment from transfers of businesses	-	-	(5,398,827,315)	-
Proceeds from capital return of subsidiaries	-	-	6,687,408,080	-
Proceeds from sale of investment in joint ventures and associate	-	25,271,201,231	-	25,125,572,920
Decrease in cash from loss of control in a subsidiary	(537,264,908)	-	-	-
Short-term loans to related parties	-	(12,548,848,502)	(12,857,630,646)	(2,423,834,812)
Proceeds from short-term loans to related parties	-	165,326,000	1,803,343,995	1,964,531,885
Long-term loans to related parties	-	(9,649,611,689)	-	(103,676,852,401)
Proceeds from long-term loans to related parties	-	597,492,016	52,185,036,283	597,492,016
Net cash used in investing activities	(12,212,589,666)	(148,843,390,098)	(6,387,215,026)	(117,788,451,300)
Cash flows from financing activities				
Finance costs paid	(9,494,431,361)	(6,316,429,890)	(7,984,551,981)	(5,078,261,394)
Dividends paid	(11,745,621,153)	(14,079,736,161)	(11,271,581,548)	(13,458,875,686)
Payment of lease liabilities	(2,493,625,714)	(1,378,301,475)	(1,734,696,497)	(1,425,569,376)
Proceeds from short-term borrowings from financial institutions	3,857,851,029	2,036,666,492	2,000,000,000	-
Proceeds from short-term borrowings from related parties	-	-	313,834,684	4,709,609,205
Proceeds from long-term borrowings from financial institutions	50,262,715,404	40,491,755,134	16,379,600,000	-
Proceeds from long-term borrowings from related parties	-	55,600,000,000	47,163,351,392	104,039,889,380
Repayment of short-term borrowings from financial institutions	(1,902,019,885)	-	-	-
Repayment of short-term borrowings from related parties	-	-	(8,249,081,964)	(228,267,929)
Repayment of long-term borrowings from financial institutions	(50,783,206,834)	(7,907,646,400)	(400,000,000)	-
Repayment of long-term borrowings from other parties	(44,707,450)	(45,861,270)	-	-
Repayment of long-term borrowings from related parties	(55,600,000,000)	-	(83,905,125,621)	-
Payment of change in ownership interest in subsidiary without a change in control	(554,213,758)	-	-	-
Proceeds from increase in investment in subsidiaries from non-controlling interests	16,200,000	282,182,600	-	-
Payment of decrease in investment in subsidiary to non-controlling interests	(135,464,934)	-	-	-
Proceeds from debentures	100,586,697,000	39,999,512,500	55,000,000,000	-
Repayment of debentures	(36,134,441,960)	(20,000,000,000)	(18,745,080,789)	(20,000,000,000)
Proceeds from sale of treasury shares	-	1,353,929,175	-	1,353,929,175
Net cash from (used in) financing activities	(14,164,269,616)	90,036,070,705	(11,433,332,324)	69,912,453,375
Net increase (decrease) in cash and cash equivalents, before effect of exchange rate changes	(29,803,332,065)	9,842,561,651	(27,943,225,259)	1,566,818,806
Effect of exchange rate changes on cash and cash equivalents and effect from translation differences on financial statements	129,712,891	1,457,655,667	(175,032,943)	202,117,978
Net increase (decrease) in cash and cash equivalents	(29,673,619,174)	11,300,217,318	(28,118,258,202)	1,768,936,784
Cash and cash equivalents at 1 January	55,613,241,053	44,313,023,735	33,304,227,557	31,535,290,773
Cash and cash equivalents at 31 December	25,939,621,879	55,613,241,053	5,185,969,355	33,304,227,557

The accompanying notes are an integral part of these financial statements.

NOTES TO THE FINANCIAL STATEMENTS

PTT GLOBAL CHEMICAL PUBLIC COMPANY LIMITED AND ITS SUBSIDIARIES FOR THE YEAR
ENDED DECEMBER 31, 2022

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These notes form an integral part of the financial statements.

The financial statements issued for Thai statutory and regulatory reporting purposes are prepared in the Thai language. These English language financial statements have been prepared from the Thai language statutory financial statements, and were approved and authorised for issue by the Board of Directors on 13 February 2023.

1 General information

PTT Global Chemical Public Company Limited, the “Company”, is incorporated in Thailand and was listed on the Stock Exchange of Thailand on 19 October 2011. The Company’s registered offices are as follows:

Head Office	: 555/1, Energy Complex, Building A, 14th - 18th Floor, Vibhavadi-Rangsit Road, Chatuchak, Bangkok, Thailand
Branch 1 (Rayong office Branch)	: 59, Radniyom Road, Tambon Noenphra, Amphoe Mueang Rayong, Rayong, Thailand
Branch 2 (Olefin 1 Branch)	: 14, I-1 Road, Tambon Map Ta Phut, Amphoe Mueang Rayong, Rayong, Thailand
Branch 3 (Olefin 2 Branch)	: 9, I-4 Road, Tambon Map Ta Phut, Amphoe Mueang Rayong, Rayong, Thailand
Branch 4 (Aromatics 1 Branch)	: 4, I-2 Road, Tambon Map Ta Phut, Amphoe Mueang Rayong, Rayong, Thailand
Branch 5 (Aromatics 2 Branch)	: 98/9, Rayong 3191 Road, Tambon Map Ta Phut, Amphoe Mueang Rayong, Rayong, Thailand
Branch 6 (Refining Branch)	: 8, I-8 Road, Tambon Map Ta Phut, Amphoe Mueang Rayong, Rayong, Thailand
Branch 7 (Jetty and Buffer Tank Farm Branch)	: 19, Rong Pui Road, Tambon Map Ta Phut, Amphoe Mueang Rayong, Rayong, Thailand
Branch 8 (Aromatics reserve Branch)	: 11, I-4 Road, Tambon Map Ta Phut, Amphoe Mueang Rayong, Rayong, Thailand
Branch 9 (Lab Service Center Branch)	: 24/9, Pakorn Songkro-Rat Road, Tambon Map Ta Phut, Amphoe Mueang Rayong, Rayong, Thailand
Branch 10 (PTTGC 10 Branch)	: 555/1, Energy Complex, Building A, 1 st and 9 th Floor, Vibhavadi-Rangsit Road, Chatuchak, Bangkok, Thailand
Branch 11 (Olefin 3 Branch)	: 8, Phadang Road, Tambon Map Ta Phut, Amphoe Mueang Rayong, Rayong, Thailand
Branch 12 (Polyethylene Branch)	: 8, Map Ta Phut Industrial Estate, I-10 Road, Tambon Map Ta Phut, Amphoe Mueang Rayong, Rayong, Thailand
Branch 13 (Innoplus Solution Center Branch)	: 83/9-10, Moo 5, Tambon Tabma, Amphoe Mueang Rayong, Rayong, Thailand

NOTES TO THE FINANCIAL STATEMENTS

Branch 14 (Maintenance office)	: 32, Rong Pui Road, Tambon Map Ta Phut, Amphoe Mueang Rayong, Rayong, Thailand
Branch 15 (GC Chemical Experience Campus)	: 66, National highway 363 Road, Tambon Noenphra, Amphoe Mueang Rayong, Rayong, Thailand
Branch 16 (Glycol Plant)	: 9-9/1, Soi G12, Pakorn Songkrorat Road, Tambon Tabma, Amphoe Mueang Rayong, Rayong, Thailand
Branch 17 (Polystyrene Plant)	: 7, I-1 Road, Tambon Tabma, Amphoe Mueang Rayong, Rayong, Thailand
Branch 18 (Phenol Plant)	: 9, Soi G9, Pakorn Songkrorat Road, Tambon Tabma, Amphoe Mueang Rayong, Rayong, Thailand
Branch 19 (Oxirane Plant)	: 12, Soi G4, Pakorn Songkrorat Road, Tambon Tabma, Amphoe Mueang Rayong, Rayong, Thailand

The Company is a company in the PTT Public Company Limited group of companies. PTT is incorporated in Thailand and is the major shareholder of the Company, holding 45.18% of the Company's issued and paid-up share capital.

The principal activities of the Company are refining and provision of integrated petroleum products, production and distribution of aromatics products including aromatic derivatives and production and distribution of ethylene, propylene, polyethylene plastic pellets and biochemical products. By-products are mixed C4, cracker bottom and tail gas. Minor activities are production and distribution of electricity, water, steam and other utilities. In addition, the Company also operates production support facilities such as jetty and buffer tank farm services for liquid chemical, oil and gas. Details of the Company's subsidiaries as at 31 December 2022 and 2021 are given in note 10.

2 Basis for preparation and presentation of the financial statements

The financial statements are prepared in accordance with Thai Financial Reporting Standards ("TFRS"), guidelines promulgated by the Federation of Accounting Professions and applicable rules and regulations of the Thai Securities and Exchange Commission. The financial statements are presented in Thai Baht, which is the Company's functional currency. The accounting policies, described in note 3, have been applied consistently to all periods presented in these financial statements.

The preparation of financial statements in conformity with TFRS requires management to make judgements, estimates and assumptions that affect the application of the Group's accounting policies. Actual results may differ from these estimates. Estimates and underlying assumptions that are described in note 3 are reviewed on an ongoing basis. Revisions to accounting estimates are recognised prospectively.

The Group has not adopted the new and revised TFRS which will be effective for the financial statements for the periods beginning on or after 1 January 2023 onwards for the financial statements. The Group has assessed the potential impact on the financial statements of these new and revised TFRS that there is no material impact on the financial statements in the year of application.

3 Significant accounting policies

(a) Basis of consolidation

The consolidated financial statements relate to the Company and its subsidiaries and the Group's interests in associates and joint ventures.

Subsidiaries

Subsidiaries are entities controlled by the Group. The Group controls an entity when it has rights to variable returns from its involvement with the entity and has the ability to affect those returns through its power over the entity. The financial statements of subsidiaries are included in the consolidated financial statements from the date on which control commences until the date on which control ceases.

At the acquisition date, the Group measures any non-controlling interest at its proportionate interest in the identifiable net assets of the acquiree.

When there is a change in the Group's interest in a subsidiary that does not result in a loss of control, any difference between the amount by which the non-controlling interests are adjusted and the fair value of the consideration paid or received from the acquisition or disposal of the non-controlling interests with no change in control is accounted for as other surplus/deficit in shareholders' equity.

When the Group loses control over a subsidiary, it derecognises the assets and liabilities, any related non-controlling interests and other components of equity of the subsidiary. Any resulting gain or loss is recognised in profit or loss. Any interest retained in the former subsidiary is measured at fair value when control is lost.

Associates and joint ventures

Associates are those entities in which the Group has significant influence, but not control or joint control, over the financial and operating policies. A joint venture is an arrangement in which the Group has joint control, whereby the Group has rights to the net assets of the arrangement.

The Group recognised investments in associates and joint ventures using the equity method in the consolidated financial statements. They are initially recognised at cost, which includes transaction costs. Subsequent to initial recognition, the consolidated financial statements include the Group's dividend income and share of the profit or loss and other comprehensive income of equity-accounted investees, until the date on which significant influence or joint control ceases.

If an investment in an associate becomes an investment in a joint venture or vice versa, the retained interest is not remeasured. Instead, the investment continues to be accounted for under the equity method. In all other cases, when the group ceases to have significant influence over an associate or joint control over a joint venture, it is accounted for as a disposal of the entire interest in that investee, with a resulting gain or loss being recognised in profit or loss. Any interest retained in that former investee at the date when significant influence or joint control is lost is recognised at fair value and this amount is regarded as the fair value on initial recognition of a financial asset.

Intra-group balances and transactions, and any income or expenses arising from intra-group transactions, are eliminated on consolidation. Unrealised gains or losses arising from transactions with associates and joint ventures are eliminated against the investment to the extent of the Group's interest in the investee.

NOTES TO THE FINANCIAL STATEMENTS

Business combinations

The Group applies the acquisition method when the Group assess that the acquired set of activities and assets include, at a minimum, an input and a substantive process that together significantly contribute to the ability to create output. The acquisition date is the date on which control is transferred to the Group, other than business combinations with entities under common control. Expenses in connection with a business combination are recognised as incurred.

Goodwill is measured at the acquisition date as the fair value of the consideration transferred including the recognised amount of any non-controlling interest in the acquiree, less net fair value of the identifiable assets acquired and liabilities assumed. Any gain on bargain purchase is recognised in profit or loss immediately.

Consideration transferred or any contingent consideration is measured at fair value at the date of acquisition, and remeasured at fair value at each reporting date. Subsequent changes in the fair value are recognised in profit or loss.

A contingent liability of the acquiree is assumed in a business combination only if such a liability represents a present obligation and arises from a past event, and its fair value can be measured reliably.

If the initial accounting for a business combination is incomplete by the end of the reporting period in which the combination occurs, the Group estimates provisional amounts for the items for which the accounting is incomplete. Those provisional amounts are adjusted during the measurement period, or additional assets or liabilities are recognised, to reflect new information obtained about facts and circumstances that existed at the acquisition date that, if known, would have affected the amounts recognised at that date.

When a business combination is achieved in stages, the Group's previously held equity interest in the acquiree is remeasured to its acquisition-date fair value and the resulting gain or loss, if any, is recognised in profit or loss. Amounts arising from interests in the acquiree prior to the acquisition date that have previously been recognised in other comprehensive income are reclassified to profit or loss where such treatment would be appropriate if that interest were disposed of.

Business combination under common control are accounted for using a method similar to the pooling of interest method, by recognising assets and liabilities of the acquired businesses at their carrying amounts in the consolidated financial statements of the ultimate parent company at the transaction date. The difference between the carrying amount of the acquired net assets and the consideration transferred is recognised as surplus or deficit from business combinations under common control in shareholder's equity. The surplus or deficit will be transferred to retained earnings upon divestment of the businesses acquired. The results from operations of the acquired businesses will be included in the consolidated financial statements of the acquirer from the beginning of the comparative period or the moment the businesses came under common control, whichever date is later, until control ceases.

(b) *Investments in subsidiaries, associates and joint ventures*

Investments in subsidiaries, associates and joint ventures in the separate financial statements are measured at cost less allowance for impairment losses. Dividend income is recognised in profit or loss on the date on which the Group's right to receive payment is established. If the Company disposes of part of its investment, the deemed cost of the part sold is determined using the weighted average method. Gains and losses on disposal of the investments are recognised in profit or loss.

(c) Foreign currencies

Transactions in foreign currencies including non-monetary assets and liabilities denominated in foreign currencies are translated to the respective functional currencies of each entity in the Group at exchange rates at the dates of the transactions. Monetary assets and liabilities denominated in foreign currencies are translated at the exchange rate at the reporting date. Non-monetary assets and liabilities measured at fair value in foreign currencies are translated at the exchange rates at the dates that fair value was determined.

Foreign currency differences are generally recognised in profit or loss. However, foreign currency differences arising from the translation of the following items are recognised in other comprehensive income:

- an investment in equity securities designated as at FVOCI (except on impairment, in which case foreign currency differences that have been recognised in other comprehensive income are reclassified to profit or loss);
- a financial liability designated as a hedge of the net investment in a foreign operation to the extent that the hedge is effective; and
- qualifying cash flow hedges to the extent the hedge is effective.

Foreign operations

The assets and liabilities of foreign operations, including goodwill and fair value adjustments arising on acquisition, are translated to Thai Baht at the exchange rates at the reporting date. The revenues and expenses of foreign operations are translated to Thai Baht at rates approximating the exchange rates at average rate during the year.

Foreign exchange differences are accumulated in the translation reserve until disposal of the investment, except to the extent that the translation difference is allocated to non-controlling interests.

When a foreign operation is disposed of in its entirety or partially such that control, significant influence or joint control is lost, the cumulative amount in the translation reserve related to that foreign operation is reclassified to profit or loss as part of the gain or loss on disposal.

The settlement of a monetary item receivable from or payable to a foreign operation is neither planned nor likely in the foreseeable future, exchange gains and losses arising from such a monetary item are considered to form part of a net investment in a foreign operation and are recognised in other comprehensive income, and presented in the translation reserve in equity until disposal of the investment.

(d) Financial instruments

(d.1) Classification and measurement

Other financial assets and financial liabilities (except trade accounts receivables (see note 3(f))) are initially recognised when the Group becomes a party to the contractual provisions of the instrument, and measured at fair value plus or minus, for an item not at fair value through profit or loss (FVTPL), transaction costs that are directly attributable to its acquisition or issue.

Regular way of purchases and sales of financial assets are recognised on trade-date, the date on which the Group commits to purchase or sell the asset.

NOTES TO THE FINANCIAL STATEMENTS

Initial recognition

Financial asset is classified as measured at: amortised cost; fair value through other comprehensive income (FVOCI); or FVTPL. Financial assets are not reclassified subsequent to their initial recognition unless the Group changes its business model for managing financial assets, in which case all affected financial assets are reclassified prospectively from the reclassification date.

Financial liabilities are classified as measured at amortised cost using the effective interest method or FVTPL. Interest expense, foreign exchange gains and losses are recognised in profit or loss.

Subsequently measured

Financial assets measured at amortised costs are subsequently measured at amortised cost using the effective interest method. The amortised cost is reduced by expected credit losses. Interest income, foreign exchange gains and losses, expected credit loss and any gain or loss on derecognition are recognised in profit or loss.

Debt investments measured at FVOCI are subsequently measured at fair value. Interest income, calculated using the effective interest method, foreign exchange gains and losses and expected credit loss are recognised in profit or loss. Other net gains and losses are recognised in OCI. On derecognition, gains and losses accumulated in OCI are reclassified to profit or loss.

Equity investments measured at FVOCI are subsequently measured at fair value. Dividend income is recognised as income in profit or loss on the date on which the Group's right to receive dividend is established, unless the dividend clearly represents a recovery of part of the cost of the investment. Other net gains and losses are recognised in OCI and are never reclassified to profit or loss.

(d.2) Derecognition and offset

The Group derecognises a financial asset when the contractual rights to receive the cash flows from the financial asset expire, or it transfers the rights to receive the contractual cash flows in a transaction in which substantially all of the risks and rewards of ownership of the financial asset are transferred or in which the Group neither transfers nor retains substantially all of the risks and rewards of ownership and it does not retain control of the financial asset.

The Group derecognises a financial liability when its contractual obligations are discharged or cancelled, or expire. The Group also derecognises a financial liability when its terms are modified and the cash flows of the modified liability are substantially different, in which case a new financial liability based on the modified terms is recognised at fair value.

The difference between the carrying amount extinguished and the consideration received or paid is recognised in profit or loss.

Financial assets and financial liabilities are offset and the net amount presented in the statement of financial position when, and only when, the Group currently has a legally enforceable right to set off the amounts and the Group intends either to settle them on a net basis or to realise the asset and settle the liability simultaneously.

Interest rate benchmark reform

When the basis of determining the contractual cash flows of a financial asset or financial liability measured at amortised cost changed as a result of interest rate benchmark reform (IBOR reform), the Group first updated the effective interest rate of the financial asset or financial liability to reflect the change that is required by IBOR reform. If there were any other additional changes, the Group applied the policies on accounting for modifications to those changes.

(d.3) Derivatives

Derivative are recognised at fair value and remeasured at fair value at each reporting date. The gain or loss on remeasurement to fair value is recognised immediately in profit or loss, except where the derivatives qualify for cash flow hedge accounting or hedges of net investment in a foreign operation, in which case recognition of any resultant gain or loss depends on the nature of the item being hedged.

(d.4) Hedging

At inception of designated hedging relationships, the Group documents the risk management objective and strategy for undertaking the risk, the economic relationship between the hedged item and the hedging instrument, including consideration of the hedge effectiveness at the inception of the hedging relationship and throughout the remaining period to determine the existence of economic relationship between the hedged item and the hedging instrument.

Cash flow hedges

When a derivative is designated as a cash flow hedging instrument, the effective portion of changes in the fair value of the derivative is recognised in OCI and accumulated in the hedging reserve. Any ineffective portion of changes in the fair value of the derivative is recognised immediately in profit or loss.

When the hedged forecast transaction subsequently results in the recognition of a non-financial item such as inventory, the amount accumulated in the cash flow hedging reserve is included directly in the initial cost of the non-financial item when it is recognised.

For all other hedged forecast transactions, the amount accumulated in the cash flow hedging reserve is reclassified to profit or loss in the same period or periods during which the hedged expected future cash flows affect profit or loss.

If the hedge no longer meets the criteria for hedge accounting or the hedging instrument is sold, expires, is terminated or is exercised, then hedge accounting is discontinued prospectively. When hedge accounting for cash flow hedges is discontinued, the amount that has been accumulated in the cash flow hedging reserve remains in equity until, for a hedge of a transaction resulting in the recognition of a non-financial item, it is included in the non-financial item's cost on its initial recognition or, for other cash flow hedges, it is reclassified to profit or loss in the same period or periods as the hedged expected future cash flows affect profit or loss.

If the hedged future cash flows are no longer expected to occur, then the amounts that have been accumulated in the cash flow hedging reserve are immediately reclassified to profit or loss.

NOTES TO THE FINANCIAL STATEMENTS

(d.5) Impairment of financial assets other than trade accounts receivables

The Group assesses ECLs by reviewing credit ratings of the financial assets unless there has been a significant increase in credit risk of the financial instrument since initial recognition or credit-impaired financial assets, the loss allowance is measured at an amount equal to lifetime ECLs.

In determining allowance of expected credit loss, the financial asset is considered to have low credit risk and no significant incremental of credit risk since initial recognition. The Group will not recognise any allowance of expected credit loss.

(d.6) Write offs

The gross carrying amount of a financial asset is written off when the Group has no reasonable expectations of recovering. Subsequent recoveries of an asset that was previously written off, are recognised as a reversal of impairment in profit or loss in the period in which the recovery occurs.

(d.7) Interest

Interest income and expense is recognised in profit or loss using the effective interest method. In calculating interest income and expense, the effective interest rate is applied to the gross carrying amount of the asset (when the asset is not credit-impaired) or to the amortised cost of the liability.

(e) Cash and cash equivalents

Cash and cash equivalents are cash on hand and all types of deposits at bank and financial institutions with original maturity of three months or less from the date of acquisition, excluding deposits at banks used as collateral. (if any)

(f) Trade accounts receivable

A trade receivable is recognised when the Group has an unconditional right to receive consideration. A trade receivable is measured at transaction price less allowance for expected credit loss. Bad debts are written off when incurred.

The Group estimates lifetime expected credit losses (ECLs), using a provision matrix to find the ECLs rates. This method groups the debtors based on shared credit risk characteristics and past due status, taking into account historical credit loss data, adjusted for factors that are specific to the debtors and an assessment of both current economic conditions and forward-looking general economic conditions at the reporting date.

(g) Inventories

Inventories are measured at the lower of cost and net realisable value. Cost is calculated using the weighted average cost principle. Cost includes direct costs incurred in acquiring the inventories. In the case of manufactured inventories and work-in-progress, cost includes an appropriate share of production overheads based on normal operating capacity. Net realisable value is the estimated selling price in the ordinary course of business less the estimated costs to complete and to make the sale.

Provision is made for obsolete and slow-moving of finished goods, raw materials, factory supplies and spare parts based on the items that are obsoleted and expected to be unsalable.

(h) Investment properties

Investment properties are measured at cost less accumulated depreciation and accumulated impairment losses. Cost includes expenditure that is directly attributable to the acquisition of the investment property. The cost of self-constructed assets includes capitalised borrowing costs.

Depreciation is calculated on a straight-line basis over the estimated useful lives of buildings and buildings improvement of 10 - 30 years and recognised in profit or loss. No depreciation is charged on freehold land and assets under construction.

Differences between the proceeds from disposal and the carrying amount of investment property are recognised in profit or loss.

(i) Property, plant and equipment

Property, plant and equipment are measured at cost less accumulated depreciation and accumulated impairment losses.

Cost includes expenditure that is directly attributable to the acquisition of the asset. The cost of self-constructed assets includes capitalised borrowing costs, and the costs of dismantling and removing the items and restoring the site on which they are located including transfers from other comprehensive income of any gain or loss on qualifying cash flow hedges of foreign currency purchases of property, plant and equipment. Purchased software that is integral to the functionality of the related equipment is capitalised as part of that equipment.

When parts of an item of property, plant and equipment have different useful lives, they are accounted for as separate items (major components) of property, plant and equipment.

Differences between the proceeds from disposal and the carrying amount of property, plant and equipment are recognised in profit or loss.

The cost of replacing a part of an item of property, plant and equipment is recognised in the carrying amount of the item when the future economic benefits embodied within the part will flow to the Group, and its cost can be measured reliably. The carrying amount of the replaced part is derecognised. The costs of the day-to-day servicing of property, plant and equipment are recognised in profit or loss as incurred.

Depreciation

Depreciation is calculated on a straight-line basis over the estimated useful lives of each component of an asset and recognised in profit or loss. No depreciation is provided on freehold land and assets under construction.

The estimated useful lives are as follows:

Land improvement	5 - 35	years
Buildings and buildings improvement	5 - 50	years
Plant, machinery, equipment and factory tools	5 - 50	years
Furniture, fixtures and equipment	3 - 30	years
Vehicles	5 - 25	years

NOTES TO THE FINANCIAL STATEMENTS

(j) *Goodwill*

Goodwill is measured at cost less accumulated impairment losses. In respect of equity-accounted investee, the carrying amount of goodwill is included in the carrying amount of the investment.

(k) *Intangible assets*

Intangible assets are measured at cost less accumulated amortisation and accumulated impairment losses. Subsequent expenditure is capitalised only when it will generate future economic benefits. Amortisation is calculated on a straight-line basis over the estimated useful lives of intangible assets and recognised in profit or loss from the date that they are available for use.

The estimated useful lives are as follows:

Production licence fees	10 - 35	years
Computer software	3 - 20	years
Customer contracts and the related customer relationships	5 - 25	years
Right to use - others	10 - 23	years

(l) *Leases*

At inception of a contract, the Group assesses that a contract is, or contains, a lease when it conveys the right to control the use of an identified asset for a period of time in exchange for consideration.

The Group as lessee

At commencement or on modification of a contract, the Group allocates the consideration in the contract to each lease component on the basis of its relative stand-alone prices of each component.

The Group recognises a right-of-use asset and a lease liability at the lease commencement date, except for leases of low-value assets and short-term leases which are recognised as expenses on a straight-line basis over the respective lease terms.

Right-of-use asset is measured at cost, less any accumulated depreciation and accumulated impairment loss, and adjusted for any remeasurements of lease liability. The cost of right-of-use asset includes the initial amount of the lease liability adjusted for any prepaid lease payments, plus any initial direct costs incurred and an estimate of restoration costs, less any lease incentives received. Depreciation is charged to profit or loss on a straight-line method from the commencement date to the end of the lease term, unless the lease transfers ownership of the underlying asset to the Company by the end of the lease term or the Group will exercise a purchase option. In that case the right-of-use asset will be depreciated over the useful life of the underlying asset, which is determined on the same basis as those of property and equipment.

The lease liability is initially measured at the present value of all lease payments that shall be paid under the lease. The Group uses the interest rate implicit in the lease. If this rate cannot be readily determined, the Group uses its incremental borrowing rate to discount the lease payments to the present value.

The lease liability is measured at amortised cost using the effective interest method. It is remeasured when there is a lease modification. When the lease liability is remeasured, a corresponding adjustment is made to the carrying amount of the right-of-use asset or is recognised in profit or loss if the carrying amount of the right-of-use asset has been reduced to zero and the Group elected not to assess that the rent concessions are lease modification, the Group remeasured lease liabilities using the original discount rate and recognised the impact of the change in lease liability in profit or loss.

The Group as lessor

At lease inception, the Group considers to classify a lease that transfers substantially all of the risks and rewards incidental to ownership of the underlying asset to lessees as a finance lease. A lease that does not meet this criteria is classified as an operating lease.

The Group recognises lease payments received under operating leases in profit or loss on a straight-line basis over the lease term as part of other income. Initial direct costs incurred in arranging an operating lease are added to the carrying amount of the leased asset and recognised over the lease term on the same basis as rental income.

(m) Impairment of non-financial assets

The carrying amounts of the Group's assets are reviewed at each reporting date to determine whether there is any indication of impairment. If any such indication exists, the assets' recoverable amounts are estimated. For goodwill and intangible assets that have indefinite useful lives or are not yet available for use, the recoverable amount is estimated each year at the same time.

An impairment loss is recognised in profit or loss if the carrying amount of an asset or its cash-generating unit exceeds its recoverable amount.

The recoverable amount is the greater of the asset's value in use and fair value less costs to sell. In assessing value in use, the estimated future cash flows are discounted to their present value using a pre-tax discount rate that reflects current market assessments of the time value of money and the risks specific to the asset.

An impairment loss of asset recognised in prior periods is reversed if there has been a change in the estimates used to determine the recoverable amount. An impairment loss in respect of goodwill is not reversed. An impairment loss is reversed only to the extent that the asset's carrying amount does not exceed the carrying amount that would have been determined, net of depreciation or amortisation, if no impairment loss had been recognised.

(n) Employee benefits*Defined contribution plan*

Obligations for contributions to the Group's provident funds are expensed as the related service is provided.

Defined benefit plans

The Group's net obligation in respect of defined benefit plans is calculated by estimating the amount of future benefit that employees have earned in the current and prior periods. The defined benefit obligations is discounted to the present value, discounting that amount net with fair value of plan assets. The calculation of defined benefit obligations is performed every 3 years by a qualified actuary using the projected unit credit method.

Remeasurements of the net defined benefit liability, actuarial gain or loss are recognised immediately in OCI. The Group determines the interest expense on the net defined benefit liability for the period by applying the discount rate used to measure the defined benefit obligation, taking into account any changes in the net defined benefit liability as a result of contributions and benefit payments. Net interest expense and other expenses related to defined benefit plans are recognised in profit or loss.

NOTES TO THE FINANCIAL STATEMENTS

When the benefits of a plan are changed or when a plan is curtailed, the resulting change in benefit that relates to past service or the gain or loss on curtailment is recognised immediately in profit or loss. The Group recognises gains and losses on the settlement of a defined benefit plan when the settlement occurs.

The Group's net obligation in respect of long-term employee benefits is the amount of future benefit that employees have earned in return for their service in the current and prior periods. That benefit is discounted to determine its present value. Remeasurements are recognised in profit or loss in the period in which they arise.

Termination benefits are expensed at the earlier of when the Group can no longer withdraw the offer of those benefits and when the Group recognizes costs for a restructuring. If benefits are not expected to be settled wholly within 12 months of the end of the reporting period, then they are discounted.

Short-term employee benefits are expensed as the related service is provided. A liability is recognised for the amount expected to be paid if the Group has a present legal or constructive obligation to pay this amount as a result of past service provided by the employee and the obligation can be estimated reliably.

(o) *Provisions*

A provision is recognised if, as a result of a past event, the Group has a present legal or constructive obligation that can be estimated reliably, and it is probable that an outflow of economic benefits will be required to settle the obligation. Provisions are determined by discounting the expected future cash flows at a pre-tax rate that reflects current market assessments of the time value of money and the risks specific to the liability. The unwinding of the discount is recognised as a finance cost.

(p) *Segment information*

Segment results that are reported to the Group's Management Committee (the chief operating decision maker) include items directly attributable to a segment as well as those that can be allocated on a reasonable basis.

(q) *Fair value measurement*

Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date in the principal or, in its absence, the most advantageous market to which the Group has access at that date. The fair value of a liability reflects its non-performance risk.

When measuring the fair value of an asset or a liability, the Group uses observable market data as far as possible. Fair values are categorised into different levels in a fair value hierarchy based on the inputs used in the valuation techniques as follows:

- Level 1: quoted prices in active markets for identical assets or liabilities that the entity can access at the measurement date.
- Level 2: inputs other than quoted prices included in Level 1 that are observable for the asset or liability, either directly or indirectly.
- Level 3: inputs for the asset or liability that are based on unobservable input.

If the inputs used to measure the fair value of an asset or liability might be categorised in different levels of the fair value hierarchy, then the fair value measurement is categorised in its entirety in the same level of the fair value hierarchy as the lowest level input that is significant to the entire measurement.

(r) Treasury shares

When share capital recognised as equity is repurchased, the amount of consideration paid, including directly attributable costs, is classified as treasury shares and recognised as a deduction from equity. An equal amount is appropriated from retained earnings and taken to a reserve for treasury shares within equity. When treasury shares are sold, the amount received is recognised as an increase in equity by crediting the cost of the treasury shares sold, calculated using the weighted average method, to the treasury shares account and transferring the equivalent amount back from treasury shares reserve to retained earnings. Surpluses on the sale of treasury shares are taken directly to a separate category within equity, 'Premium on treasury shares'. Net deficits on sale or cancellation of treasury shares are debited to retained earnings after setting off against any remaining balance of premium on treasury shares.

(s) Revenue from contracts with customers

(1) Revenue recognition

Revenue is recognised when a customer obtains control of the goods or services in an amount that reflects the consideration to which the Group expects to be entitled, excluding those amounts collected on behalf of third parties, value added tax or other sales taxes and is after deduction of any trade discounts and volume rebates.

Revenue from sales of goods is recognised on the date on which the goods are delivered to the customers.

Revenues from rendering of services is recognised as a performance obligation satisfied at a point in time when services underlying the particular performance obligation is transferred to the customer or is recognised over time based on the stage of completion of the contract.

(2) Contract balances

Contract assets are recognised when the Group has recognised revenue before it has an unconditional right to receive consideration. The contract assets are measured at the amount of consideration that the Group is entitled to, less allowance for expected credit loss. The contract assets are classified as trade receivables when the Group has an unconditional right to receive consideration.

Contract liabilities including advances received from customers are the obligation to transfer goods or services to the customer. The contract liabilities including advances received from customers are recognised when the Group receives or has an unconditional right to receive non-refundable consideration from the customer before the Group recognises the related revenue.

(t) Income tax

Income tax expense for the year comprises current and deferred tax, which is recognised in profit or loss except to the extent that it relates to a business combination, or items recognised directly in equity or in other comprehensive income.

Current tax is recognised in respect of the taxable income or loss for the year, using tax rates enacted or substantively enacted at the end of the reporting period, and any adjustment to tax payable in respect of previous years.

NOTES TO THE FINANCIAL STATEMENTS

Deferred tax is recognised in respect of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for taxation purposes. Deferred tax is not recognised for the temporary differences: the initial recognition of goodwill; the initial recognition of assets or liabilities in a transaction that is not a business combination and that affects neither accounting nor taxable profit or loss; and differences relating to investments in subsidiaries and joint ventures to the extent that it is probable that they will not reverse in the foreseeable future.

The measurement of deferred tax reflects the tax consequences that would follow the manner in which the Group expects, at the end of the reporting period, to recover or settle the carrying amount of its assets and liabilities, using tax rates enacted or substantively enacted at the reporting date. Current deferred tax assets and liabilities are offset in the separate financial statements.

A deferred tax asset is recognised to the extent that it is probable that future taxable profits will be available against which the temporary differences can be utilised. Deferred tax assets are reviewed at each reporting date and reduced to the extent that it is no longer probable that the related tax benefit will be realised.

(u) Earnings (loss) per share

Basic earnings (loss) per share (EPS) is calculated by dividing the profit or loss attributable to ordinary shareholders of the Company by the weighted average number of ordinary shares outstanding during the period, adjusted for own shares held.

4 Acquisition of businesses

On 29 December 2021, the Group acquired a 100% share of Allnex Holding GmbH, who is a leader in special coating resins and crosslinkers business, for a cash consideration of Euro 3,561 million or approximately equivalent to Baht 136,741 million. The purchase under this condition is in accordance with TFRS 3 Business Combinations, and requires the recognition of assets, liabilities and contingent liabilities acquired at the acquisition date at fair value. The Group hired an independent appraiser to determine the fair value of assets and liabilities acquired during the measurement period, which must not exceed one year from the acquisition date to reflect new information obtained about facts and circumstances that existed as of the acquisition date. As at 31 December 2021, the review has not yet been completed and therefore the determination of the fair values and the allocation of the purchase price were determined provisionally.

Subsequently in 2022, the fair value measurements of assets and liabilities acquired have been completed. Therefore, the fair values of assets and liabilities acquired have been adjusted to reflect the final fair value determination. This adjustment is in accordance with the accounting adjustment condition for business acquisition.

PTT GLOBAL CHEMICAL PUBLIC COMPANY LIMITED AND ITS SUBSIDIARIES
FOR THE YEAR ENDED DECEMBER 31, 2022

The following summarises the major classes of consideration transferred, and the recognised amounts of assets and liabilities acquired at the acquisition date:

	Fair value <i>(in million Baht)</i>
Cash and cash equivalents	4,068
Trade accounts receivable	8,261
Other receivables	1,668
Inventories	18,599
Investments in joint ventures	722
Non-current financial assets	191
Property, plant and equipment	38,741
Right-of-use assets	2,774
Intangible assets	56,959
Deferred tax assets	2,105
Other assets	260
Short-term borrowings	(12,717)
Trade accounts payable	(12,020)
Other payables	(8,568)
Long-term borrowings	(9,358)
Lease liabilities	(1,902)
Deferred tax liabilities	(20,004)
Provisions for employee benefits	(4,638)
Other liabilities	(2,884)
Total identifiable net assets	62,257
Less Non-controlling interest	(1,126)
Total identifiable net assets received	61,131
Loss on derivatives	820
Goodwill	74,790
Total consideration transferred	136,741
Net cash received from acquisition in subsidiary	(4,068)
Net consideration	132,673

Acquisition-related costs

The Group incurred acquisition-related costs of Baht 1,461 million related to external legal fees and due diligence costs. The legal fees and due diligence costs have been included in administrative expenses in the Group's consolidated statement of income in the period that the transaction occurred.

NOTES TO THE FINANCIAL STATEMENTS

5 Transfers of businesses

At the Board of Directors' meeting, held on 13 December 2021, the Board approved the acquisition of the entire or part of the business and the dissolution of the direct and indirect subsidiaries with 100% shareholding by the Company. The group business restructuring will better support the Company's long-term strategy including the business expansion internationally, sales and development of High Value Products, enhancing the Company's governance efficiency of group of companies both domestically and internationally, and also support the Company's Sustainability strategy.

The acquisition of the entire businesses of GC Glycol Co.,Ltd. and GC Styrenics Co.,Ltd.

The acquisition of the entire businesses of GC Glycol Co.,Ltd. and GC Styrenics Co.,Ltd. is part of the business restructuring plan which is effective under the law on 1 July 2022.

The details of the consideration transferred and the carrying values of assets and liabilities as at 1 July 2022 were as follows:

	GC Glycol Co.,Ltd.	GC Styrenics Co.,Ltd. <i>(in million Baht)</i>	Total
Cash and cash equivalents	2,099	43	2,142
Trade accounts receivable	1,736	345	2,081
Inventories	841	680	1,521
Investment in subsidiaries	2,469	-	2,469
Property, plant and equipment	8,555	150	8,705
Right-of-use assets	115	134	249
Intangible assets	138	-	138
Deferred tax asset	45	6	51
Others	567	82	649
Total assets	16,565	1,440	18,005
Short-term loans from related parties	-	(559)	(559)
Trade accounts payable	(1,009)	(339)	(1,348)
Accrued dividends	(8,970)	(127)	(9,097)
Provisions for employee benefits	(98)	(30)	(128)
Others	(555)	(168)	(723)
Total liabilities	(10,632)	(1,223)	(11,855)
Net carrying values of net assets acquired/			
Net consideration transferred	5,933	217	6,150
Less Cash and cash equivalents	(2,099)	(43)	(2,142)
Net cash paid from transfers of businesses	3,834	174	4,008

Both subsidiaries had registered to dissolve the business with Department of Business Development, Ministry of Commerce on 31 August 2022. As at 31 December 2022, both subsidiaries are in the process of liquidation (Note 10).

The acquisition of the partial businesses of GC Marketing Solutions Co., Ltd. and Solution Creation Co., Ltd.

The acquisition of the partial businesses of GC Marketing Solutions Co., Ltd. and Solution Creation Co., Ltd. is part of the business restructuring plan which is effective under the law on 1 September 2022.

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The details of the consideration transferred and the carrying values of assets and liabilities as at 1 September 2022 were as follows:

	GC Marketing Solutions Co., Ltd.	Solution Creation Co., Ltd. <i>(in million Baht)</i>	Total
Cash and cash equivalents	117	8	125
Trade accounts receivable	7,573	68	7,641
Inventories	135	105	240
Investments in subsidiaries	-	48	48
Investments in joint ventures	-	270	270
Investments in associates	-	294	294
Property, plant and equipment	15	-	15
Right-of-use assets	23	-	23
Intangible assets	17	1	18
Others	31	2	33
Total assets	7,911	796	8,707
Trade accounts payable	(6,321)	(52)	(6,373)
Other payables	(441)	(10)	(451)
Deferred tax liabilities	-	(5)	(5)
Provisions for employee benefits	(117)	(8)	(125)
Others	(23)	-	(23)
Total liabilities	(6,902)	(75)	(6,977)
Net carrying values of net assets acquired	1,009	721	1,730
Change in fair value of financial assets reserve, net of tax	-	(19)	(19)
Value-added tax receivable	13	-	13
Difference arising from business combination under common control	16	21	37
Net consideration transferred	1,038	723	1,761
<i>Less</i> Cash and cash equivalents	(117)	(8)	(125)
Net cash paid from transfers of businesses	921	715	1,636

NOTES TO THE FINANCIAL STATEMENTS

6 Related parties

A related party is a person or entity that has direct or indirect control or joint control, or has significant influence over the financial and managerial decision-making of the Group; a person or entity that is under common control or under the same significant influence as the Group; or a person or entity over which the Group has direct or indirect control or joint control or has significant influence over the financial and managerial decision-making.

Relationships with parent, subsidiaries, associates and joint ventures are described in notes 1, 10 and 11. Other related parties which the Group had significant transactions with during the year were as follows:

Name of entities	Country of incorporation/ nationality	Nature of relationships
Thai Fatty Alcohols Co., Ltd.	Thailand	Indirect subsidiary, 100% shareholding by subsidiary
PL Global Transport Co., Ltd.	Thailand	Indirect subsidiary, 100% shareholding by the Group and the Company's management as director
NPC S&E Security Guard Co., Ltd.	Thailand	Indirect subsidiary, 100% shareholding by the Group
Vencorex (Thailand) Co., Ltd.	Thailand	Indirect subsidiary, 100% shareholding by indirect subsidiary
Allnex (Thailand) Ltd.	Thailand	Indirect subsidiary, 94.96% shareholding by the Group
GC International Corporation	United States of America	Indirect subsidiary, 100% shareholding by the Group and the Company's management as director
GC Marketing Solutions (Shanghai) Co., Ltd.	China	Indirect subsidiary, 100% shareholding by the Group
GC Marketing Solutions Myanmar Co., Ltd.	Myanmar	Indirect subsidiary, 100% shareholding by the Group
GC Marketing Solutions Vietnam Co., Ltd.	Vietnam	Indirect subsidiary, 100% shareholding by the Group
PT GCM Marketing Solutions Indonesia	Indonesia	Indirect subsidiary, 100% shareholding by the Group
PTTGC America LLC	United States of America	Indirect subsidiary, 100% shareholding by the Group and the Company's management as director
PTTGC International (Netherlands) B.V.	Netherlands	Indirect subsidiary, 100% shareholding by the Group, common director and the Company's management as director
Vencorex Holding	France	Indirect subsidiary, 100% shareholding by subsidiary and the Company's management as director
GHECO-One Co., Ltd.	Thailand	Other related party, indirect shareholding by parent company
Global Power Synergy Plc.	Thailand	Other related party, 10% shareholding, shareholding by parent company, and common director
Glow Energy Public Co., Ltd.	Thailand	Other related party, indirect shareholding by parent company
Glow SPP 2 Co., Ltd.	Thailand	Other related party, indirect shareholding by parent company
Glow SPP 3 Co., Ltd.	Thailand	Other related party, indirect shareholding by parent company

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Name of entities	Country of incorporation/ nationality	Nature of relationships
Glow SPP 11 Co., Ltd.	Thailand	Other related party, indirect shareholding by parent company
Glow IPP Co., Ltd.	Thailand	Other related party, indirect shareholding by parent company
Trans Thai-Malaysia (Thailand) Limited	Thailand	Other related party, indirect shareholding by parent company
TOPNEXT International Co., Ltd. (Formerly TOP Solvent Co., Ltd.)	Thailand	Other related party, indirect shareholding by parent company
Thai Petroleum Pipeline Co., Ltd.	Thailand	Other related party, indirect shareholding by parent company
Thai Oil Plc.	Thailand	Other related party, shareholding by parent company
Nuovo Plus Co., Ltd.	Thailand	Other related party, indirect shareholding by parent company
Business Services Alliance Co., Ltd.	Thailand	Other related party, shareholding by parent company, the Company and two Company's associates, each of 25% shareholding of preferred stock, and common director
PTT Oil and Retail Business Plc.	Thailand	Other related party, shareholding by parent company
PTTEP Siam Limited	Thailand	Other related party, indirect shareholding by parent company
PTTEP Energy Development Co., Ltd.	Thailand	Other related party, indirect shareholding by parent company
PTT Exploration and Production Plc.	Thailand	Other related party, shareholding by parent company
Combined Heat and Power Producing Co., Ltd.	Thailand	Other related party, shareholding by parent company
PTT Tank Terminal Limited	Thailand	Other related party, shareholding by parent company
PTT LNG Co., Ltd.	Thailand	Other related party, shareholding by parent company
Sak Chaisidhi Co., Ltd.	Thailand	Other related party, indirect shareholding by parent company
Sport Services Alliance Co., Ltd.	Thailand	Other related party, indirect shareholding by parent company
Sarn Palung Social Enterprise Co., Ltd.	Thailand	Other related party, 15% shareholding and shareholding by parent company
Eastern Fluid Transport Co., Ltd.	Thailand	Associate, 15% shareholding by the Company and 15% shareholding by subsidiary until November 2022. Subsequently, other related party
UBE Chemicals (Asia) Plc.	Thailand	Other related party, indirect shareholding by parent company
Energy Complex Co., Ltd.	Thailand	Other related party, shareholding by parent company
IRPC Plc.	Thailand	Other related party, shareholding by parent company
IRPC Polyol Co., Ltd.	Thailand	Other related party, indirect shareholding by parent company

NOTES TO THE FINANCIAL STATEMENTS

Name of entities	Country of incorporation/ nationality	Nature of relationships
PT.Tirta Surya Raya	Indonesia	Other related party, indirect shareholding by parent company
PTT Green Energy Pte. Ltd.	Singapore	Other related party, shareholding by parent company
PTT International Trading London Ltd.	England	Other related party, shareholding by parent company
PTT International Trading Pte. Ltd.	Singapore	Other related party, shareholding by parent company
PTT International Trading USA Inc.	United States of America	Other related party, shareholding by parent company
PTT MEA Ltd.	United Arab Emirates	Other related party, indirect shareholding by parent company
PTT Treasury Center Co., Ltd.	Thailand	Other related party, shareholding by parent company
TOP Solvent (Vietnam) LLC.	Vietnam	Other related party, indirect shareholding by parent company
TPBI & Myanmar Star Co., Ltd.	Myanmar	Other related party, shareholding by subsidiary

<i>Significant transactions with related parties</i> <i>Year ended 31 December</i>	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
	<i>(in million Baht)</i>			
Parent				
Sales of goods or rendering of services	12,431	19,503	12,176	19,375
Purchases of goods or receiving of services	377,709	272,177	376,307	271,128
Gain from sale of investment in an associate	-	10,056	-	10,522
Other income	64	12	64	12
Interest expense	20	18	19	16
Other expenses	57	160	56	152
Expense capitalised to fixed assets	1	138	1	136
Subsidiaries				
Sales of goods or rendering of services	-	-	127,707	137,451
Purchases of goods or receiving of services	-	-	7,021	3,933
Net derivative gain	-	-	-	75
Interest income	-	-	3,598	81
Dividend income	-	-	14,187	11,010
Other income	-	-	1,578	1,298
Interest expense	-	-	4,487	2,181
Other expense	-	-	1,720	1,481
Expense capitalised to fixed assets	-	-	2,506	2,088

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Significant transactions with related parties Year ended 31 December	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
	<i>(in million Baht)</i>			
Joint ventures				
Sales of goods or rendering of services	15,230	11,531	9,175	4,842
Purchases of goods or receiving of services	4,923	4,166	1,475	260
Interest income	32	15	30	13
Dividend income	-	-	874	828
Other income	94	1,493	73	80
Interest expense	32	-	21	-
Other expense	10	16	-	1
Income capitalised to fixed assets	-	(71)	-	(71)
Associates				
Sales of goods or rendering of services	8,504	6,098	7,026	4,903
Purchases of goods or receiving of services	922	6,444	403	3,160
Dividend income	1	4	1,131	967
Other income	163	186	159	186
Interest expense	-	1	-	1
Other expense	604	452	540	359
Expense / (income) capitalised to fixed assets	100	(279)	67	(315)
Other related parties				
Sales of goods or rendering of services	253,726	167,850	244,142	156,606
Purchases of goods or receiving of services	52,449	19,142	38,698	14,205
Gain from sale of investment in an associate	-	1,778	-	1,861
Net derivative loss	(1,406)	(205)	(1,406)	(205)
Dividend income	341	141	341	141
Other income	100	141	100	137
Interest expense	209	22	207	21
Other expense	284	347	218	236
Expense / (income) capitalised to fixed assets	4	5	4	(2)
Key management personnel				
Key management personnel compensation				
Short-term employee benefit	450	316	194	164
Post-employment benefits and other long-term benefits	6	7	5	5
Total key management personnel compensation	456	323	199	169

Balances with related parties At 31 December	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
	<i>(in million Baht)</i>			
Trade accounts receivables				
Parent	1,116	2,063	1,054	2,011
Subsidiaries	-	-	5,461	12,785
Joint ventures	1,710	1,764	1,283	441
Associates	713	841	595	633
Other related parties	14,128	13,402	13,617	12,528
Total	17,667	18,070	22,010	28,398

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<i>Balances with related parties At 31 December</i>	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
	<i>(in million Baht)</i>			
<i>Other receivables</i>				
Parent	400	497	400	497
Subsidiaries	-	-	1,181	3,267
Joint ventures	33	42	24	29
Associates	21	40	19	39
Other related parties	471	318	378	173
Total	925	897	2,002	4,005
<i>Derivatives - Current assets</i>				
Other related parties	200	79	200	79
Total	200	79	200	79
<i>Short-term loans to</i>				
Subsidiaries	-	-	13,325	2,829
Total	-	-	13,325	2,829
<i>Long-term loans to</i>				
Subsidiaries	-	-	49,115	103,088
Joint ventures	788	762	788	762
Total	788	762	49,903	103,850
Less current portion	(584)	(53)	(49,699)	(53)
	204	709	204	103,797
<i>Trade accounts payable</i>				
Parent	38,281	47,288	38,177	47,164
Subsidiaries	-	-	407	166
Joint ventures	254	372	213	14
Associates	85	102	39	35
Other related parties	3,724	3,121	2,966	2,207
Total	42,344	50,883	41,802	49,586
<i>Other payables</i>				
Parent	191	103	189	99
Subsidiaries	-	-	2,055	1,504
Joint ventures	42	8	16	2
Associates	463	141	145	93
Other related parties	184	379	148	341
Total	880	631	2,553	2,039
<i>Derivatives - Current liabilities</i>				
Other related parties	33	86	33	86
Total	33	86	33	86
<i>Payables to contractors</i>				
Subsidiaries	-	-	1,454	1,135
Associates	34	57	19	56
Other related parties	4	5	4	4
Total	38	62	1,477	1,195

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Balances with related parties At 31 December	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
	<i>(in million Baht)</i>			
Lease liabilities				
Parent	545	560	500	529
Subsidiaries	-	-	5	490
Joint ventures	13,768	6	9,598	-
Associates	-	14	-	7
Other related parties	207	250	153	176
Total	14,520	830	10,256	1,202
Short-term loans from				
Subsidiaries	-	-	2,154	10,089
Total	-	-	2,154	10,089
Long-term loans from				
Subsidiaries	-	-	90,676	68,042
Other related parties	-	55,600	-	55,600
Total	-	55,600	90,676	123,642
Less current portion	-	-	-	(16,645)
	-	55,600	90,676	106,997

Significant agreements with related parties

As at 31 December 2022, significant agreements with related parties are as follows:

Olefins Sales and Purchase Agreements

The Company has 3 Ethylene sales and purchase agreements with 2 related parties. Selling prices are determined based on Ethylene price in the world market. One agreement is for the period of 10 years commencing from the effective date specified in each agreement and expiring in December 2031 and two agreements are for the period of 10 years and 15 years, starts from the plant commercial operation date.

The Company has 5 Propylene sales and purchase agreements with 3 related parties. Selling prices are determined based on Polypropylene plastic pellets and Propylene prices in the world market. Four agreements are for the periods from 4 years to 15 years, commencing from the effective date specified in each agreement and expiring from December 2024 to December 2035 and another agreement is for the period of 15 years, starts from the plant commercial operation date.

The Company has a Butadiene sales and purchase agreement with a related party. Selling prices are determined based on Butadiene price in the world market. The agreement is for the period of 15 years, starts from the plant commercial operation date.

Ethylene Oxide Sales and Purchase Agreement

The Company has 2 Ethylene Oxide sale and purchase agreements with 2 related parties. Selling price is determined based on Ethylene price prevailing in the world market. The agreements are for the period of 15 years, commencing from the date as specified in the agreement and will expire in March 2031 and August 2035, respectively. The agreements are automatically renewed and can be terminated by advance cancellation not less than 2 years through written notice to the counterparty.

NOTES TO THE FINANCIAL STATEMENTS

Monoethylene Glycol Sales and Purchase Agreement

The Company has a Monoethylene Glycol sale and purchase agreement with a related party. Selling prices are charged under the conditions as specified in the agreement. The agreement is for the period of 2 years, commencing from the date as specified in the agreement and will expire in December 2024.

By-Product Sales and Purchase Agreements

The Company has Hydrogen sales and purchase agreements with 3 related parties. Selling price in the agreements are determined based on Natural Gas price for the industry. These agreements are for the periods from 9 years 9 months to 15 years, commencing from the date as specified in each agreement and expiring from March 2024 to December 2035.

The Company has a Tail Gas sales and purchase agreement with a related party. Selling price in the agreement is determined based on Natural Gas price for the industry. The agreement is for the period of 15 years, commencing from the date as specified in the agreement, which is subsequently extended for an additional 15 years expiring in August 2036.

Utilities and Other Services Agreements

The Company has 2 Power Supply agreements with 2 related parties. Selling prices in these agreements are determined based on reference price from the Provincial Electricity Authority. These agreements are for the periods of 2 years and 15 years, commencing from the date as specified in each agreement and expiring in September 2024 and June 2027, respectively.

The Company has 8 Utilities agreements covering electricity, steam and demineralised water with a related party. These agreements are for the periods from 12 years to 19 years 9 months, commencing from the date as specified in each agreement and expiring in December 2028.

The Company and subsidiaries have many Utilities agreements for the industries covering electricity, steam, and water for industrial use with 2 related parties. These agreements are for the periods from 1 year to 25 years, commencing from the date as specified in each agreement and expiring from December 2023 to June 2045 and one agreement is automatically renewed except for a cancellation through written notice by either party.

The Company has Tank Farm Storage and Service Agreements with related parties covering utilities and transportation of product. These agreements are for the periods from 10 years to 20 years, commencing from the effective date as specified in the agreement and expiring from December 2031 to March 2039, with the service charge as stipulated in the agreement.

Feedstock and Fuel Gas Sales and Purchase Agreements

The Company and 2 subsidiaries have various Natural Gas sales and purchase agreements with a parent company. The agreements are for the period from 1 year to 25 years, commencing from the date as specified in the agreement and expiring from March 2023 to December 2047.

The Company has an Ethane, Propane, LPG and NGL sales and purchase agreement with a parent company. Selling price in the agreement for Ethane is determined based on Polyethylene plastic pellets price. Selling price for Propane and LPG is determined based on Propane and Butane price in the world market and selling price for NGL is determined based on Naphtha price in the world market. The agreement is for the period of 11 years, commencing from the date as specified in the agreement and expiring in December 2030.

The Company has an Ethane Rich Gas sales and purchase agreement with a related party. The selling price is determined based on Polyethylene plastic pellets, Olefins, and Propane price in the world market and Natural gas price in Thailand. The agreement is for the period of 9 years 7 months, commencing from the date as specified in the agreement and expiring in December 2030.

The Company has an Ammonia sale and purchase agreement with a related party. Selling price is charged under the conditions as specified in the agreement. The agreement is for the period of 10 years, commencing from the date as specified in the agreement and will expire in January 2023. The agreement can be terminated by advance cancellation through written notice to the counterparty.

Petroleum Product Offtake Agreement

The Company has a Petroleum Product sales and purchase agreement with a parent company and a related party. For domestic sales, the product price reflects prices prevailing in Thailand for products of a similar quality that are sold in or imported to Thailand. For export sales, the product price reflects the prevailing international spot price for that product. This agreement is for the period of 18 years, commencing from the date as specified in the agreement and expiring in February 2024. The agreement is automatically renewed except for advance cancellation through written notice by each party.

Expansion Phase Product Offtake Agreement

The Company has an expansion phase product offtake agreement with a parent company and a related party, under which a parent company and a related party agree to purchase 100% of the volume of refined petroleum products produced by reforming and upgrading complexes. As specified in the Product Offtake Agreement, at least 50% - 80% of such volume will be sold at a competitive domestic market price and the remaining sold at a competitive export market price or other mutually agreed price. The agreement is for the period of 18 years, commencing from the date as specified in the agreement and expiring in February 2024. The agreement is automatically renewed except for advance cancellation through written notice by each party.

Long-term Crude Oil and Other Raw materials Supply Agreements

The Company has entered into 2 supply agreements for crude oil and other raw materials with a parent company, the reference price being based on market price of crude oil and other raw materials. One agreement is for the period of 18 years, will expire in February 2024 and another agreement is for the period of 20 years, was automatically renewed and will expire in December 2023. These agreements are automatically renewed except for advance cancellation through written notice by each party.

Crack Spread Swap Agreements

The Company has entered into many crack spread swap agreements with a related party to hedge the Company's oil refinery margin. The floating amount of the basket refinery margin (calculated crack spread based on the Singapore price of refined petroleum products, which are Naphtha, Gasoline, Gasoil, Kerosene and Fuel Oil, against the price of Dubai crude oil) is swapped for a fixed amount of the basket refinery margin for a fixed quantity per month. Under the agreements, the Company shall receive or make payment for the crack spread difference according to terms and conditions stipulated in the agreements.

Sales and Purchase Aromatics Product Agreements

The Company has entered into many raw material and product sales and purchase agreements with certain related parties. The sales and purchase prices of raw material and product are based on the prices specified in the agreements. These agreements are for the periods from 1 year to 11 years 9 months, commencing from the effective date as specified in each agreement. The agreements will expire from March 2023 to December 2026. Other agreements are automatically renewed except in the event of a cancellation through written notice by each party.

Lending and Borrowing Agreements

The Company has unsecured short-term lending agreements for the period of 3 years through Liquidity Management System ("LMS") with 7 related parties with the credit facilities between THB 20 million to THB 3,500 million. These loans bear interest based on market rates referenced to BIBOR O/N plus an interest rate spread.

NOTES TO THE FINANCIAL STATEMENTS

The Company has a secured long-term lending agreement for the period of 7 years with a related party with a credit facility of USD 7.90 million. This loan bears interest at a fixed rate.

The Company has an unsecured long-term lending agreement for the period of 2 years with a related party with the credit facility of USD 17 million. This loan bears interest based on market rate referenced to LIBOR plus interest rate spread.

The Company has an unsecured long-term lending agreement for the period of 2 years minus 6 days with a related party with the credit facility of EUR 2,321 million. This loan bears interest at the fixed rate.

The Company has an unsecured long-term lending agreement for the period of 1 year with a related party with a credit facility of THB 12,779.60 million. This facility bears interest based on market rate referenced to THBFIX plus interest rate.

The Company has unsecured short-term borrowing agreements for the period of 3 years through LMS with 7 related parties with the credit facility between THB 50 million to THB 800 million. These loans bear interest based on market rate referenced to BIBOR O/N minus interest rate spread.

The Company has an unsecured long-term borrowing agreement for the period of 10 years with a related party with the credit facility of USD 690.75 million. This loan bears interest at the fixed rate.

The Company has an unsecured long-term borrowing agreement for the period of 30 years with a related party with the credit facility of USD 541.25 million. This loan bears interest at the fixed rate.

The Company has an unsecured long-term borrowing agreement for the period of 8 years with a related party with the credit facility of USD 100 million. This loan bears interest based on market rate referenced to LIBOR plus interest rate spread.

The Company has an unsecured long-term lending agreement for the period of 10 years with a related party with a credit facility of USD 994.09 million. This loan bears interest at a fixed rate.

The Company has an unsecured long-term lending agreement for the period of 30 years with a related party with a credit facility of USD 298.28 million. This loan bears interest at a fixed rate.

The Company has an uncommitted and unsecured short-term Inter-Company Borrowing & Lending agreement (ICBL) for the period of 1 year with a parent company with the borrowing credit facility of Baht 10,000 million and lending credit facility of Baht 3,500 million. The agreement was expired on 19 December 2022 and has been extended for an additional period until 19 December 2023. This facility bears interest based on market rate referenced to BIBOR or LIBOR plus interest rate plus the interest rate difference depending on the loan currency or other appropriate interest rates as determined by the lender if changes in market conditions spread by taking into account the return on short-term investment, short-term interest rate and the credit ratings of the Company or the borrowing company.

The Company has an uncommitted and unsecured short-term Inter-Company Borrowing & Lending agreement (ICBL) for the period of 3 year with a related party with a borrowing credit facility of Baht 300 million and a lending credit facility of Baht 300 million. The agreement will expire on 20 February 2025. This facility bears interest based on market rates referenced to BIBOR or SOFR plus interest rate spread by taking into account the return on short-term investment, short-term interest rate and the credit ratings of the Company or the borrowing company.

Service Agreements

The Company has Shared Service agreements with 29 related parties for the provision of general services. All of these agreements are effective from the date as specified in the agreements and the service charges will be agreed in the fourth quarter of each year.

The Company has Management and Engineering agreement, Design, Supply, Construction and Installation agreement, Inspection of Construction, Equipment and Machinery agreement and Management and Maintenance Work agreement with a related party. These agreements are for the periods from 1 year 2 months to 5 years, commencing from the date as specified in the agreements and expiring in June 2023.

The Company has a Security Service agreement with a related party. Under which the related party agrees to provide security service to asset, employees and visitors in the location of the Company. The agreement is for the period of 2 years and will expire in December 2024.

The Company has a Safety Inspection Service agreement and an Emergency Control Center agreement with a related party. These agreements are for the period from 2 years to 3 years and will expire in December 2023 and 2024 with service rate as stipulated in the agreements.

The Company has Warehouse Management agreements with a related party. The agreements are for the periods from 21 year to 21 years 3 months and expiring in December 2030.

The Company has a Logistics Services agreement with a related party. The agreement is for the period of 2 years 9 months and will expire in December 2023.

The Company has entered into Information and Communication Technology Service agreements with a related party. Under which the related party agrees to provide Information Technology system maintenance and support services, system structure and data centre management, system supporting and advisory, including system design and development as the Company's requirements. These agreements are for the periods from 1 year to 15 years, commencing from the date as specified in each agreement and expiring in December 2027.

Rental Agreements

The Company has various Land Lease agreements with related parties. These agreements are for the periods from 14 years to 30 years, commencing from the date as specified in the agreements, and expiring from February 2029 to June 2040 with land lease rate and condition as specified in the agreements.

A subsidiary has Land Lease and Office Rental agreements with 6 related parties. These agreements are for the periods from 3 years to 30 years, commencing from the date as specified in the agreements, and expiring from August 2023 to July 2043. The renewal of the contract will be subject to negotiation with the counter party.

7 Cash and cash equivalents

	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
	<i>(in million Baht)</i>			
Cash on hand	2	2	2	2
Cash at banks	25,023	53,345	4,878	33,254
Highly liquid short-term investments	915	2,266	306	48
Total	25,940	55,613	5,186	33,304

NOTES TO
THE FINANCIAL STATEMENTS

8 Trade accounts receivables

<i>At 31 December</i>	<i>Note</i>	Consolidated financial statements		Separate financial statements	
		2022	2021	2022	2021
		<i>(in million Baht)</i>			
Related parties	6	17,667	18,070	22,010	28,398
Other parties		27,820	32,619	8,459	3,965
Total		45,487	50,689	30,469	32,363
Less allowance for expected credit loss		(233)	(149)	(19)	(19)
Net		45,254	50,540	30,450	32,344
Related parties					
Within credit terms		17,431	17,961	21,758	28,397
Overdue:					
Less than 3 months		198	98	166	1
3 - 6 months		23	6	21	-
6 - 12 months		3	5	55	-
Over 12 months		12	-	10	-
Total		17,667	18,070	22,010	28,398
Other parties					
Within credit terms		26,006	31,357	8,016	3,615
Overdue:					
Less than 3 months		1,465	1,074	423	331
3 - 6 months		117	43	1	-
6 - 12 months		53	26	-	-
Over 12 months		179	119	19	19
Total		27,820	32,619	8,459	3,965
Less allowance for expected credit loss		(233)	(149)	(19)	(19)
Net		45,254	50,540	30,450	32,344
Allowance for expected credit loss					
At 1 January		(149)	(59)	(19)	(19)
Addition		(121)	(90)	(2)	-
Reversal		23	-	2	-
Write-off		14	-	-	-
At 31 December		(233)	(149)	(19)	(19)

The normal credit term granted by the Group ranges from 7 days to 135 days

PTT GLOBAL CHEMICAL PUBLIC COMPANY LIMITED AND ITS SUBSIDIARIES
FOR THE YEAR ENDED DECEMBER 31, 2022

9 Inventories

	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
	<i>(in million Baht)</i>			
Finished goods	39,869	32,871	21,869	13,962
Work in progress	3,739	2,686	2,312	1,503
Raw materials	18,360	16,184	10,306	9,718
Factory supplies and spare parts	14,765	13,433	11,098	9,572
Goods in transit	3,082	7,120	1,392	2,734
Total	79,815	72,294	46,977	37,489
Less Allowance for decline in value	(2,105)	(245)	(1,752)	(227)
Allowance for obsolescence	(1,091)	(496)	(920)	(282)
Net	76,619	71,553	44,305	36,980
Inventories recognised as an expense				
in cost of sales of goods				
- Cost of sales	623,764	407,048	477,573	348,488
- Write-down to net realisable value	1,860	217	1,521	224
Net	625,624	407,265	479,094	348,712

As at 31 December 2022 and 2021, the Company's inventories included petroleum legal reserve of 332 million liters with approximated value of Baht 7,170 million and 246 million liters with approximated value of Baht 4,104 million, respectively.

Separate financial statements

Subsidiaries		2017		2016		2015		2014		2013		2012		2011		2010	
		(%)	(in million Baht)	(%)	(in million Baht)	(%)	(in million Baht)	(%)	(in million Baht)	(%)	(in million Baht)	(%)	(in million Baht)	(%)	(in million Baht)	(%)	(in million Baht)
Global Green Chemicals Plc.	Manufacturing and distributing biochemical products	72	7,400	72	7,400	-	-	-	7,400	-	-	8,362	10,952	7,400	-	444	259
	Manufacturing and distributing petrochemical products	100	5,395	100	5,395	-	-	-	-	-	-	-	-	5,395	-	9,240	-
GC Glycol Co., Ltd. (In process of liquidation)	Manufacturing and distributing petrochemical products	82	3,286	82	3,286	-	-	-	3,286	-	-	-	-	3,286	-	-	-
	Development, marketing and distributing polymers products, by-products and other polymers-related products	100	467	99	451	-	-	-	467	-	-	-	-	451	-	1,294	315
GC Maintenance and Engineering Co., Ltd.	Factory maintenance and engineering services	100	155	100	155	-	-	-	155	-	-	-	-	155	-	-	266
	Transportation, warehouse and bagging packing management for chemical business and other products	100	1,639	99	1,607	-	-	-	1,639	-	-	-	-	1,607	-	30	30

NOTES TO THE FINANCIAL STATEMENTS

PTT GLOBAL CHEMICAL PUBLIC COMPANY LIMITED AND ITS SUBSIDIARIES
FOR THE YEAR ENDED DECEMBER 31, 2022

Separate financial statements

	Type of business	Country of operation	Ownership Interest (%)		Cost		Impairment		At cost - net		Fair value of listed securities		Dividend income	
			2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021
			<i>(in million Baht)</i>											
GC Ventures Co., Ltd	Invest in form of Corporate Venture Capital (CVC)	Thailand	100	100	1,308	782	(122)	(36)	1,186	746	-	-	-	-
GC Treasury Center Co., Ltd.	Financial service management for the group	Thailand	100	100	10	10	-	-	10	10	-	-	52	19
GC Styrenics Co., Ltd. (In process of liquidation)	Manufacturing and distributing petrochemical products	Thailand	100	100	5	190	-	-	5	190	-	-	127	-
GC Oxirane Co., Ltd.	Manufacturing and distributing petrochemical products	Thailand	100	100	7,537	7,537	-	-	7,537	7,537	-	-	-	-
GC-M PTA Co., Ltd.	Manufacturing and distributing petrochemical products	Thailand	100	100	4,384	2,903	-	-	4,384	2,903	-	-	-	-
GC Estate Co., Ltd.	Real estate development for rent and to invest and operating a water production plant for use in petrochemical and related industries	Thailand	74	49	7,200	7,200	-	-	7,200	7,200	-	-	-	-
Solution Creation Co., Ltd.	Manufacturing and distributing petrochemical products, health and nutrition products and distributing circular products	Thailand	100	100	212	826	-	-	212	826	-	-	-	-

NOTES TO THE FINANCIAL STATEMENTS

PTT GLOBAL CHEMICAL PUBLIC COMPANY LIMITED AND ITS SUBSIDIARIES
FOR THE YEAR ENDED DECEMBER 31, 2022

Separate financial statements

	Type of business	Country of operation	Ownership Interest (%)	Cost	Impairment	At cost - net	Fair value of listed securities	Dividend income
				2022	2022	2021	2022	2021
						(in million Baht)		
Thai Tank Terminal Limited	Service for the storage and handling of liquid chemicals, oil and gas	Thailand	-	-	-	459	-	265
Thai PET Resin Co., Ltd.	Manufacturing and distributing chemical products	Thailand	44*	988	-	988	-	541
PTT Phenol Co., Ltd.	Manufacturing and distributing petrochemical products	Thailand	100	13,155	-	13,155	-	-
NPC Safety and Environmental Service Co., Ltd.	Safety and environmental services	Thailand	100	165	-	165	-	2,735
ENVICCO Limited	Manufacturing, distributing and developing recycled plastic and by-products	Thailand	100	165	-	165	-	9,580
PTTGC America Corporation	Holding and operating international business	USA	70	756	-	756	-	-
PTTGC International Private Limited	Holding and operating international business	Singapore	100	5,370	-	5,370	-	-
Total investments in subsidiaries			100	121,037	(14,106)	106,931	-	-
				175,074	(14,228)	160,846	10,952	14,187
							8,362	11,010

* Thai PET Resin Co., Ltd. was 44.4 percent held by the Company and 40 percent held by GC-M PTA Co., Ltd. (100% Subsidiary).

PTT GLOBAL CHEMICAL PUBLIC COMPANY LIMITED AND ITS SUBSIDIARIES
FOR THE YEAR ENDED DECEMBER 31, 2022

Material movements for the years ended 31 December	Note	Separate financial statements	
		2022	2021
		<i>(in million Baht)</i>	
Subsidiaries			
Increase capital in GC Polyols Co., Ltd.		-	254
Increase capital in GC Ventures Co., Ltd.		526	215
Increase capital in GC Oxirane Co., Ltd.		-	402
Increase capital in ENVICCO Limited		38	529
Increase capital in PTTGC America Corporation		199	113
Increase capital in PTTGC International Private Limited		56,998	33,162
Acquisition from transfers of businesses:			
- GC Marketing Solutions Co., Ltd.	5	16	-
- GC Logistics Solutions Co., Ltd.	5	32	-
- GC-M PTA Co., Ltd.	5	1,481	-
- Thai PET Resin Co., Ltd.	5	988	-
Capital return of Solution Creation Co., Ltd.		(614)	-
Change in ownership interest in Thai Tank Terminal Limited	11	(459)	-
Dissolution of GC Glycol Co., Ltd.		(5,395)	-
Dissolution of GC Styrenics Co., Ltd.		(185)	-
Impairment loss on GC Ventures Co., Ltd.		(86)	(36)
Impairment loss on PTTGC International Private Limited		-	(3,817)

GC Polyols Co., Ltd.

On 17 December 2020, GC Polyols Co., Ltd. a subsidiary of the Company, has called for an increase in paid-up capital approved in the 2020 Annual General Meeting of shareholders of the subsidiary held on 8 April 2020 for conducting a Polyols & PU System Project totalling Baht 254.02 million. The amount was fully paid in January 2021.

GC Ventures Co., Ltd.

During the year ended 31 December 2022, GC Ventures Co., Ltd., a subsidiary of the Company, has called for an increase in paid-up capital approved in the 2021 Extraordinary Annual General Meeting of shareholders of the subsidiary held on 5 July 2021 and the 2022 Annual General Meeting of shareholders of the subsidiary held on 23 March 2022 for investment in Corporate Venture Capital (CVC) totalling Baht 526.39 million. The amount was fully paid during the year ended 31 December 2022.

During the year ended 31 December 2021, GC Ventures Co., Ltd., a subsidiary of the Company, has called for an increase in paid-up capital approved in the 2020 Annual General Meeting of shareholders of the subsidiary held on 19 March 2020, the 2021 Annual General Meeting of shareholders of the subsidiary held on 30 March 2021 and the 2021 Extraordinary Annual General Meeting of shareholders of the subsidiary held on 5 July 2021 for investment in Corporate Venture Capital (CVC) totalling Baht 214.54 million. The amount was fully paid during the year ended 31 December 2021.

GC Oxirane Co., Ltd.

On 5 January 2021, GC Oxirane Co., Ltd., a subsidiary of the Company, has called for an increase in paid-up capital approved in the Board of Directors' Meeting of the subsidiary held on 15 January 2020 for conducting a Propylene Oxide Project totalling Baht 401.58 million. The amount was fully paid in January 2021.

Envicco Limited

On 16 March 2022, ENVICCO Limited, a subsidiary of the Company, has called for an increase in paid-up capital approved in the Board of Directors' Meeting of the subsidiary held on 23 July 2020 for conducting a Recycled Plastic Project totalling Baht 37.80 million. The amount was fully paid in April 2022.

**NOTES TO
THE FINANCIAL STATEMENTS**

During the year ended 31 December 2021, ENVICCO Limited, a subsidiary of the Company, has called for an increase in paid-up capital approved in the Board of Directors' Meeting of the subsidiary held on 23 July 2020 for conducting a Recycled Plastic Project totalling Baht 529.20 million. The amount was fully paid during the year ended 31 December 2021.

PTTGC America Corporation

During the year ended 31 December 2022, PTTGC America Corporation, a subsidiary of the Company, has called for an increase in paid-up capital approved in the Board of Directors' Meeting of the subsidiary held on 18 February 2022, 11 July 2022 and 18 October 2022 for the purpose of US Petrochemical Complex Project investment totalling USD 5.46 million or equivalent to Baht 198.59 million. The amount was fully paid during the year ended 31 December 2022.

During the year ended 31 December 2021, PTTGC America Corporation, a subsidiary of the Company, has called for an increase in paid-up capital approved in the Board of Directors' Meeting of the subsidiary held on 12 January 2021 for the purpose of US Petrochemical Complex Project investment totalling USD 3.56 million or equivalent to Baht 113.32 million. The amount was fully paid during the year ended 31 December 2021.

PTTGC International Private Limited

During the year ended 31 December 2022, PTTGC International Private Limited ("GC Inter"), a subsidiary of the Company, has called for an increase in paid-up capital approved in the Board of Directors' Meeting of the subsidiary held on 16 June 2022 and 20 December 2022 for investment in PTTGC International (Netherlands) B.V. ("GC Inter B.V."), a subsidiary 100% shareholding by GC Inter, totalling EUR 1,531.23 million or equivalent to Baht 56,998.15 million. The amount was fully paid during the year ended 31 December 2022. GC Inter B.V. has utilised such investment totalling EUR 14.81 million or equivalent to Baht 552.06 million for the acquisition of the 9.18% ordinary shares in Vencorex Holding SAS ("Vencorex") from Perstorp Holding AB. As a result, GC Inter B.V.'s shareholding interest in Vencorex increased from 90.82% to 100%. GC Inter B.V. has signed a share sale and purchase agreement and completed the share payment on 30 June 2022. The Group recognised a decrease in non-controlling interest of Baht 464.55 million, difference arising from the change in the ownership interest in an investment of Baht 941.91 million, and an increase in the translation reserve of Baht 120.37 million attributable to owners of the Group of changes in the Group's ownership interests in Vencorex. In addition, GC Inter B.V. has utilised the investment totalling EUR 1,516.42 million or equivalent to Baht 56,446.09 million for the purpose of loan and interest prepayment to shareholder and corporate operation.

During the year ended 31 December 2021, PTTGC International Private Limited, a subsidiary of the Company, has called for an increase in paid-up capital approved in the Board of Directors' Meeting of the subsidiary held on 1 July 2021 for the purpose of corporate operation and investment in PTTGC International (Netherlands) B.V. totalling EUR 831 million or equivalent to Baht 31,819.41 million, and the Board of Directors' Meeting of the subsidiary held on 17 August 2021 for investment in Emery Oleochemicals UK Limited totalling USD 39.50 million or equivalent to Baht 1,342.33 million. The amount was fully paid during the year ended 31 December 2021.

PT. GCM Marketing Solutions Indonesia

On 21 June 2022, GC Marketing Solutions Co., Ltd. (“GCM”), a subsidiary of the Company, has exercised the call option, approved in the Board of Directors’ Meeting of the subsidiary held on 20 June 2022 for acquisition of the 33% ordinary shares in PT. GCM Marketing Solutions Indonesia (“GCM Indonesia”) from PT. Cipta Aneka Air at IDR 3,300 million or equivalent to Baht 8.52 million. As a result, GCM’s shareholding interest in GCM Indonesia increased from 67% to 100%. GCM has signed a share sale and purchase agreement and completed the share payment on 30 September 2022. The Group recognised a decrease in non-controlling interest of Baht 36.08 million, difference arising from the change in the ownership interest in an investment of Baht 28.61 million, and a decrease in the translation reserve of Baht 1.04 million attributable to owners of the Group of changes in the Group’s ownership interests in GCM Indonesia.

Solution Creation Co., Ltd.

On 25 November 2022, at the Extraordinary General Meeting of shareholders of Solution Creation Co., Ltd. (“SUN”), a subsidiary of the Company, approved a reduction of SUN’s registered share capital of Baht 613.88 million. The reduction of issued and paid-up share capital has been offset with a deficit in retained earnings of SUN totalling Baht 37.72 million and distributed remaining capital to the Company amounting to Baht 576.16 million. The Company recognised a loss from capital return amounting to Baht 37.72 million in its separated statement of income. As at 31 December 2022, SUN is in the process of registering the reduction of its registered capital with Department of Business Development, Ministry of Commerce. Subsequently, SUN completed the reduction of its registered share capital on 19 January 2023.

Thai Tank Terminal Limited

On 16 September 2022, at the Extraordinary General Meeting of shareholders of Thai Tank Terminal Limited (“TTT”), a subsidiary of the Company, approved an increase of TTT’s registered share capital and proposed to sell new shares to Gulf Energy Development Public Company Limited (“Gulf”) representing 28.57% of the ordinary shares of TTT or equivalent to Baht 2,059.20 million. The Company has signed a share subscription and shareholders agreement with Vopak Holding International B.V., Gulf, and TTT on 19 September 2022 for the purpose of restructuring of shareholding interest in TTT. The share payment was completed by Gulf on 7 December 2022. As a result, the Company’s shareholding interest in TTT decreased from 51% before restructuring to 36.43% after restructuring. The Company has reclassified the remaining investment in TTT to investment in joint venture and recognised a gain from change in ownership interest in subsidiary in the consolidated statement of profit or loss amounting to Baht 847.96 million.

GC Glycol Co., Ltd.

On 31 August 2022, GC Glycol Co., Ltd., a subsidiary of the Company, registered to dissolve the business with Department of Business Development, Ministry of Commerce. The subsidiary distributed capital to the Company amounting to Baht 5,926.02 million. The Company recognised a gain from capital return from subsidiary amounting to Baht 531.02 million in its separate statement of income. As at 31 December 2022, the subsidiary is in the liquidation process.

GC Styrenics Co., Ltd.

On 31 August 2022, GC Styrenics Co., Ltd., a subsidiary of the Company, registered to dissolve the business with Department of Business Development, Ministry of Commerce. The subsidiary distributed capital to the Company amounting to Baht 185.23 million. As at 31 December 2022, the subsidiary is in the liquidation process.

**NOTES TO
THE FINANCIAL STATEMENTS**PTT GLOBAL CHEMICAL PUBLIC COMPANY LIMITED AND ITS SUBSIDIARIES
FOR THE YEAR ENDED DECEMBER 31, 2022***Impairment loss on investments in subsidiaries******GC Ventures Co., Ltd.***

During the year ended 31 December 2022, the Company recognised impairment loss on the investment in GC Ventures Co., Ltd., a subsidiary of the Company, totalling Baht 85.73 million in the separate statement of income as the recoverable amount of investment in Arevo Inc., an investment in financial asset at fair value through other comprehensive income of the Group, was less than its carrying amount.

During the year ended 31 December 2021, the Company recognised impairment loss on the investment in GC Ventures Co., Ltd., a subsidiary of the Company, totalling Baht 36.19 million in the separate statement of income as the recoverable amount of investment in Arevo Inc., an investment in financial asset at fair value through other comprehensive income of the Group, was less than its carrying amount.

PTTGC International Private Limited

During the year ended 31 December 2021, the Company recognised impairment loss on the investment in PTTGC International Private Limited, a subsidiary of the Company, totalling Baht 3,817.37 million in loss on impairment of assets in the separate statement of income as the recoverable amounts of investments in Emery Oleochemicals (M) Sdn. Bhd. and Emery Specialty Chemicals Sdn. Bhd., indirect joint ventures of the Group, were less than their carrying amounts.

NOTES TO THE FINANCIAL STATEMENTS

PTT GLOBAL CHEMICAL PUBLIC COMPANY LIMITED AND ITS SUBSIDIARIES
FOR THE YEAR ENDED DECEMBER 31, 2022

11 Investments in joint ventures and associates

Consolidated financial statements													
	Type of business	Country of operation	Ownership Interest		Equity method		Impairment		Equity method - net		Dividend income		
			2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	
(in million Baht)													
(%)													
Direct joint ventures	PTT Asahi Chemical Co., Ltd.	Thailand	50	50	10,467	11,802	-	-	10,467	11,802	750	-	
		Thailand	50	50	197	242	-	-	197	242	-	-	
HMC Polymers Co., Ltd.	Manufacturing and distributing petrochemical products	Thailand	41	41	11,791	13,001	-	-	11,791	13,001	124	828	
		United Kingdom	49	-	241	-	-	-	241	-	-	-	
Thai Tank Terminal Limited	Service for the storage and handling of liquid chemicals, oil and gas	Thailand	36	-	2,826	-	-	-	2,826	-	-	-	
					25,522	25,045	-	-	25,522	25,045	874	828	

Consolidated financial statements

Type of business	Country of operation	Ownership Interest (%)		Equity method		Impairment		Equity method - net		Dividend income	
		2022	2021	2022	2021	2022	2021	2022	2021	2022	2021
Indirect joint ventures											
Thai Ethoxylate Co., Ltd.	Thailand	50	50	660	647	-	-	660	647	102	91
NatureWorks LLC	United States of America	50	50	4,599	4,025	-	-	4,599	4,025	330	-
GGC KTIS Bioindustrial Co., Ltd.	Thailand										
Manufacturing and distributing electricity and ethanol from sugarcane											
Revolve Group Limited	United Kingdom	50	50	1,223	1,232	-	-	1,223	1,232	-	-
Emery Oleochemicals UK Limited	United Kingdom	-	49	-	273	-	-	-	273	-	-
Entis Co., Ltd.	South Korea	50	50	2,938	2,385	-	-	2,938	2,385	26	-
Synthese (Thailand) Co., Ltd.	Thailand	50	50	179	203	-	-	179	203	27	-
Total investments in joint ventures		48	48	10,106	9,284	-	-	10,106	9,284	530	91
				35,628	34,329	-	-	35,628	34,329	1,404	919

NOTES TO THE FINANCIAL STATEMENTS

PTT GLOBAL CHEMICAL PUBLIC COMPANY LIMITED AND ITS SUBSIDIARIES
FOR THE YEAR ENDED DECEMBER 31, 2022

Consolidated financial statements

	Country of operation	Type of business	Ownership Interest 2022	2021	Equity method 2022	2021	Impairment 2022	2021	Equity method - net 2022	2021	Dividend income 2022	2021
			(%)									
<i>(in million Baht)</i>												
Direct associates												
Global Power Synergy Plc.	Thailand	Manufacturing and distributing electricity, stream and water for industrial	-	-	-	-	-	-	-	-	-	641
Kuraray GC Advanced Materials Co., Ltd.	Thailand	Manufacturing and distributing petrochemical products	33	33	1,801	1,714	-	-	1,801	1,714	-	-
PTT Energy Solutions Co., Ltd. (In process of liquidation)	Thailand	Engineering consultant services	20	20	22	38	(3)	-	19	38	4	-
PTT Digital Solutions Co., Ltd.	Thailand	Information and communication technology services	40	40	1,350	1,170	-	-	1,350	1,170	51	52
Vinythai Plc.	Thailand	Manufacturing and distributing petrochemical products	-	25	-	7,259	-	-	-	7,259	1,073	266
Eastern Fluid Transport Co., Ltd.	Thailand	Planning, designing, supervising and managing the construction and installation of piping system	-	23	-	9	-	-	-	9	5	12
Dynachisso Thai Co., Ltd.	Thailand	Manufacturing and distributing chemical products	42	-	272	-	-	-	272	-	5	-
AGC Vinythai Plc.	Thailand	Manufacturing and distributing petrochemical products	33	-	17,466	-	-	-	17,466	-	-	-
					<u>20,911</u>	<u>10,190</u>	<u>(3)</u>	<u>-</u>	<u>20,908</u>	<u>10,190</u>	<u>1,138</u>	<u>971</u>

Consolidated financial statements

	Type of business	Country of operation	Ownership Interest 2022 2021 (%)	Equity method 2022 2021	Impairment 2022 2021 <i>(in million Baht)</i>	Equity method - net 2022 2021	Dividend income 2022 2021
<i>Indirect associates</i>							
Thai Eastern Top Seeds Oil Co., Ltd.	Manufacturing and distributing palm kernel oil and other vegetable oil	Thailand	- 30	- -	- -	- -	- -
S.P. Petpack Inter Group Co., Ltd.	Distributing general goods by receiving compensation or following a contract	Thailand	25 25	35 39	- -	35 39	- -
Dynachisso Thai Co., Ltd.	Manufacturing and distributing chemical products	Thailand	- 42	- 282	- -	- 282	- 5
				<u>35</u> <u>321</u>	<u>-</u> <u>-</u>	<u>35</u> <u>321</u>	<u>-</u> <u>5</u>
				<u>20,946</u> <u>10,511</u>	<u>(3)</u> <u>-</u>	<u>20,943</u> <u>10,511</u>	<u>1,138</u> <u>976</u>
Total investments in associates							

NOTES TO THE FINANCIAL STATEMENTS

PTT GLOBAL CHEMICAL PUBLIC COMPANY LIMITED AND ITS SUBSIDIARIES
FOR THE YEAR ENDED DECEMBER 31, 2022

Separate financial statements													
Type of business	Country of operation	Ownership Interest (%)		Cost method		Impairment		Cost method - net		Fair value of listed securities		Dividend income	
		2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021
(in million Baht)													
Joint ventures													
PTT Asahi Chemical Co., Ltd.	Manufacturing and distributing petrochemical products	Thailand	50	996	996	-	-	996	996	-	-	750	-
PTT MCC Biochem Co., Ltd.	Manufacturing and distributing bioplastic products	Thailand	50	160	160	-	-	160	160	-	-	-	-
HMC Polymers Co., Ltd.	Manufacturing and distributing petrochemical products	Thailand	41	14,217	14,217	-	-	14,217	14,217	-	-	124	828
Revolve Group Limited	Manufacturing and distributing chemical products	United Kingdom	49	-	269	-	-	269	-	-	-	-	-
Thai Tank Terminal Limited	Service for the storage and handling of liquid chemicals, oil and gas	Thailand	36	-	459	-	-	459	-	-	-	-	-
Total investments in joint ventures					16,101	15,373	-	-	16,101	15,373	-	874	828

NOTES TO THE FINANCIAL STATEMENTS

PTT GLOBAL CHEMICAL PUBLIC COMPANY LIMITED AND ITS SUBSIDIARIES
FOR THE YEAR ENDED DECEMBER 31, 2022

Separate financial statements													
	Type of business	Country of operation	Ownership Interest (%)	Cost method		Impairment		Cost method - net		Fair value of listed securities		Dividend income	
				2022	2021	2022	2021	2022	2021	2022	2021	2022	2021
(in million Baht)													
Associate	Global Power Synergy Plc.	Thailand	-	-	-	-	-	-	-	-	-	-	641
			33	1,870	1,777	-	-	1,870	1,777	-	-	-	-
	Kuraray GC Advanced Materials Co., Ltd.	Thailand	20	30	30	(11)	-	19	30	-	-	4	-
			40	60	60	-	-	60	60	-	-	51	52
Vinythai Plc.	Thailand	-	25	-	3,297	-	-	-	3,297	-	11,397	1,073	266
		Eastern Fluid Transport Co., Ltd.	Thailand	-	15	-	2	-	-	-	-	-	6
Dynachisso Thai Co., Ltd.	Thailand			42	-	294	-	-	294	-	-	-	-
		AGC Vinythai Plc.	Thailand	33	-	11,375	-	-	11,375	-	-	-	-
Total investments in associates				13,629	5,166	(11)	-	13,618	5,166	-	11,397	1,134	967

PTT GLOBAL CHEMICAL PUBLIC COMPANY LIMITED AND ITS SUBSIDIARIES
FOR THE YEAR ENDED DECEMBER 31, 2022

<i>Material movements for the years ended 31 December</i>	<i>Note</i>	Consolidated financial statements		Separate financial statements	
		2022	2021	2022	2021
		<i>(in million Baht)</i>			
Joint Ventures					
Increase capital in GGC KTIS Bioindustrial Co., Ltd.		54	263	-	-
Acquisition from transfers of businesses:					
- Revolve Group Limited	5	-	-	270	-
Change in ownership interest in Thai Tank Terminal Limited	10	2,802	-	459	-
Purchase investment in Emery Oleochemicals UK Limited		-	2,141	-	-
Dispose investment in Emery Oleochemicals (M) Sdn. Bhd.		-	(4,760)	-	-
Dispose investment in Emery Specialty Chemicals Sdn. Bhd.		-	-	-	-
Associates					
Increase capital in Kuraray GC Advanced Materials Co., Ltd.		93	373	93	373
Purchase investment in Vinythai Plc.		5,934	-	5,934	-
Purchase investment in AGC Vinythai Plc.		2,144	-	2,144	-
Acquisition from transfers of businesses:					
- Dynachisso Thai Co., Ltd.	5	-	-	294	-
Change in ownership interest in Eastern Fluid Transport Co., Ltd.		(16)	-	(2)	-
Dispose investment in Global Power Synergy Plc.		-	(23,733)	-	(22,753)
Dispose investment in Thai Eastern Top Seeds Oil Co., Ltd.		-	-	-	-
Dissolution of PTT Energy Solutions Co., Ltd.		-	-	-	-
Impairment loss on PTT Energy Solutions Co., Ltd.		(3)	-	(11)	-

GGC KTIS Bioindustrial Co., Ltd.

On 8 April 2022, GGC KTIS Bioindustrial Company Limited, an indirect joint venture of the Group, has called for an increase in paid-up capital of 3,575,000 shares at Baht 15 per share, totalling Baht 53.63 million, from GGC Biochemicals Company Limited, a subsidiary of the Company. The amount was fully paid in May 2022.

On 21 December 2020 and during the year ended 31 December 2021, GGC KTIS Bioindustrial Company Limited, an indirect joint venture of the Group, has called for an increase in paid-up capital totalling Baht 262.88 million, from GGC Biochemicals Company Limited, a subsidiary of the Company. The amount was fully paid during the year ended 31 December 2021.

NOTES TO THE FINANCIAL STATEMENTS

Emery Oleochemicals UK Limited

On 12 October 2021, PTTGC International Private Limited, a subsidiary of the Company, acquired 50% of shares of Emery Oleochemicals UK Limited from Emery Oleochemicals (M) Sdn. Bhd. (“EOM”) and Emery Specialty Chemicals Sdn. Bhd. (“ESC”), the previous shareholders. The acquisition of such shares is a business combination under common control of the subsidiary. The subsidiary paid for the share purchase totalling Pound Sterling 24 million or equivalent to Baht 1,055 million, which record as difference arising from business combination under common control in the consolidated statements of changes in shareholders’ equity and recorded the investment as cost of Baht 2,141 million. The investment is aligned with the business restructuring plan of the Group of EOM and ESC, and the Company’s strategy that focusing on investment in high value business products.

Emery Oleochemicals (M) Sdn. Bhd. and Emery Specialty Chemicals Sdn. Bhd.

On 17 August 2021, at the Board of Directors’ Meeting of the PTTGC International Private Limited (“GC Inter”), a subsidiary of the Company, approved GC Inter to enter into a share sale and purchase agreement to sell shares of Emery Oleochemicals (M) Sdn. Bhd. (“EOM”) and Emery Specialty Chemicals Sdn. Bhd. (“ESC”) in which GC Inter holding 50% to Edenor Technology Sdn. Bhd. (“Edenor”). The share sale and purchase agreement has been signed on 19 August 2021. The divestment is conditional upon the business restructuring of the Group of EOM and ESC into separate standalone groups in respect of its Asia Pacific business and the North America and Europe business. After the restructuring, Asia Pacific business will remain under EOM and ESC, which will be divested to Edenor, while the business in North America and Europe will be transferred out from EOM and ESC to Emery Oleochemicals UK Limited which is to be held directly by GC Inter and Sime Darby Plantation Berhad on a 50:50 basis. Consequently, such aforementioned restructuring has completed on 12 October 2021.

On 1 November 2021, the sale of shares in EOM and ESC to Edenor resulted to the loss from sale of investments in joint ventures recognised in the consolidated statement of income amounting to Baht 1,632.95 million. As a result, the Company has reversed the impairment loss on the investments in EOM at Baht 3,020.56 million, which has been previously recognised in the consolidated statements of profit or loss in the second quarter of 2021.

Kuraray GC Advanced Materials Co., Ltd.

On 10 March 2022, Kuraray GC Advanced Materials Co., Ltd., a direct associate of the Group, has called for an increase in paid-up capital of 933,530 shares at Baht 100 per share, totalling Baht 93.35 million. The amount was fully paid in April 2022.

During the year ended 31 December 2021, Kuraray GC Advanced Materials Co., Ltd., a direct associate of the Group, has called for an increase in paid-up capital of 3,734,120 shares at Baht 100 per share, totalling Baht 373.41 million. The amount was fully paid during the year ended 31 December 2021.

Vinythai Plc.

On 18 March 2021, at the Extra Board of Directors’ Meeting of the Company approved the collaboration between the Company and AGC Inc. about the delisting plan of securities of Vinythai Plc. (“VNT”) from being listed on the Stock Exchange of Thailand (“SET”). The Company will make a complete tender offer for all ordinary shares of VNT, excluding its ordinary shares owned by the Company, of 889,154,755 shares, or equivalent to 75.02% of VNT’s issued and paid-up share capital, for delisting of securities of VNT from being listed on the SET with tender offer price at Baht 39 per share. Currently, the Company is the major shareholder of VNT, direct shareholding of 296,038,689 shares, or equivalent to 24.98% of VNT’s issued and paid-up share capital. AGC Inc. is the shareholder with the controlling power over VNT, direct shareholding of 696,663,509 shares, or equivalent to 58.78% of VNT’s issued and paid-up share capital. Launching the tender offer for delisting of all securities of VNT by the Company, AGC Inc. had an intention not to sell all the common shares of VNT in which directly held by AGC Inc.

Consequently, on 21 December 2021 the Company has already submitted the tender offer for the securities of VNT totalling 192,491,246 shares, when deducting the ordinary shares which AGC Inc. agreed not to sell, or equivalent to 16.24% of VNT's issued and paid-up share capital with the tender offer price at Baht 39 per share.

On 1 March 2022, the Company completed the tender offer for all the securities of VNT. Under the offer, the Company acquired 151,149,415 VNT shares, equivalent to 12.75% of VNT's issued and paid-up share capital with the tender offer price at Baht 39 per share, in the total amount of Baht 5,894.83 million. As a result, the Company's shareholding interest in VNT increased from 24.98% to 37.73% of the issued and paid-up share capital. On 12 March 2022, the Board of Governors of the SET has also delisted the securities of VNT from being listed on the SET.

On 11 April 2022, at the Extraordinary General Meeting of Shareholders of VNT, the amalgamation between VNT and AGC Chemical (Thailand) Co., Ltd. ("AGC-TH"), a subsidiary of AGC Inc., was approved by 99.8975% and disapproved by 0.1024% (equivalent to 1,205,517 shares). The Company offered to purchase the remaining VNT shares from the dissenting shareholders at the offer price of Baht 39 per share, which is the same price as the price offered by the Company for the delisting tender offer of VNT from being listed on the SET. Consequently, the Company acquired a further 995,017 VNT shares, in the amount of Baht 38.81 million. The shares purchase was completed on 3 May 2022, resulting in the Company's shareholding interest in VNT increased from 37.73% to 37.82%. The amalgamation between VNT and AGC-TH to form a new company, AGC Vinythai Plc. ("AVT") was completed on 1 July 2022. After the amalgamation and related share allocation of AVT, the Company holds 27.32% of the ordinary share of AVT.

AGC Vinythai Plc.

On 15 December 2022, at the Extraordinary General Meeting of Shareholders of AGC Vinythai Plc. ("AVT") approved the allocation of new ordinary shares to the Company by way of private placement, totalling Baht 2,143.89 million. Subsequent to the transaction, the Company's shareholding interest in AVT increased from 27.32% to 32.72%. The amount of share subscription was fully paid in December 2022. The Group recognised any excess of the net fair value of identifiable net assets over the cost of the investment as income in the determination of share of profit of associates accounted for using equity method amounting to Baht 938.55 million.

Eastern Fluid Transport Co., Ltd.

On 7 December 2022, Thai Tank Terminal Limited ("TTT"), a subsidiary of the Company, has completed the restructuring of the new shareholding interest, by the approval of the Extraordinary General Meeting of shareholders of TTT held on 16 September 2022. Consequently, the Company's shareholding interest in Eastern Fluid Transport Co., Ltd. ("EFT") decreased from 22.65% before restructuring to 15% after restructuring. The Company has reclassified the remaining investment in EFT to non-current investment in financial assets measured at fair value through other comprehensive income in which gain on remeasurement of fair value at the date of investment reclassification was presented as part of investment income in the separate statement of income amounting to Baht 8.82 million.

NOTES TO THE FINANCIAL STATEMENTS

Global Power Synergy Plc.

On 22 April 2021, at the Board of Directors' Meeting of the Company approved the Company to sell ordinary shares in Global Power Synergy Plc. ("GPSC") at par value of Baht 10 per share to PTT Public Company Limited ("PTT") in the number of 305,000,000 shares, which is equivalent to 10.82% of the total issued and paid-up shares of GPSC and Siam Management Holding Company Limited ("SMH"), a juristic person with PTT holding 100%, in the number of 53,936,756 shares, which is equivalent to 1.91% of the total issued and paid-up shares of GPSC, totalling 358,936,756 shares, which is equivalent to 12.73% of the total issued and paid-up shares of GPSC, at Baht 70.0 per share (after adjusted the dividend paid in April 2021) in the total amount of approximately Baht 25,126 million. However, such amount may be adjusted to reflect the effect from dividend payment of GPSC and income tax of the relevant parties associated with the dividend payment (if any), but not exceeding Baht 30 million, and approved that the Company to enter into a share sale and purchase agreement with both PTT and SMH. At the Extraordinary Shareholders Meeting No. 1/2021 of the Company held on 7 June 2021, the meeting approved the Company to perform such transactions.

The Company has completed the sale of ordinary shares in GPSC to PTT and SMH on 8 June 2021, with gain from sale of investment in an associate recognised in the consolidated and separate statements of profit or loss amounting to Baht 11,834 million and Baht 12,383 million, respectively. As a result, the Company's shareholding interest in GPSC decreased from approximately 22.73% before the sale of shares to 10.00% after the sale of shares. The Company has reclassified the remaining investment of 10.00% in GPSC to non-current investment in financial assets measured at fair value through other comprehensive income in which gain on remeasurement of fair value at the date of investment reclassification was presented as part of investment income in the consolidated and separate statements of profit or loss amounting to Baht 10,565 million and Baht 10,997 million, respectively.

Thai Eastern Top Seeds Oil Co., Ltd

On 13 January 2022, Global Green Chemicals Plc. ("GGC"), a subsidiary of the Company, has completed the sales of shares in Thai Eastern Top Seeds Oil Co., Ltd., an indirect associate, in which GGC held 30% of authorised and paid-up share capital, by the approval of the Board of Directors' Meeting of GGC held on 15 September 2021, to a company for a consideration of Baht 1.

PTT Energy Solutions Co., Ltd.

On 29 December 2022, PTT Energy Solutions Co., Ltd., a direct associate of the Group, registered to dissolve the business with Department of Business Development, Ministry of Commerce. As at 31 December 2022, the associate is in the liquidation process.

Impairment loss on investment in an associate

PTT Energy Solutions Co., Ltd.

During the year ended 31 December 2022, the Company recognised an impairment loss on the investment in PTT Energy Solutions Co., Ltd. ("PTTES"), a direct associate of the Group, totalling Baht 2.61 million and Baht 11.40 million in the consolidated and separate statement of income, respectively, as the Company considered that the recoverable amount of such investment was less than investment at equity method in the consolidated financial statements and its carrying amount in the separate financial statements according to the dissolution of PTTES.

Material joint ventures and associates

The following table summarises the financial information of the material joint ventures and associates as included in their own financial statements, adjusted for fair value adjustments at acquisition and differences in accounting policies. The table also reconciles the summarised financial information to the carrying amount of the Group's interest in these companies.

PTT GLOBAL CHEMICAL PUBLIC COMPANY LIMITED AND ITS SUBSIDIARIES
FOR THE YEAR ENDED DECEMBER 31, 2022

	PTT Asahi Chemical Co., Ltd. 2022	2021 (in million Baht)	HMC Polymers Co., Ltd. 2022	2021
For the years ended 31 December				
Statement of profit or loss				
Revenue	14,596	15,928	32,557	31,241
Profit (loss) from continuing operations	(1,185)	2,705	(1,628)	2,971
Other comprehensive income (loss)	15	-	(990)	(66)
Total comprehensive income (loss) (100%)	<u>(1,170)</u>	<u>2,705</u>	<u>(2,618)</u>	<u>2,905</u>
As at 31 December				
Statement of financial position				
Current assets	4,397	7,419	9,100	9,491
Non-current assets	22,545	23,942	32,733	31,192
Current liabilities	(1,740)	(2,730)	(5,714)	(5,912)
Non-current liabilities	(4,269)	(5,028)	(14,996)	(10,730)
Net assets (100%)	<u>20,933</u>	<u>23,603</u>	<u>21,123</u>	<u>24,041</u>
Group's share of net assets	10,467	11,802	8,753	9,963
Goodwill	-	-	3,038	3,038
Carrying amount of interest in joint ventures	<u>10,467</u>	<u>11,802</u>	<u>11,791</u>	<u>13,001</u>
Remark:				
Cash and cash equivalents	1,227	2,807	1,434	1,280
Depreciation and amortisation	1,337	1,228	1,559	1,495

The reconciliation of the summarised financial information to the carrying amount of the Group's interest in these joint ventures.

	PTT Asahi Chemical Co., Ltd. 2022	2021 (in million Baht)	HMC Polymers Co., Ltd. 2022	2021
Group's interest in net assets of investee as at 1 January	11,802	10,449	13,001	12,624
Total comprehensive income (loss) attributable to the Group	(585)	1,353	(1,086)	1,205
Dividends received during the year	(750)	-	(124)	(828)
Carrying amount of interest in investee as at 31 December	<u>10,467</u>	<u>11,802</u>	<u>11,791</u>	<u>13,001</u>

AGC Vinylthai Plc.
2022
(in million Baht)

For the year ended 31 December	
Statement of profit or loss	
Revenue	21,305
Profit from continuing operations	2,989
Other comprehensive income	148
Total comprehensive income (100%)	<u>3,137</u>

NOTES TO THE FINANCIAL STATEMENTS

AGC Vinythai Plc. 2022 (in million Baht)

As at 31 December

Statement of financial position

Current assets	31,639
Non-current assets	17,903
Current liabilities	(5,348)
Non-current liabilities	(2,581)
Net assets (100%)	41,613
Non-controlling interests	(323)
Total attributions to owners of the parents	41,290
Group's share of net assets	13,510
Elimination of unrealised profit on downstream sales	(12)
Purchase price allocation	3,116
Goodwill	852
Carrying amount of interest in associate	17,466

Remark:

Cash and cash equivalents	24,111
Depreciation and amortisation	552

The reconciliation of the summarised financial information to the carrying amount of the Group's interest in this associate.

AGC Vinythai Plc. 2022 (in million Baht)

Group's interest in net assets of investee as at 1 January	-
Acquisition from amalgamation	13,617
Purchase investment	2,144
Total comprehensive income attributable to the Group	766
Gain on bargain purchase	939
Carrying amount of interest in investee as at 31 December	17,466

Immaterial joint ventures and associates

The following is summarized financial information for the Group's interest in immaterial joint ventures and associates based on the amounts reported in the Group's consolidated financial statements:

	Immaterial Joint ventures		Immaterial Associates	
	2022	2021	2022	2021
	(in million Baht)			
For the years ended 31 December				
Carrying amount of interests in immaterial joint ventures and associates	13,370	9,526	3,477	10,511
Group's share of:				
- Profit from continuing operations	1,286	1,370	1,751	2,685
- Other comprehensive income	231	417	36	279
- Total comprehensive income	1,517	1,787	1,787	2,964

PTT GLOBAL CHEMICAL PUBLIC COMPANY LIMITED AND ITS SUBSIDIARIES
FOR THE YEAR ENDED DECEMBER 31, 2022

12 Marketable financial instruments

Marketable equity and debt securities	Consolidated financial statements					At 31 December
	At 1 January	Purchase	Disposal (in million Baht)	Fair value adjustment	Currency translation	
2022						
Current financial assets						
Debt securities measured at - FVOCI	896	-	(164)	(6)	-	726
Non-current financial assets						
Equity securities measured at - FVOCI	25,505	-	-	(4,759)	21	20,767
Debt securities measured at - FVOCI	1,969	-	(330)	(21)	-	1,618
Total	27,474	-	(330)	(4,780)	21	22,385
2021						
Current financial assets						
Debt securities measured at - FVOCI	71	825	-	-	-	896
Non-current financial assets						
Equity securities measured at - FVOCI	60	21,023	-	4,398	24	25,505
Debt securities measured at - FVOCI	35	1,936	-	(2)	-	1,969
Total	95	22,959	-	4,396	24	27,474

NOTES TO THE FINANCIAL STATEMENTS

Marketable equity and debt securities	At 1 January	Separate financial statements			At 31 December
		Purchase	Disposal (in million Baht)	Fair value adjustment	
2022					
Current financial assets					
Debt securities measured at - FVOCI	896	-	(164)	(6)	726
Non-current financial assets					
Equity securities measured at - FVOCI	25,025	-	-	(4,441)	20,584
Debt securities measured at - FVOCI	1,969	-	(330)	(21)	1,618
Total	26,994	-	(330)	(4,462)	22,202
2021					
Current financial assets					
Debt securities measured at - FVOCI	71	825	-	-	896
Non-current financial assets					
Equity securities measured at - FVOCI	-	21,007	-	4,018	25,025
Debt securities measured at - FVOCI	35	1,936	-	(2)	1,969
Total	35	22,943	-	4,016	26,994

13 Investment properties

	Consolidated financial statements				Separate financial statements
	Land	Buildings and buildings improvement	Investment property under construction (in million Baht)	Total	Land
Cost					
As at 1 January 2021	6,035	27	-	6,062	1,741
Transfers	-	-	1	1	-
Disposals	-	4	11	15	-
As at 31 December 2021 and 1 January 2022	6,035	31	12	6,078	1,741
Transfers	-	1	-	1	86
As at 31 December 2022	6,035	32	12	6,079	1,827
Accumulated depreciation					
As at 1 January 2021	-	3	-	3	-
Depreciation charge for the year	-	2	-	2	-
Transfers	-	(1)	-	(1)	-
As at 31 December 2021 and 1 January 2022	-	4	-	4	-
Depreciation charge for the year	-	2	-	2	-
Transfers	-	(1)	-	(1)	-
As at 31 December 2022	-	5	-	5	-
Net book value					
As at 31 December 2021	6,035	27	12	6,074	1,741
As at 31 December 2022	6,035	27	12	6,074	1,827

The fair value of investment properties of the Group as at 31 December 2022 of Baht 7,372 million (2021: Baht 6,834 million) was determined at open market values on an existing use basis and income approach. The fair value measurement for investment properties has been categorised as Levels 2 and 3 fair value, respectively.

The fair value of investment properties of the Company as at 31 December 2022 of Baht 4,020 million (2021: Baht 3,700 million) was determined at open market values on an existing use basis. The fair value measurement for investment properties has been categorised as a Level 2 fair value.

Measurement of fair value

Level 2 fair value

The fair value of investment properties for land was determined by independent property valuers at open market values by scoring and weighted other different factors.

NOTES TO THE FINANCIAL STATEMENTS

PTT GLOBAL CHEMICAL PUBLIC COMPANY LIMITED AND ITS SUBSIDIARIES
FOR THE YEAR ENDED DECEMBER 31, 2022

Level 3 fair value

The fair value of investment properties for land and buildings was determined by the Group at income approach. The significant unobservable inputs comprise yield rate and finance costs.

<i>Year ended 31 December</i>	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
<i>Amounts recognised in profit or loss</i>				
Rental income	157	133	195	169

(in million Baht)

NOTES TO THE FINANCIAL STATEMENTS

PTT GLOBAL CHEMICAL PUBLIC COMPANY LIMITED AND ITS SUBSIDIARIES
FOR THE YEAR ENDED DECEMBER 31, 2022

14 Property, plant and equipment

Consolidated financial statements

	Land and land improvement	Plant, machinery, equipment and factory tools	Buildings and buildings improvement	Furniture, fixtures and equipment	Vehicles	Assets under construction	Total
<i>Cost</i>							
As at 1 January 2021	12,856	403,598	19,802	2,742	776	47,034	486,808
Additions	36	1,454	11	93	10	14,630	16,234
Acquired through businesses combinations	4	33,086	10,541	1,806	113	2,129	54,913
Transfers	138	38,281	1,058	142	68	(40,984)	(1,297)
Disposals	(483)	(4,314)	(85)	(201)	(38)	(1,295)	(6,416)
Reclassification	-	371	-	-	-	-	371
Effect from exchange differences on translating financial statements							
As at 31 December 2021	114	443	56	8	1	773	1,395
As at 1 January 2022	19,899	472,919	31,383	4,590	930	22,287	552,008
Additions	8	2,566	39	125	10	18,357	21,105
Loss of control in subsidiary	(10)	(8,096)	(66)	(91)	(7)	(11)	(8,281)
Transfers	78	9,941	2,249	46	55	(12,900)	(531)
Disposals	-	(4,985)	(23)	(290)	(81)	(17)	(5,396)
Effect from exchange differences on translating financial statements	(159)	(792)	(263)	(37)	(2)	80	(1,173)
As at 31 December 2022	19,816	471,553	33,319	4,343	905	27,796	557,732

NOTES TO THE FINANCIAL STATEMENTS

PTT GLOBAL CHEMICAL PUBLIC COMPANY LIMITED AND ITS SUBSIDIARIES
FOR THE YEAR ENDED DECEMBER 31, 2022

Consolidated financial statements

	Land and land improvement	Plant, machinery, equipment and factory tools	Buildings and buildings improvement	Furniture, fixtures and equipment	Vehicles	Assets under construction	Total
	<i>Note</i>						
<i>(in million Baht)</i>							
Accumulated depreciation and allowance for impairment							
As at 1 January 2021	1,463	202,832	9,209	2,114	554	1,459	217,631
Depreciation charge for the year	99	18,825	840	239	67	-	20,070
Acquired through businesses combinations	4	12,415	2,557	1,051	72	-	16,172
Transfers	-	-	-	-	57	-	57
Disposals	(25)	(1,877)	(30)	(194)	(38)	-	(2,164)
Impairment losses	-	-	-	-	-	1,833	1,833
Reversal of impairment losses	(450)	(1,681)	(49)	(7)	-	(1,267)	(3,454)
Reclassification	-	371	-	-	-	-	371
Effect from exchange differences on translating financial statements	30	305	28	8	1	78	450
As at 31 December 2021							
and 1 January 2022	1,194	231,190	12,555	3,211	713	2,103	250,966
Depreciation charge for the year	131	18,869	1,281	475	80	-	20,836
Loss of control in subsidiary	(9)	(5,023)	(36)	(46)	(4)	-	(5,118)
Transfers	21	112	(48)	(37)	43	-	91
Disposals	-	(4,720)	(19)	(285)	(78)	-	(5,102)
Impairment losses	-	31	20	-	-	-	51
Effect from exchange differences on translating financial statements	4	(287)	(67)	(24)	(1)	62	(313)
As at 31 December 2022	1,341	240,172	13,686	3,294	753	2,165	261,411

NOTES TO THE FINANCIAL STATEMENTS

PTT GLOBAL CHEMICAL PUBLIC COMPANY LIMITED AND ITS SUBSIDIARIES
FOR THE YEAR ENDED DECEMBER 31, 2022

Consolidated financial statements

	Land and land improvement	Plant, machinery, equipment and factory tools	Buildings and buildings improvement	Furniture, fixtures and equipment	Vehicles	Assets under construction	Total
				(in million Baht)			
Net book value							
As at 31 December 2021							
Owned assets	18,705	241,729	18,828	1,379	217	20,184	301,042
As at 31 December 2022							
Owned assets	18,475	231,381	19,633	1,049	152	25,631	296,321

NOTES TO THE FINANCIAL STATEMENTS

PTT GLOBAL CHEMICAL PUBLIC COMPANY LIMITED AND ITS SUBSIDIARIES
FOR THE YEAR ENDED DECEMBER 31, 2022

Separate financial statements

		Land and land improvement	Plant, machinery, equipment and factory tools	Buildings and buildings improvement	Furniture, fixtures and equipment	Vehicles	Assets under construction	Total
	<i>Note</i>							
Cost								
As at 1 January 2021		5,002	291,158	10,144	1,740	528	37,836	346,408
Additions		-	545	7	44	4	8,728	9,328
Transfers		118	36,067	545	94	48	(37,283)	(411)
Disposals		(11)	(1,182)	(8)	(81)	(21)	(19)	(1,322)
As at 31 December 2021 and 1 January 2022		5,109	326,588	10,688	1,797	559	9,262	354,003
Additions		3	1,517	14	34	3	10,362	11,933
Acquisition from transfers of businesses	5	738	17,465	318	78	4	58	18,661
Transfers		(82)	4,352	1,034	34	42	(5,652)	(272)
Disposals		-	(2,901)	(16)	(165)	(58)	(10)	(3,150)
As at 31 December 2022		5,768	347,021	12,038	1,778	550	14,020	381,175

(in million Baht)

NOTES TO THE FINANCIAL STATEMENTS

PTT GLOBAL CHEMICAL PUBLIC COMPANY LIMITED AND ITS SUBSIDIARIES
FOR THE YEAR ENDED DECEMBER 31, 2022

Separate financial statements

	Note	Land and land improvement	Plant, machinery, equipment and factory tools	Buildings and buildings improvement	Furniture, fixtures and equipment	Vehicles	Assets under construction	Total
<i>(in million Baht)</i>								
Accumulated depreciation								
As at 1 January 2021		694	156,200	5,141	1,322	346	270	163,973
Depreciation charge for the year		45	12,805	432	159	56	-	13,497
Transfers		-	-	-	-	38	-	38
Disposals		(4)	(885)	(6)	(80)	(21)	-	(996)
As at 31 December 2021 and 1 January 2022		735	168,120	5,567	1,401	419	270	176,512
Depreciation charge for the year		52	11,234	385	166	54	-	11,891
Acquisition from transfers of businesses	5	32	9,664	187	54	4	-	9,941
Transfers		-	(13)	16	-	34	-	37
Disposals		-	(2,766)	(14)	(164)	(58)	-	(3,002)
As at 31 December 2022		819	186,239	6,141	1,457	453	270	195,379
Net book value								
As at 31 December 2021		4,374	158,468	5,121	396	140	8,992	177,491
Owned assets								
As at 31 December 2022		4,949	160,782	5,897	321	97	13,750	185,796
Owned assets								

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Security

As at 31 December 2022, net book value of property, plant and equipment of the Group of Baht 9,358 million (2021: Baht 36,539 million) were registered to secured a loans from financial institutions (see Note 18). In addition, a subsidiary pledged bank accounts and various rights. Thus, bank deposits placed as collateral can be withdrawn in accordance with the objectives and conditions specified in the loan agreement to be used as working capital for a subsidiary's normal business operations.

Capitalised borrowing costs relating to the acquisition of land and the construction of a new factory for the Group and the Company amounted to Baht 104 million and Baht 32 million, respectively (2021: Baht 249 million and 235 million), with a capitalisation rates of 2.63% to 4.00% per annum and 3.5% per annum (2021: 2.65% to 5.00% per annum and 3.5% to 5.00% per annum).

Review of the useful life of assets

In 2022, the management reviewed the useful life of assets through an assessment by the Group's engineers. As a result, a change in the estimated useful life of certain class of assets has been recognised prospectively from 1 January 2022 as follow:

<i>For the year ended 31 December</i>	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
Plant, machinery, equipment and factory tools	3 - 50 years	3 - 35 years	3 - 50 years	5 - 35 years
Buildings and buildings improvement	5 - 50 years	5 - 30 years	5 - 40 years	5 - 30 years

The change in the estimated useful lives of assets resulted in decreases in depreciation expenses of the Group and the Company for the year ended 31 December 2022 decreased amounting to Baht 3,267 million and Baht 2,941 million, respectively.

Technical incident in the warehouse construction project of the subsidiary.

In August 2022, a subsidiary had a technical incident in the warehouse construction project of a subsidiary which is in the preparation process for commercial operation and the incident disrupted the preparation for the project implementation. Some polymer products of the Company stored at the warehouse were damaged and the Company is now in the process of assessing the relevant impact, responsibilities of the relevant parties, and consideration of compensation for damage from the insurer. The Company has recognised a write-down for damage cost related to the inventories of the Company amounting to Baht 758 million, and the subsidiary has recognised provision liabilities for warehouse recovery expenses amounting to Baht 116 million.

PTT GLOBAL CHEMICAL PUBLIC COMPANY LIMITED AND ITS SUBSIDIARIES
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15 Leases

<i>Right-of-use assets As at 31 December</i>	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
	<i>(in million Baht)</i>			
Land and land improvement	8,178	7,416	6,267	5,810
Plant, machinery, equipment and factory tools	15,281	1,851	10,371	1,087
Buildings and buildings improvement	1,343	1,163	110	146
Furniture, fixtures and equipment	151	207	87	121
Vehicles	664	744	323	343
Total	25,617	11,381	17,158	7,507

In 2022, additions to the right-of-use assets of the Group and the Company were Baht 17,087 million and Baht 11,241 million, respectively (2021: Baht 2,916 million and Baht 2,665 million, respectively).

The Group leases a number of land and land improvement for 2 to 96 years, with extension options at the end of the lease terms.

Extension options

The Group has extension options on property leases exercisable up to one year before the end of the contract period. The Group assesses at lease commencement date whether it is reasonably certain to exercise the extension options and will regularly reassess so.

<i>Year ended 31 December</i>	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
	<i>(in million Baht)</i>			
<i>Amounts recognised in profit or loss</i>				
Sub-lease income	-	1	1	2
Depreciation of right-of-use assets:				
- Land and land improvement	552	486	420	391
- Plant, machinery, equipment and factory tools	668	362	631	693
- Buildings and buildings improvement	431	126	56	55
- Furniture, fixtures and equipment	170	138	89	103
- Vehicles	367	202	146	134
Interest expense on lease liabilities				
- Net of interest capitalised as part of asset under construction	412	273	309	249
Expense relating to short-term leases	95	62	72	24
Expense relating to leases of low value assets	77	41	42	28
Expense relating to variable lease payments not included in the measurement of the lease liability	12	1	58	71

Security

As at 31 December 2022, net book value of right-of-use assets of the Group of CNY 46 million (equivalent to Baht 229 million) were registered to secured loans from financial institutions (see Note 18).

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16 Goodwill

	Note	Consolidated financial statements	
		2022	2021
		(in million Baht)	
Cost			
As at 1 January		76,438	1,648
Acquired through businesses combinations	4	-	74,790
Effect of movements in exchange rates		(1,975)	-
As at 31 December		74,463	76,438
Allowance for impairment			
As at 1 January		(717)	(717)
As at 31 December		(717)	(717)
Net book value			
As at 31 December		73,746	75,721

Impairment testing for CGUs containing goodwill

For the purposes of impairment testing, goodwill has been allocated to the Group's CGU which is substantially represented by Allnex Holding GmbH and its subsidiaries.

The recoverable amount was based on value in use, estimated using discounted cash flows. The fair value measurement was categorised as a Level 3 fair value.

The recoverable amount of CGU relating to goodwill arising from the cash flow projections included specific estimates for ten years and a terminal growth rate thereafter to aligned with long-term business plan of the Group. The terminal growth rate was determined based on management's estimate of the long-term annual EBITDA growth rate, consistent with the assumptions that a market participant would make.

The key assumptions used in the estimation of the recoverable amount

The discount rate was based on the weighted average cost of capital, derived using a risk free rate referencing a 10-year government bond, market risk premium and average company beta at a discount rate of 8%.

The forecasted growth in EBITDA was derived based on the expectations of industry, regional and global macroeconomic information. With references to historical data, internal and external sources of information, applicable adjustments have been reflected to the increases in revenue and corresponding expenditures ranging from raw material and utilities prices, logistic costs to research, innovations and development to enhance product and services standards in satisfying diverse customer requirements and demands at a growth rate of 7% to 8%.

From the impairment assessment, the recoverable amount of CGU was higher than its carrying amount, therefore, no impairment loss was recognised in the consolidated financial statements.

Management is aware that if there were to be changes to two key assumptions, either an increase in discount rate of 12% or a decrease in the forecasted EBITDA growth rate in excess of 13%, the calculated recoverable amount will approximately be equal to the carrying amount.

NOTES TO THE FINANCIAL STATEMENTS

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17 Intangible assets

	Consolidated financial statements					
	Production licences fees	Computer software	Customer contracts and the related customer relationships	Right to use pipe rack (in million Baht)	Right to use others	Intangible assets under development
						Total
Cost						
As at 1 January 2021	8,809	5,467	138	56	2,077	16,997
Additions	39	45	-	-	-	558
Acquired through businesses combinations	34	4,094	21,497	-	41,461	67,377
Transfers	75	684	-	-	-	48
Disposals	-	(451)	-	-	(960)	(1,411)
Effect from exchange differences on translating financial statements	-	8	14	-	98	122
As at 31 December 2021 and 1 January 2022	8,957	9,847	21,649	56	42,676	83,691
Additions	93	31	27	-	346	1,318
Loss of control in subsidiary	-	(24)	-	(25)	-	(49)
Transfers	10	547	-	-	(606)	(632)
Disposals	(21)	(255)	-	-	(21)	(297)
Effect from exchange differences on translating financial statements	(1)	(113)	(603)	-	(1,167)	(1,893)
As at 31 December 2022	9,038	10,033	21,073	31	41,228	82,138

NOTES TO THE FINANCIAL STATEMENTS

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Consolidated financial statements

	Production licence fees	Computer software	Customer contracts and the related customer relationships	Right to use pipe rack (in million Baht)	Right to use others	Intangible assets under development	Total
<i>Note</i>							
Accumulated amortisation and allowance for impairment							
As at 1 January 2021	3,165	3,369	138	56	1,655	22	8,405
Amortisation charge for the year	417	411	-	-	79	-	907
Acquired through businesses combinations	4	23	4,067	-	3,921	-	10,418
Disposal	-	(334)	-	-	(226)	-	(560)
(Reversal) loss from impairment assets	-	15	-	-	(734)	-	(719)
Effect from exchange differences on translating financial statements	-	7	14	-	88	-	109
As at 31 December 2021 and 1 January 2022	3,605	5,875	4,219	56	4,783	22	18,560
Amortisation charge for the year	449	866	708	-	2,033	-	4,056
Loss of control in subsidiary	-	(15)	-	(25)	-	-	(40)
Transfer	2	(39)	-	-	(84)	-	(121)
Disposal	(21)	(197)	-	-	(7)	-	(225)
Reversal of impairment loss	-	(15)	-	-	-	-	(15)
Effect from exchange differences on translating financial statements	-	(67)	(117)	-	(125)	-	(309)
As at 31 December 2022	4,035	6,408	4,810	31	6,600	22	21,906
Net book value							
As at 31 December 2021	5,352	3,972	17,430	-	37,893	484	65,131
As at 31 December 2022	5,003	3,625	16,263	-	34,628	713	60,232

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		Separate financial statements				
			Computer software	Right to use others (in million Baht)	Intangible assets under development	Total
<i>Cost</i>		<i>Note</i>	Production licence fees			
As at 1 January 2021			6,030	61	431	10,714
Additions			8	-	340	384
Transfers			63	-	(579)	-
Disposals			-	-	-	(429)
As at 31 December 2021 and 1 January 2022			6,101	61	192	10,669
Additions			48	-	266	329
Acquisition from transfers of businesses	5		214	-	-	368
Transfers			-	-	250	1
As at 31 December 2022			6,363	61	208	11,367
<i>Accumulated amortisation</i>						
As at 1 January 2021			2,290	23	22	4,882
Amortisation charge for the year			315	6	-	645
Transfers			-	-	-	(311)
As at 31 December 2021 and 1 January 2022			2,605	29	22	5,216
Amortisation charge for the year			326	6	-	645
Acquisition from transfers of businesses	5		91	-	-	212
As at 31 December 2022			3,022	35	22	6,073
<i>Net book value</i>						
As at 31 December 2021			3,496	32	170	5,453
As at 31 December 2022			3,341	26	186	5,294

NOTES TO THE FINANCIAL STATEMENTS

18 Interest-bearing liabilities

Short-term borrowings

Short-term borrowings balances as at 31 December 2022 and 2021 were as follows:

		Consolidated financial statements		Separate financial statements	
	<i>Note</i>	2022	2021	2022	2021
		<i>(in million Baht)</i>			
Short-term borrowings from financial institutions					
- Secured		1,415	830	-	-
- Unsecured		2,903	1,593	2,000	-
Short-term borrowings from related parties					
- Unsecured	6	-	-	2,154	10,089
Total		4,318	2,423	4,154	10,089

Long-term borrowings

Long-term borrowings balances as at 31 December 2022 and 2021 were as follows:

		Consolidated financial statements		Separate financial statements	
	<i>Note</i>	2022	2021	2022	2021
		<i>(in million Baht)</i>			
Current					
Current portion of long-term borrowings from financial institutions					
- Secured		593	2,475	-	-
- Unsecured		8,706	1,830	7,683	998
Current portion of long-term borrowings from a related party					
- Unsecured	6	-	-	-	16,645
Current portion of long-term borrowings from other parties					
- Unsecured		42	46	-	-
Total current		9,341	4,351	7,683	17,643
Non-current					
Long-term borrowings from financial institutions					
- Secured		7,386	20,311	-	-
- Unsecured		79,368	72,622	41,118	31,876
Long-term borrowing from a related party					
- Unsecured	6	-	55,600	90,676	106,997
Long-term borrowings from other parties					
- Unsecured		162	210	-	-
Total non-current		86,916	148,743	131,794	138,873
Total		96,257	153,094	139,477	156,516

As at 31 December 2022, the Group had unutilised credit facilities totalling Baht 44,482 million (2021: Baht 60,408 million).

As at 31 December 2022, the Group pledged some bank accounts, some of the property, plant and equipment and various rights as collateral as reported to financial institutions. However, the pledged bank accounts can be withdrawn with the objective and conditions stipulated in loan agreements (see Notes 14 and 15).

As at 31 December 2022, the Group and the Company had long-term and revolving long-term credit facility agreements with several financial institutions totalling Baht 96,053 million and Baht 48,802 million, respectively (2021: Baht 97,238 million and Baht 32,874 million, respectively) which bear different interest rates and repayment terms as specified in each agreement. The Group is required to comply with certain covenants pertaining to maintain of certain financial ratios, percentage of share held by the major shareholder and other conditions as specified in each agreement.

Details of the Group's borrowings from financial institutions as at 31 December 2022 were as follows:

Currency	Facilities (in million)	Interest Rates (% p.a.)	Repayment Terms
The Company			
Baht	5,000	THBFIX 6M plus margin	Principal is repayable in 2 instalments in December 2020 and June 2023.
Baht	10,000	THBFIX 6M plus margin	Principal is repayable once in June 2025.
Baht	10,000	THBFIX 6M plus margin	Principal is repayable on a semi-annual basis, in 12 instalments commencing from January 2022.
Baht	10,000	MLR minus margin	Principal is repayable on a quarterly basis, in 12 instalments commencing from January 2023.
Baht	12,799.6	THOR plus margin	Principal is repayable on a semi-annual basis, in 20 instalments commencing from March 2023.
Baht	10,000	MLR minus margin	Principal is repayable on a quarterly basis, in 12 instalments commencing from September 2025.
Baht	2,000	THOR plus margin	Principal is repayable on a semi-annual basis, in 10 instalments commencing from March 2026.
Baht	2,000	THOR plus margin	Principal is repayable on a semi-annual basis, in 10 instalments commencing from March 2026.
Baht	15,000	MLR minus margin	Principal is repayable on a quarterly basis, in 14 instalments commencing from June 2025.
Baht	1,000	Prime rate minus margin	Principal is repayable on a semi-annual basis, in 5 instalments commencing from June 2026.

NOTES TO THE FINANCIAL STATEMENTS

Subsidiaries	Currency	Facilities (in million)	Interest Rates (% p.a.)	Repayment Terms
	EUR	180	EURIBOR 1/3M plus margin	Principal is repayable on an annual basis, in 6 instalments commencing from 2023.
	EUR	30	EURIBOR 6M plus margin	Principal is repayable on a semi-annual basis, in 10 instalments commencing from 2022.
	Baht	1,200	Fixed rate	Principal is repayable on a quarterly basis, in 17 instalments commencing from December 2022.
	Baht	500	Fixed rate	Principal is repayable on a quarterly basis, in 13 instalments commencing from March 2021.
	Baht	6,004	THBFIX 3M plus margin	Principal is repayable on a semi-annual basis, in 20 instalments commencing from February 2021.
	Baht	1,250	THBFIX 6M plus margin	Principal is repayable on a semi-annual basis, in 15 instalments commencing from April 2023.
	Baht	755	Highest interest rate for 6 month-fixed deposit plus margin	Principal is repayable on a semi-annual basis, in 10 instalments commencing from June 2024.
	USD	100	LIBOR 6M plus margin	Principal is repayable on a semi-annual basis, in 11 instalments commencing from March 2024.
	Baht	700	THOR plus margin	Principal is repayable on a semi-annual basis, in 15 instalments commencing from October 2022.
	Baht	700	Highest interest rate for 6 month-fixed deposit plus margin	Principal is repayable on a semi-annual basis, in 12 instalments commencing from April 2023.
	Baht	400	MLR minus margin	Principal is repayable on a semi-annual basis, in 10 instalments commencing from June 2024.
	CNY	700	LPR minus margin	Principal is repayable on a semi-annual basis, in 10 instalments commencing from December 2025.
	EUR	450	EURIBOR 1/3/6M plus margin	Principal is repayable once in November 2027.
	USD	300	SOFR plus margin	Principal is repayable once in November 2027.
	Baht	755	THOR plus margin	Principal is repayable on a semi-annual basis, in 10 instalments commencing from June 2024.

As at 31 December 2022, the subsidiaries' long-term borrowings and debentures were guaranteed by the Company totalling Baht 96,783 million (2021: Baht 95,215 million) (see Note 28).

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Debentures

Debentures balances as at 31 December 2022 and 2021 were as follows:

	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
	(in million Baht)			
Current				
Current portion of debentures				
- Unsecured	-	33,484	-	16,924
Total current	-	<u>33,484</u>	-	<u>16,924</u>
Non-current				
Debentures				
- Unsecured	176,974	76,016	89,930	34,969
Total non-current	<u>176,974</u>	<u>76,016</u>	<u>89,930</u>	<u>34,969</u>
Total	<u>176,974</u>	<u>109,500</u>	<u>89,930</u>	<u>51,893</u>

Details of the Group's debentures as at 31 December 2022 were as follows:

	Currency	Facilities	Face value per share	Years (in million)	Interest rates (% p.a.)	Repayment Terms
The Company						
Unsubordinated debenture unsecured with a debenture holders' representative and debenture issuer has right to redeem the debentures prior to maturity after one year of issuance	Baht	10,000	1,000	5	2.90	Interest is payable on a semi-annual basis and maturity in August 2024.
Unsubordinated debenture unsecured without a debenture holders' representative	Baht	1,500	1,000	5	2.20	Interest is payable on a semi-annual basis and maturity in September 2024.
Unsubordinated debenture unsecured without a debenture holders' representative	Baht	7,000	1,000	7	2.43	Interest is payable on a semi-annual basis and maturity in September 2026.
Unsubordinated debenture unsecured without a debenture holders' representative	Baht	1,500	1,000	10	2.75	Interest is payable on a semi-annual basis and maturity in September 2029.
Unsubordinated debenture unsecured with a debenture holders' representative	Baht	1,530	1,000	7	2.60	Interest is payable on a semi-annual basis and maturity in April 2027.

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	Currency	Facilities	Face value per share	Years (in million)	Interest rates (% p.a.)	Repayment Terms
Unsubordinated debenture unsecured with a debenture holders' representative	Baht	3,310	1,000	10	2.99	Interest is payable on a semi-annual basis and maturity in April 2030.
Unsubordinated debenture unsecured with a debenture holders' representative	Baht	4,360	1,000	12	3.29	Interest is payable on a semi-annual basis and maturity in April 2032.
Unsubordinated debenture unsecured with a debenture holders' representative	Baht	5,800	1,000	15	3.50	Interest is payable on a semi-annual basis and maturity in April 2035.
Unsubordinated debenture unsecured with a debenture holders' representative	Baht	14,000	1,000	5	2.13	Interest is payable on a semi-annual basis and maturity in January 2027.
Unsubordinated debenture unsecured with a debenture holders' representative	Baht	2,000	1,000	7	2.65	Interest is payable on a semi-annual basis and maturity in January 2029.
Unsubordinated debenture unsecured with a debenture holders' representative	Baht	2,000	1,000	10	3.05	Interest is payable on a semi-annual basis and maturity in January 2032.
Unsubordinated debenture unsecured with a debenture holders' representative	Baht	12,000	1,000	12	3.29	Interest is payable on a semi-annual basis and maturity in January 2034.
Unsubordinated debenture unsecured with a debenture holders' representative	Baht	5,000	1,000	5	3.21	Interest is payable on a semi-annual basis and maturity in June 2027.
Unsubordinated debenture unsecured with a debenture holders' representative	Baht	3,000	1,000	12	4.00	Interest is payable on a semi-annual basis and maturity in June 2034.
Unsubordinated debenture unsecured with a debenture holders' representative and debenture issuer has right to redeem the debentures prior to maturity after one year of issuance	Baht	17,000	1,000	7	3.50	Interest is payable on a semi-annual basis and maturity in June 2029.

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	Currency	Facilities	Face value per share	Years (in million)	Interest rates (% p.a.)	Repayment Terms
Subsidiaries						
Unsubordinated debenture at 98.68% of the face value unsecured with a debenture holders' representative and the debenture issuer can early redeem regarding the rights and obligations	USD	700	1,000	10	2.98	Interest is payable on a semi-annual basis and maturity in March 2031.
Unsubordinated debenture at 98.41% of the face value unsecured with a debenture holders' representative and the debenture issuer can early redeem regarding the rights and obligations	USD	550	1,000	30	4.30	Interest is payable on a semi-annual basis and maturity in March 2051.
Unsubordinated debenture at 99.41% of the face value unsecured with a debenture holders' representative and the debenture issuer can early redeem regarding the rights and obligations	USD	1,000	1,000	10	4.40	Interest is payable on a semi-annual basis and maturity in March 2032.
Unsubordinated debenture at 99.43% of the face value unsecured with a debenture holders' representative and the debenture issuer can early redeem regarding the rights and obligations	USD	300	1,000	30	5.20	Interest is payable on a semi-annual basis and maturity in March 2052.

NOTES TO THE FINANCIAL STATEMENTS

The periods to maturity of interest-bearing liabilities, excluding finance lease liabilities, as at 31 December 2022 and 2021 were as follows:

	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
	<i>(in million Baht)</i>			
Within one year	13,659	40,258	11,837	44,656
After one year but within five years	112,428	149,522	74,428	113,582
After five years	151,462	75,239	147,296	60,260
Total	277,549	265,019	233,561	218,498

Lease liabilities

The periods to maturity of lease liabilities, as at 31 December 2022 and 2021 were as follows:

	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
	<i>(in million Baht)</i>			
Within one year	2,693	1,964	1,497	1,430
After one year but within five years	7,792	3,762	5,169	2,156
After five years	20,695	8,113	14,819	6,105
	31,180	13,839	21,485	9,691
Less Deferred interest expense	(6,875)	(3,483)	(4,397)	(2,179)
	24,305	10,356	17,088	7,512
Classification				
- Current portion of lease liabilities	1,954	1,619	1,003	1,197
- Lease liabilities	22,351	8,737	16,085	6,315
	24,305	10,356	17,088	7,512

Changes in liabilities arising from financing activities

	Accrued interest expense	Consolidated financial statements			Total
		Borrowings	Debentures	Lease liabilities	
		<i>(in million Baht)</i>			
2022					
As at 1 January	1,137	155,517	109,501	10,356	276,511
Net financing cash flows	(9,494)	(54,209)	64,452	(2,494)	(1,745)
Loss of control in subsidiary	-	-	-	13,751	13,751
Increase in lease liabilities	-	-	-	2,176	2,176
Loss on exchange rate	202	(639)	3,379	(53)	2,889
Interest expense	9,161	-	-	411	9,572
Others	795	(94)	(358)	158	501
As at 31 December	1,801	100,575	176,974	24,305	303,655

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	Accrued interest expense	Borrowings	Debentures (in million Baht)	Lease liabilities	Total
2021					
As at 1 January	952	63,264	85,032	6,787	156,035
Net financing cash flows	(6,316)	90,175	20,000	(1,378)	102,481
Acquired through businesses combinations	2	602	-	1,902	2,506
Increase in lease liabilities	-	-	-	2,800	2,800
Loss on exchange rate	37	1,571	5,130	42	6,780
Interest expense	5,716	-	-	273	5,989
Others	746	(95)	(661)	(70)	(80)
As at 31 December	1,137	155,517	109,501	10,356	276,511

Separate financial statements

	Accrued interest expense	Borrowings	Debentures (in million Baht)	Lease liabilities	Total
2022					
As at 1 January	1,223	166,605	51,894	7,512	227,234
Net financing cash flows	(7,985)	(26,697)	36,255	(1,735)	(162)
Acquisition from transfers of businesses	-	-	-	240	240
Increase in lease liabilities	-	-	-	10,834	10,834
Loss on exchange rate	-	3,953	1,811	-	5,764
Interest expense	8,165	-	-	309	8,474
Others	392	(230)	(30)	(72)	60
As at 31 December	1,795	143,631	89,930	17,088	252,444

2021

As at 1 January	970	53,387	70,164	6,064	130,585
Net financing cash flows	(5,078)	108,521	(20,000)	(1,426)	82,017
Increase in lease liabilities	-	-	-	2,637	2,637
Loss on exchange rate	-	4,923	1,707	-	6,630
Interest expense	5,229	-	-	249	5,478
Others	102	(226)	23	(12)	(113)
As at 31 December	1,223	166,605	51,894	7,512	227,234

NOTES TO THE FINANCIAL STATEMENTS

19 Non-current provisions for employee benefits

<i>As at 31 December</i>	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
	<i>(in million Baht)</i>			
Post-employment benefits	7,749	9,407	4,302	4,070
Other long-term employee benefits	4,336	4,906	531	502
Fair value of plan assets	(2,919)	(3,192)	-	-
Total	9,166	11,121	4,833	4,572

Defined benefit plans

The Group and the Company operate a defined benefit plan based on the requirement of Thai Labour Protection Act B.E 2541 (1998) to provide retirement benefits to employees based on pensionable remuneration and length of service. The defined benefit plans expose the Company to actuarial risks, such as longevity risk, currency risk, interest rate risk and market (investment) risk.

<i>Present value of the defined benefit obligations</i>	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
	<i>(in million Baht)</i>			
As at 1 January	11,121	6,378	4,572	4,549
<i>Include in profit or loss:</i>				
Current service costs	575	496	296	290
Interest on obligation	158	89	91	67
Past service costs	(5)	46	(5)	-
Actuarial gain	(71)	(8)	(37)	-
	<u>657</u>	<u>623</u>	<u>345</u>	<u>357</u>
<i>Included in other comprehensive income:</i>				
Gain on remeasurements of defined benefit plans	(1,918)	(335)	(424)	(202)
Exchange differences on translating financial statement	(149)	16	-	-
	<u>(2,067)</u>	<u>(319)</u>	<u>(424)</u>	<u>(202)</u>
Others				
Benefits paid by the plan	(470)	(199)	(140)	(132)
Defined benefit obligations acquired through businesses combinations	-	7,830	480	-
Fair value of plan assets acquired through businesses combinations	-	(3,192)	-	-
Defined benefit obligations decrease from change in ownership interest in subsidiary	(75)	-	-	-
	<u>(545)</u>	<u>4,439</u>	<u>340</u>	<u>(132)</u>
As at 31 December	9,166	11,121	4,833	4,572

The principal actuarial assumptions as at 31 December 2022 and 2021 (expressed as weighted-averages) were as follows:

PTT GLOBAL CHEMICAL PUBLIC COMPANY LIMITED AND ITS SUBSIDIARIES
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<i>Actuarial assumptions</i>	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
		(%)		
Discount rate	0.7 - 7.6	0.4 - 6.5	2.8	1.9
Future salary growth	2.5 - 8.0	1.5 - 7.0	6.0	6.0
Employee turnover	0.0 - 50.0	0.0 - 50.0	0.0 - 8.0	0.0 - 3.0
Retirement age	55 - 67 years	55 - 67 years	60 years	60 years

Assumptions regarding future mortality have been based on published statistics and mortality tables.

As at 31 December 2022, the weighted-average duration of the defined benefit obligation was 10 years (2021: 10 years).

Sensitivity analysis

Reasonably possible changes at the reporting date to one of the relevant actuarial assumptions, holding other assumptions constant, would have affected the defined benefit obligation by the amounts shown below:

<i>Effect to the defined benefit obligation At 31 December</i>	Consolidated financial statements			
	1% increase in assumption		1% decrease in assumption	
	2022	2021	2022	2021
	<i>(in million Baht)</i>			
Discount rate	(990)	(1,546)	1,432	1,887
Future salary growth	1,049	1,094	(711)	(950)

<i>Effect to the defined benefit obligation At 31 December</i>	Separate financial statements			
	1% increase in assumption		1% decrease in assumption	
	2022	2021	2022	2021
	<i>(in million Baht)</i>			
Discount rate	(359)	(453)	678	535
Future salary growth	668	497	(381)	(428)

Plan assets

The major categories and fair value of plan assets at the end of the reporting period for each category were as follows:

	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
	<i>(in million Baht)</i>			
Equity Securities	923	1,073	-	-
Government and Corporate Bonds	979	967	-	-
Others	1,017	1,152	-	-
Total	2,919	3,192	-	-

20 Legal reserve

Section 116 of the Public Limited Companies Act B.E. 2535 (1992) requires that a company shall allocate not less than 5% of its annual net profit, less any accumulated losses brought forward (if any), to a reserve account ("legal reserve"), until this account reaches an amount not less than 10% of the registered authorised capital. The legal reserve is not available for dividend distribution.

**NOTES TO
THE FINANCIAL STATEMENTS**PTT GLOBAL CHEMICAL PUBLIC COMPANY LIMITED AND ITS SUBSIDIARIES
FOR THE YEAR ENDED DECEMBER 31, 2022**21 Segment information and disaggregation of revenue***(a) Segment information*

Management consider that the Group has 6 reportable segments which are significant business segments of the Group that offer different products and services, and are managed separately. For each of the business segments, the chief operating decision maker (CODM) reviews internal management reports on at least a quarterly basis. The Group has reviewed business segments and resulted in changes in reportable segments as follows;

Segment 1	Upstream (including Refinery, Aromatics and Olefins)
Segment 2	Intermediates (including EO-Based Performance, Phenol and others)
Segment 3	Polymers and Chemicals
Segment 4	Bio and Circularity
Segment 5	Performance Chemicals
Segment 6	Service and Others

The group has restated the reported segment information according to new reportable segments above.

Performance of each reportable segment is measured based on profit before finance cost, income tax, depreciation, amortisation and others which as included in the internal management reports that are reviewed by the Group's CODM. Management believes that using profit before finance cost, income tax, depreciation, amortisation and others to measure performance is the most relevant in evaluating the results of certain segments relative to other entities that operate within these industries.

NOTES TO THE FINANCIAL STATEMENTS

PTT GLOBAL CHEMICAL PUBLIC COMPANY LIMITED AND ITS SUBSIDIARIES
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Year ended 31 December 2022	Consolidated financial statements							
	Upstream	Intermediates	Polymers and Chemicals	Bio and Circularity <i>(in million Baht)</i>	Performance Chemicals	Service and Others	Elimination	Total
External revenues	340,162	87,861	111,542	22,250	118,201	3,938	-	683,954
Inter-segment revenues	134,165	9,011	130	2,914	-	9,080	(155,300)	-
Total revenues	474,327	96,872	111,672	25,164	118,201	13,018	(155,300)	683,954
Cost of sales and rendering of services	(452,008)	(89,193)	(98,055)	(22,643)	(93,838)	(9,530)	156,407	(608,860)
Selling, distribution and administrative expenses	(4,558)	(4,337)	(6,590)	(1,006)	(15,811)	(2,889)	2,643	(32,548)
Profit (loss) before finance costs, income tax, depreciation, amortisation and others	(4,481)	3,450	8,953	1,560	9,322	2,116	1,500	22,420
Investment income	371	53	143	12	18	22,203	(21,785)	1,015
Finance costs	(2,265)	(627)	(1,012)	(64)	(1,872)	(9,198)	5,203	(9,835)
Depreciation and amortisation	(11,169)	(4,282)	(3,114)	(640)	(8,635)	(980)	1,110	(27,710)
Reversal of (loss) on impairment and disposal of assets	636	426	(856)	24	(40)	(18)	-	172
Share of profit (loss) of joint ventures and associates accounted for using equity method	-	(592)	2,571	1,326	(20)	246	(35)	3,496
Others	4,222	337	1,786	(52)	(412)	(2,253)	(3,095)	533
Profit (loss) before income tax	(12,686)	(1,235)	8,471	2,166	(1,639)	12,116	(17,102)	(9,909)
Profit (loss) for reportable segment Owners of the Company	(10,578)	(1,775)	9,071	1,842	(1,449)	11,259	(17,122)	(8,752)

Consolidated financial statements

<i>Year ended 31 December 2021</i>	Upstream	Intermediates	Polymers and Chemicals	Bio and Circularity	Performance Chemicals	Service and Others	Elimination	Total
				(in million Baht)				
External revenues	242,472	86,336	103,451	18,982	15,178	2,534	-	468,953
Inter-segment revenues	127,204	7,914	93	1,941	-	9,898	(147,050)	-
Total revenues	369,676	94,250	103,544	20,923	15,178	12,432	(147,050)	468,953
Cost of sales and rendering of services	(337,058)	(72,060)	(85,887)	(18,709)	(12,460)	(9,070)	146,641	(388,603)
Selling, distribution and administrative expenses	(4,545)	(3,295)	(6,497)	(783)	(968)	(3,926)	1,138	(18,876)
Profit before finance costs, income tax, depreciation, amortisation and others	26,952	18,220	11,380	1,497	1,780	923	389	61,141
Investment income	270	57	146	6	1	24,151	(13,402)	11,229
Gain from sale of investment in an associate	-	-	-	-	-	9,932	269	10,201
Finance costs	(1,632)	(596)	(1,092)	(50)	(253)	(2,730)	408	(5,945)
Depreciation and amortisation	(13,049)	(4,823)	(3,219)	(708)	(1,242)	(960)	1,189	(22,812)
Loss on impairment and disposal of assets	(430)	(223)	(81)	(435)	(32)	(2,695)	785	(3,111)
Share of profit (loss) of joint ventures and associates accounted for using equity method	-	1,352	3,054	1,523	(36)	965	(17)	6,841
Others	(540)	225	286	9	(37)	(4,301)	(408)	(4,766)
Profit before income tax	11,571	14,212	10,474	1,842	181	25,285	(10,787)	52,778
Profit for reportable segment	11,255	13,337	9,743	1,666	148	19,061	(10,228)	44,982
Owners of the Company								

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(b) *Geographical segments*

In presenting information on the basis of geographical segments, are based on the geographical location of customers. Segment non-current assets (exclude derivatives and deferred tax assets) are based on the geographical location of the assets.

Geographical information

	Revenues	
	2022	2021
	<i>(in million Baht)</i>	
Thailand	408,306	288,545
The People's Republic of China	45,945	44,939
Vietnam	28,292	20,415
United States of America	24,479	3,445
Singapore	23,501	8,946
India	16,286	11,432
Indonesia	12,578	10,236
Germany	12,115	1,234
Australia	9,391	1,797
Japan	8,417	5,055
Malaysia	8,337	11,918
Other countries	86,307	60,991
Total	683,954	468,953

	Non-current assets	
	2022	2021
	<i>(in million Baht)</i>	
Thailand	355,361	341,360
Netherlands	85,884	96,741
Germany	56,354	52,177
United States of America	20,429	19,545
France	7,117	7,120
Other countries	19,849	18,225
Total	544,994	535,168

(c) *Major customers*

Revenue from one customer, which is a related party, of Upstream and Bio and Circularity segments representing Baht 183,386 million (2021: Baht 123,579 million) of the Group's revenue.

NOTES TO THE FINANCIAL STATEMENTS

22 Expenses by nature

	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
	<i>(in million Baht)</i>			
<i>Included in cost of sales of goods</i>				
Changes in finished goods				
work in progress and goods in transit	(6,060)	(11,434)	(9,247)	(6,989)
Raw materials used	558,638	385,490	434,681	275,861
Personnel expense	16,492	10,800	5,168	5,765
Depreciation of property, plant and equipment	18,067	19,318	11,440	13,034
Depreciation of right-of-use assets	1,127	821	396	644
Amortisation of intangible assets	545	490	693	369
<i>Included in selling and distribution and administrative expenses</i>				
Personnel expense	11,367	6,445	3,610	4,162
Depreciation of property, plant and equipment	2,667	754	451	463
Depreciation of right-of-use assets	819	493	649	732
Amortisation of intangible assets	3,502	417	249	276
Minimum lease payments recognised as a lease expense	425	306	113	131

During 2022, the Group has contributed provident funds for its employees amounting to Baht 1,076 million and Baht 561 million, respectively (2021: Baht 684 million and Baht 527 million, respectively), which is included in employee benefit expenses.

PTT GLOBAL CHEMICAL PUBLIC COMPANY LIMITED AND ITS SUBSIDIARIES
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23 Income tax

<i>Income tax recognised in profit or loss</i>	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
	<i>(in million Baht)</i>			
Current tax expense				
Current year	2,185	4,079	-	2,263
Under (over) provided in prior years	249	(41)	185	-
	<u>2,434</u>	<u>4,038</u>	<u>185</u>	<u>2,263</u>
Deferred tax expense				
Movements in temporary differences	(4,707)	3,190	(3,282)	3,149
Total	<u>(2,273)</u>	<u>7,228</u>	<u>(3,097)</u>	<u>5,412</u>

Reconciliation of effective tax rate

	Consolidated financial statements			
	2022		2021	
	<i>Rate (%)</i>	<i>(in million Baht)</i>	<i>Rate (%)</i>	<i>(in million Baht)</i>
Profit (loss) before income tax expense		(9,909)		52,778
Income tax using the Thai corporation tax rate	20.0	(1,982)	20.0	10,556
Effect of different tax rates in foreign jurisdictions		(317)		1,823
Income not subject to tax		(425)		(1,873)
Expenses not deductible for tax purposes		2,486		1,315
Expenses deductible at a greater amount		(2,121)		(3,471)
Tax losses carried forward		(12)		(2,112)
Under (over) provided in prior years		249		(41)
Share of profit of joint ventures and associates accounted for using equity method		(511)		(1,368)
Others		360		2,399
Total	-	<u>(2,273)</u>	13.7	<u>7,228</u>

Reconciliation of effective tax rate

	Separate financial statements			
	2022		2021	
	<i>Rate (%)</i>	<i>(in million Baht)</i>	<i>Rate (%)</i>	<i>(in million Baht)</i>
Profit (loss) before income tax expense		(508)		42,540
Income tax using the Thai corporation tax rate	20.0	(102)	20.0	8,508
Income not subject to tax		(3,308)		(3,018)
Expenses not deductible for tax purposes		678		1,379
Expenses deductible at a greater amount		(1,023)		(2,741)
Tax losses carried forward		-		(1,865)
Under provided in prior years		185		-
Others		473		3,149
Total	-	<u>(3,097)</u>	12.7	<u>5,412</u>

NOTES TO THE FINANCIAL STATEMENTS

Consolidated financial statements

<i>Deferred tax</i> <i>At 31 December</i>	Assets		Liabilities	
	2022	2021	2022	2021
	<i>(in million Baht)</i>			
Total	10,093	7,174	(26,991)	(29,777)
Set off of tax	(7,275)	(4,016)	7,275	4,016
Net deferred tax assets (liabilities)	2,818	3,158	(19,716)	(25,761)

Separate financial statements

<i>Deferred tax</i> <i>At 31 December</i>	Assets		Liabilities	
	2022	2021	2022	2021
	<i>(in million Baht)</i>			
Total	5,246	1,565	(5,972)	(6,469)
Set off of tax	(5,246)	(1,565)	5,246	1,565
Net deferred tax assets (liabilities)	-	-	(726)	(4,904)

Consolidated financial statements

	At 1 January 2022	(Charged) / Credited to Profit or loss	Other comprehensive income	Loss on control in subsidiary	Exchange differences	At 31 December 2022
	(in million Baht)					
Deferred tax assets						
Provisions for employee benefits	2,032	(106)	(440)	(16)	(26)	1,444
Property, plant and equipment	1,077	(77)	-	-	-	1,000
Lease liabilities	188	59	-	-	(13)	234
Loss carry forward	1,393	3,650	-	-	(20)	5,023
Others	2,484	(74)	87	(3)	(102)	2,392
Total	7,174	3,452	(353)	(19)	(161)	10,093
Deferred tax liabilities						
Property, plant and equipment	(21,493)	775	-	-	480	(20,238)
Right-of-use assets	(13)	13	-	-	-	-
Other intangible assets	(3,941)	208	-	-	84	(3,649)
Financial assets	(3,126)	(2)	879	-	(5)	(2,254)
Others	(1,204)	261	20	1	72	(850)
Total	(29,777)	1,255	899	1	631	(26,991)
Net	(22,603)	4,707	546	(18)	470	(16,898)

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Consolidated financial statements

(Charged) / Credited to

	At 1 January 2021	Profit or loss	Other comprehensive income	Acquired through business combinations (see note 4)	Exchange differences	At 31 December 2021
	<i>(in million Baht)</i>					
Deferred tax assets						
Provisions for employee benefits	1,145	64	(43)	866	-	2,032
Property, plant and equipment	778	177	-	122	-	1,077
Lease liabilities	82	66	-	40	-	188
Loss carry forward	1,633	(1,135)	-	894	1	1,393
Others	24	153	(4)	2,306	5	2,484
Total	3,662	(675)	(47)	4,228	6	7,174
Deferred tax liabilities						
Property, plant and equipment	(4,027)	(86)	-	(17,376)	(4)	(21,493)
Right-of-use assets	(1)	(12)	-	-	-	(13)
Other intangible assets	-	-	-	(3,941)	-	(3,941)
Financial assets	(2)	(2,199)	(920)	-	(5)	(3,126)
Others	(162)	(218)	(11)	(810)	(3)	(1,204)
Total	(4,192)	(2,515)	(931)	(22,127)	(12)	(29,777)
Net	(530)	(3,190)	(978)	(17,899)	(6)	(22,603)

NOTES TO
THE FINANCIAL STATEMENTS

	Separate financial statements (Charged) / Credited to				At 31 December 2022
	At 1 January 2022	Profit or loss	Other comprehensive income (in million Baht)	Acquisition from transfers of businesses (see note 5)	
Deferred tax assets					
Provisions for employee benefits	897	(63)	(62)	26	798
Property, plant and equipment	541	(63)	-	25	503
Lease liabilities	71	53	-	2	126
Loss carry forward	-	3,411	-	-	3,411
Others	56	267	85	-	408
Total	1,565	3,605	23	53	5,246
Deferred tax liabilities					
Property, plant and equipment	(3,223)	(216)	-	(1)	(3,440)
Others	(3,246)	(107)	827	(6)	(2,532)
Total	(6,469)	(323)	827	(7)	(5,972)
Net	(4,904)	3,282	850	46	(726)
	Separate financial statements (Charged) / Credited to:				At 31 December 2021
	At 1 January 2021	Profit or loss	Other comprehensive income (in million Baht)		
Deferred tax assets					
Provisions for employee benefits	903	23	(29)		897
Property, plant and equipment	432	109	-		541
Lease liabilities	20	51	-		71
Loss carry forward	930	(930)	-		-
Others	12	47	(3)		56
Total	2,297	(700)	(32)		1,565
Deferred tax liabilities					
Property, plant and equipment	(3,117)	(106)	-		(3,223)
Others	(85)	(2,343)	(818)		(3,246)
Total	(3,202)	(2,449)	(818)		(6,469)
Net	(905)	(3,149)	(850)		(4,904)

24 Promotional privileges

The Company has been granted promotional certificates by the Office of the Board of Investment relating to production of upstream, intermediate and downstream petrochemical, utilities and production support facilities, jetty for transportation and storage of liquid product and transportation by marine vessels, production of petroleum product. The Company has been granted several privileges including exemption and/or reduction from payment of income tax on the net profit derived from promoted operations with certain terms and conditions prescribed in the promotional certificates, which the Company must comply with.

	Separate financial statements					
	2022		Total (in million Baht)	2021		Total
	Promoted businesses	Non- promoted businesses		Promoted businesses	Non- promoted businesses	
Export sales	30,425	15,275	45,700	32,592	2,086	34,678
Domestic sales	282,304	170,181	452,485	166,890	177,754	344,644
Services income	-	582	582	-	619	619
Total revenues	312,729	186,038	498,767	199,482	180,459	379,941

Certain subsidiaries in the Group have been granted promotional privileges as same as the Company.

25 Earnings (loss) per share

	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
	(in million Baht / in million shares)			
Profit (loss) attributable to ordinary shareholders of the parent company (basic)	(8,752.21)	44,982.39	2,589.51	37,128.70
Number of ordinary shares as at				
At 1 January	4,508.85	4,508.85	4,508.85	4,508.85
Effect of treasury shares	-	(15.95)	-	(15.95)
Weighted average number of ordinary shares (basic)	4,508.85	4,492.90	4,508.85	4,492.90
Earnings (loss) per share (basic) (in Baht)	(1.94)	10.01	0.57	8.26

The Company has no potential dilutive ordinary shares during the years ended 31 December 2022 and 2021. Therefore, there are no dilutive earnings per share effect.

NOTES TO
THE FINANCIAL STATEMENTSPTT GLOBAL CHEMICAL PUBLIC COMPANY LIMITED AND ITS SUBSIDIARIES
FOR THE YEAR ENDED DECEMBER 31, 2022**26 Dividends**

	Approval date	Payment schedule	Dividend rate per share (Baht)	Amount (in million Baht)
2022				
2021 Annual dividend	4 April 2022	22 April 2022	1.75	7,890
2022 Interim dividend	22 August 2022	21 September 2022	0.75	3,382
				11,272
2021				
2020 Annual dividend	5 April 2021	23 April 2021	1.00	4,486
2021 Interim dividend	23 August 2021	22 September 2021	2.00	8,973
				13,459

27 Financial instruments*(a) Carrying amounts and fair values*

Carrying amounts of cash and cash equivalents, investments in current financial assets, trade accounts receivable, other accounts receivables, short-term loans to related parties, short-term loans from financial institutions, trade payables, other payables, payables to contractor and short-term loans from related parties, which are measured at amortised cost. They are approximate to their fair values due to their short maturities.

Carrying amounts of long-term loans to related parties, other non-current assets, long-term loans from financial institutions with floating interest rates, long-term loans from other parties, long-term loans from related parties bearing floating interest rates, lease liabilities and other non-current liabilities measured at amortised cost. The value is close to the estimated fair value.

The following table shows the carrying amounts and fair values of financial assets and financial liabilities, including their levels in the fair value hierarchy, but does not include fair value information for financial assets and financial liabilities measured at amortised cost if the carrying amount is a reasonable approximation of fair value.

NOTES TO THE FINANCIAL STATEMENTS

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		Carrying amount				Consolidated financial statement				Fair value	
		Financial instruments measured at FVTPL	Financial instruments measured at FVOCI	Financial instruments measured at amortised cost	(in million Baht)						
					Total	Level 1	Level 2	Level 3	Total		
<i>At 31 December 2022</i>											
<i>Financial assets</i>											
	Hedging instruments	-	282	25,658	25,940	-	282	-	282	-	282
	Cash and cash equivalents	-	916	5,107	6,023	-	916	-	916	-	916
	Current financial assets	32	-	-	470	-	470	-	470	-	470
	Current derivatives assets	-	671	-	24,462	21,150	1,618	1,694	24,462	-	24,462
	Non-current financial assets	-	23,791	-	-	-	-	-	-	-	-
	Non-current derivatives assets	-	145	-	145	-	145	-	145	-	145
<i>Financial liabilities</i>											
	Current derivatives liabilities	1	1,621	-	1,622	-	1,622	-	1,622	-	1,622
	Long-term borrowings from financial institution	-	-	96,053	96,053	-	1,350*	-	1,350*	-	1,350
	Debentures	-	-	176,974	176,974	-	160,394	-	160,394	-	160,394
	Non-current derivative liabilities	-	352	-	352	-	352	-	352	-	352

* Fair value of long-term borrowings from financial institutions with fixed interest rate only.

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	Carrying amount				Consolidated financial statement				Fair value		
	Hedging instruments	Financial instruments measured at FVTPL	Financial instruments measured at FVOCI	Financial instruments measured at amortised cost	Total	Level 1	Level 2	Level 3	Total		
<i>At 31 December 2021</i>											
<i>(in million Baht)</i>											
Financial assets											
Cash and cash equivalents	-	-	42	55,571	55,613	-	42	-	42		42
Current financial assets	-	-	996	18,385	19,381	-	996	-	996		996
Current derivatives assets	29	1,279	-	-	1,308	-	1,308	-	1,308		1,308
Non-current financial assets	-	598	28,559	-	29,157	25,879	1,969	1,309	29,157		29,157
Non-current derivatives assets	63	-	-	-	63	-	63	-	63		63
Financial liabilities											
Current derivatives liabilities	5	1,857	-	-	1,862	-	1,392	470	1,862		1,862
Long-term borrowings from financial institutions	-	-	-	97,238	97,238	-	1,455*	-	1,455		1,455
Long-term borrowings from related parties	-	-	-	55,600	55,600	-	55,600	-	55,600		55,600
Debentures	-	-	-	109,501	109,501	-	113,687	-	113,687		113,687
Non-current derivatives liabilities	-	18	-	-	18	-	18	-	18		18

* Fair value of long-term borrowings from financial institutions with fixed interest rate only.

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PTT GLOBAL CHEMICAL PUBLIC COMPANY LIMITED AND ITS SUBSIDIARIES
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	Separate financial statements					Fair value			
	Carrying amount			Financial instruments measured at amortised cost	Total <i>(in million Baht)</i>	Level 1	Level 2	Level 3	Total
	Hedging instruments	Financial instruments measured at FVTPL	Financial instruments measured at FVOCI						
<i>At 31 December 2022</i>									
<i>Financial assets</i>									
Cash and cash equivalents	-	-	281	4,905	5,186	-	281	-	281
Current financial assets	-	-	916	3,439	4,355	-	916	-	916
Current derivatives assets	32	382	-	-	414	-	414	-	414
Non-current financial assets	-	383	22,212	-	22,595	20,967	1,618	10	22,595
Non-current derivatives assets	-	101	-	-	101	-	101	-	101
<i>Financial liabilities</i>									
Current derivatives liabilities	-	1,561	-	-	1,561	-	1,561	-	1,561
Long-term borrowings from related parties	-	-	-	90,676	90,676	-	75,977*	-	75,977
Debentures	-	-	-	89,930	89,930	-	88,452	-	88,452
Non-current derivatives liabilities	-	352	-	-	352	-	352	-	352

* Fair value of long-term borrowings from related parties with fixed interest rate only.

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PTT GLOBAL CHEMICAL PUBLIC COMPANY LIMITED AND ITS SUBSIDIARIES
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	Separate financial statements					Fair value			
	Carrying amount			Financial instruments measured at amortised cost	Total	Level 1	Level 2	Level 3	Total
	Hedging instruments	Financial instruments measured at FVTPL	Financial instruments measured at FVOCI						
<i>At 31 December 2021</i>									
<i>Financial assets</i>									
Cash and cash equivalents	-	-	42	33,262	33,304	-	42	-	42
Current financial assets	-	-	996	18,058	19,054	-	996	-	996
Current derivatives assets	29	1,269	-	-	1,298	-	1,298	-	1,298
Non-current financial assets	-	374	26,998	-	27,372	25,399	1,969	4	27,372
Non-current derivatives assets	63	-	-	-	63	-	63	-	63
<i>Financial liabilities</i>									
Current derivatives liabilities	2	1,329	-	-	1,331	-	1,331	-	1,331
Long-term borrowings from related parties	-	-	-	123,642	123,642	-	119,119*	-	119,119
Debentures	-	-	-	51,894	51,894	-	52,995	-	52,995

* Fair value of long-term borrowings from related parties with fixed interest rate only

Measurement of fair values

Level 1 of fair values for debt instruments measured at fair value through profit or loss are based on quoted bid price as at the end of reporting period by references from the Stock Exchange of Thailand. For equity instruments measured at fair value through other comprehensive income are based on closing price as at the end of reporting period in the Stock Exchange of Thailand or New York Stock Exchange.

Level 2 of fair values for debt instruments measured at fair value through other comprehensive income are based on the yield rate quoted by the Thai Bond Market Association or other markets and for financial derivatives are based on broker quotes. Those quotes are tested for reasonableness by discounting expected future cash flows using market interest rate for a similar instrument at the measurement date. Fair values reflect the credit risk of the instrument and include adjustments to take account of the credit risk of the Group and counterparty when appropriate. For over-the-counter commodity derivatives are based on an estimated price by the organization that has expertise in petroleum and petrochemical areas as well as reliability from buyers and sellers in markets. The price forecast methodology takes account of fundamental factors including demand, supply and other factors that will affect the price direction in the future. For fixed-rate long-term borrowings are based on discounted future cash flows for the remaining periods using market interest rate for a similar instrument at the measurement date. For debentures are based on the last closing price on the Thai Bond Market Association at the measurement date.

Level 3 of fair value for debt instruments and equity instruments measured at fair value through profit or loss are as follows;

- For investment in a startup company, is based on valuation of the latest fundraising round.
- For investments in non-marketable securities, the fair values are based on the discounted present value of the future cash flows estimated based on available performance indicators at an appropriate interest rate.

Fair values for equity instruments measured at fair value through other comprehensive income are as follows;

- For investments in startup companies, the fair values are based on valuation of the latest fundraising round.
- For investments in non-marketable securities, the fair values are based on cost which considered as estimated fair values, except there are significant changes in their operations.
- For investments in funds, the fair values are referred to the net asset value of the funds.

NOTES TO THE FINANCIAL STATEMENTS

		Consolidated financial statements		Separate financial statements	
<i>Reconciliation of Level 3 fair values</i>	<i>Note</i>	2022	2021	2022	2021
		<i>(in million Baht)</i>			
<i>Investments in non-current financial assets</i>					
Balance as at 1 January		1,309	700	4	4
Total gains or (losses):					
in other comprehensive income		(40)	174	(4)	-
Acquired through businesses combinations	4	-	191	-	-
Purchases/ issues		398	242	10	-
Change in fair value measurement level		-	(64)	-	-
Effect from exchange differences on translating financial statements		27	66	-	-
Balance as at 31 December		<u>1,694</u>	<u>1,309</u>	<u>10</u>	<u>4</u>

		Consolidated financial statements		Separate financial statements	
		2022	2021	2022	2021
		<i>(in million Baht)</i>			
<i>Derivative liability in put option over non-controlling interest</i>					
Balance as at 1 January		470	95	-	-
Total gains or (losses):					
in profit or loss		-	371	-	-
Disposals/ settlements		(457)	-	-	-
Effect from exchange differences on translating financial statements		(13)	4	-	-
Balance as at 31 December		-	470	-	-

(b) *Financial risk management policies*

Risk management framework

The Group is exposed to normal business risks from changes in market interest rates, currency exchange rates and commodity prices and from non-performance of contractual obligations by counterparties. The Group does not hold or issue derivative financial instruments for speculative or trading purposes.

Risk management is integral to the whole business of the Group. The management continually monitors the Group's risk management process to ensure that an appropriate balance between risk and control is achieved.

Capital management

The Company's Board of Directors' policy is to maintain a strong capital base so as to maintain investor, creditor, partners and other stakeholders. In addition, the Board monitors the return on capital and the level of dividends to ensure business sustainability.

(b.1) Credit risk

Credit risk is risk of financial loss of the Group if a customer or a counterparty to the financial instrument fails to perform its contractual obligations, most of which is from trade receivables and investment in debt securities of the Group.

(b.1.1) Trade accounts receivables

Credit risk of the Group is influenced by individual characteristics of customers. However, management has to consider other factors that may affect the customer's credit risk, including the risk of default in relation to industry and country of operations.

Management has a policy in place and the exposure to credit risk is monitored on an ongoing basis. Credit evaluations are performed on all customers requiring credit over a certain amount. At the reporting date, there were no significant credit risk and the concentration of credit risk. The maximum exposure to credit risk is represented by the carrying amount of each financial asset in the statement of financial position. However, the majority of the customers are on the long-term contracted commitment and parts of them are the Company's shareholders which the company has consistently collected from them. For the customers who do not have the long-term contracted commitments, the Group monitors the risk on an ongoing basis and would do the business only with the credible customers by limiting the credit lines and requesting the guarantee on some cases. For the export, the credit of counterparty will be considered. The Group will demand a payment on a case to case basis and also has commercial credit insurance. Management anticipates no material losses from its debt collection.

For trade receivables, the Group apply simplified approach in accordance with TFRS 9 to measure lifetime expected credit loss. The Group consider expected credit loss by using trade receivables provision table which estimate historical credit loss. The overdue circumstance adjusted to reflect current situation of receivables and the future economic conditions were taken into account.

(b.1.2) Loans to related parties

In assessing credit risk, the Company considers that most of subsidiaries and joint ventures in which have borrowings from the Company have the affordability that payments will be made under the agreements. However, the Company continually monitors the possibility of payments from counterparties.

(b.1.3) Cash and cash equivalents

The Group's exposure to credit risk arising from cash and cash equivalents and derivative assets is limited because the counterparties are financial institutions which are rated at investment grade. The Group constantly assesses the financial status and stability of those financial institutions and companies to manage risks from deposit and investing.

(b.1.4) Investment in debt securities

The Group considers that all debt investments measured at amortised cost and FVOCI have low credit risk. Marketable bonds are considered to be an investment grade credit rating published by external credit rating agencies. The credit risk of other non-marketable debt instruments is considered to be low when the risk of default is low and the issuer has a strong capacity to meet its contractual cash flow obligations.

NOTES TO THE FINANCIAL STATEMENTS

(b.2) Liquidity risk

The Group monitors its liquidity risk and maintains a level of cash and cash equivalents deemed adequate by management to finance the Group's operations and to mitigate the effects of fluctuations in cash flows.

The following table shows the remaining contractual maturities of financial liabilities at the reporting date. The amounts are gross and undiscounted and include contractual interest payments and exclude the impact of netting agreements.

<i>At 31 December</i>	Consolidated financial statements			Total
	1 year or less	More than 1 years but less than 5 years (in million Baht)	More than 5 years	
2022				
<i>Non-derivative financial liabilities</i>				
Short-term borrowings from financial institutions	4,334	-	-	4,334
Trade payables	57,613	-	-	57,613
Other payables	17,488	-	-	17,488
Payables to contractors	3,717	-	-	3,717
Lease liabilities	2,693	7,792	20,695	31,180
Long-term borrowings from financial institutions	12,716	83,998	14,217	110,931
Long-term borrowings from other parties	47	144	31	222
Debentures	6,002	63,151	187,991	257,144
Other non-current liabilities	-	95	22	117
	104,610	155,180	222,956	482,746
<i>Derivative financial liabilities</i>				
Cash inflows from				
Foreign exchange forward contracts	11,094	311	-	11,405
Foreign currency and interest rate swap contracts	2,204	44,360	-	46,564
Commodity forward contracts	325	-	-	325
Cash outflows from				
Foreign exchange forward contracts	(11,076)	(308)	-	(11,384)
Foreign currency and interest rate swap contracts	(1,737)	(43,070)	-	(44,807)
Commodity forward contracts	(663)	-	-	(663)
	147	1,293	-	1,440

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<i>At 31 December</i>	Consolidated financial statements			
	1 year or less	More than 1 years but less than 5 years (in million Baht)	More than 5 years	Total
2021				
<i>Non-derivative financial liabilities</i>				
Short-term borrowings from financial institutions	2,431	-	-	2,431
Trade payables	70,111	-	-	70,111
Other payables	22,319	-	-	22,319
Payables to contractors	3,058	-	-	3,058
Lease liabilities	1,964	3,762	8,113	13,839
Long-term borrowings from financial institutions	5,980	79,508	18,565	104,053
Long-term borrowings from other parties	52	174	54	280
Long-term borrowings from related parties	1,362	56,940	-	58,302
Debentures	37,239	27,886	83,356	148,481
Other non-current liabilities	-	479	32	511
	144,516	168,749	110,120	423,385
<i>Derivative financial liabilities</i>				
Cash inflows from				
Foreign exchange forward contracts	5,443	986	-	6,429
Foreign currency and interest rate swap contracts	156	1,058	1,655	2,869
Commodity forward contracts	1,777	-	-	1,777
Cash outflows from				
Foreign exchange forward contracts	(5,452)	(919)	-	(6,371)
Foreign currency and interest rate swap contracts	(164)	(1,099)	(1,659)	(2,922)
Commodity forward contracts	(2,978)	-	-	(2,978)
	(1,218)	26	(4)	(1,196)

NOTES TO THE FINANCIAL STATEMENTS

<i>At 31 December</i>	Separate financial statements			Total
	1 year or less	More than 1 years but less than 5 years (in million Baht)	More than 5 years	
2022				
<i>Non-derivative financial liabilities</i>				
Short-term borrowings from financial institutions	2,003	-	-	2,003
Trade payables	43,054	-	-	43,054
Other payables	7,063	-	-	7,063
Payables to contractors	3,314	-	-	3,314
Lease liabilities	1,497	5,169	14,819	21,485
Short-term borrowings from related parties	2,154	-	-	2,154
Long-term borrowings from financial institutions	9,052	36,763	8,422	54,237
Long-term borrowings from related parties	4,207	18,949	136,053	159,209
Debentures	2,404	48,758	58,071	109,233
Other non-current liabilities	-	95	17	112
	74,478	109,734	217,382	401,864
<i>Derivative financial liabilities</i>				
Cash inflows from				
Foreign exchange forward contracts	7,380	-	-	7,380
Foreign currency and interest rate swap contracts	1,965	41,885	-	43,850
Commodity forward contracts	325	-	-	325
Cash outflows from				
Foreign exchange forward contracts	(7,955)	-	-	(7,955)
Foreign currency and interest rate swap contracts	(1,477)	(40,477)	-	(41,954)
Commodity forward contracts	(663)	-	-	(663)
	(425)	1,408	-	983

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<i>At 31 December</i>	Separate financial statements			Total
	1 year or less	More than 1 years but less than 5 years (in million Baht)	More than 5 years	
2021				
<i>Non-derivative financial liabilities</i>				
Trade payables	50,695	-	-	50,695
Other payables	10,208	-	-	10,208
Payables to contractors	2,960	-	-	2,960
Lease liabilities	1,430	2,156	6,105	9,691
Short-term borrowings from related parties	10,089	-	-	10,089
Long-term borrowings from financial institutions	1,626	30,654	2,617	34,897
Long-term borrowings from related parties	20,646	74,244	66,978	161,868
Debentures	18,674	21,936	19,506	60,116
Other non-current liabilities	-	479	23	502
	116,328	129,469	95,229	341,026
<i>Derivative financial liabilities</i>				
Cash inflows from				
Foreign exchange forward contracts	1,132	814	-	1,946
Commodity forward contracts	1,777	-	-	1,777
Cash outflows from				
Foreign exchange forward contracts	(1,102)	(747)	-	(1,849)
Commodity forward contracts	(2,978)	-	-	(2,978)
	(1,171)	67	-	(1,104)

The cash inflows/cash outflows disclosed in the above table represent the contractual undiscounted cash flows relating to derivative financial liabilities held for risk management purposes and which are not usually closed out before contractual maturity. The disclosure shows net cash flow amounts for derivatives that are net cash-settled and gross cash inflow and outflow amounts for derivatives that have simultaneous gross cash settlement.

(b.3) Market risk

The Group is exposed to the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in market prices. Market risk is as follows:

Managing interest rate benchmark reform (IBOR reform)

The Group monitors and considers the transition from the IBOR discontinuation by determining that contracts reference IBOR will need to be amended to alternative rates. It provides periodic reports to management of interest rate risk and risks arising from IBOR discontinuation.

The Group's main IBOR exposure at 31 December 2022 was indexed to LIBOR and THBFIX. As at 31 December 2022, the Group has negotiated to amend the contractual terms for some of the LIBOR and THBFIX indexed exposures to SOFR and THOR.

NOTES TO THE FINANCIAL STATEMENTS

The following table shows the total amounts of financial instruments that have yet to transition to alternative benchmark rates. The amounts of financial assets and financial liabilities are shown at their carrying amounts.

<i>Key reference rate under the existing contracts</i>	Consolidated financial statements		Separate financial statements	
	LIBOR	THBFIX	LIBOR	THBFIX
	<i>(in million Baht)</i>			
At 31 December 2022				
Loan to related parties	585	-	585	12,780
Borrowings from financial institutions	-	27,884	-	22,600

(b.3.1) Foreign currency risk

The Group is exposed to foreign currency fluctuations risk in assets and liabilities and the gross profit (Product to Feed margin - P2F) of the Group that is referenced in foreign currency. Therefore, the Group has a policy in place to manage those risks by emphasizing the natural hedge on assets and liabilities held in foreign currency and the gross profit (P2F) of the Group that is referenced in foreign currency.

Moreover, the Group uses derivative hedges to mitigate the residual risk by entering into foreign currency forward contracts in accordance with the framework approved by the Risk Management Committee of the Group which will result in gain (loss) from derivatives which will be offset against the gross profit (P2F) in order to maintain the Group's net profit at the exchange rate specified in the business plan as follows:

- In the event that the Thai Baht appreciates more than the exchange rate in the foreign currency forward contracts, there will be gain on derivative. Meanwhile, the gross profit (P2F) which the Group received in cash will decrease due to the appreciation of the Thai Baht.
- On the contrary, in the event that the Thai Baht depreciates more than the exchange rate in foreign currency forward contracts, there will be loss on derivative. Meanwhile, the gross profit (P2F) which the Group received in cash will increase due to the depreciation of the Thai Baht.

Overall, the derivative hedge can mitigate the impact from fluctuations in foreign currency to the Group's performance.

Exposure to foreign currency

At 31 December

	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
	<i>(in million Baht)</i>			
USD				
Financial assets	20,095	59,235	13,847	66,414
Financial liabilities	(18,673)	(24,154)	(98,481)	(79,804)
Statement of financial position exposure	1,422	35,081	(84,634)	13,390
Net derivatives	43,881	(1,279)	45,932	1,941
EUR				
Financial assets	671	22	47,694	86,772
Financial liabilities	(403)	(19,936)	(51)	(10,236)
Statement of financial position exposure	268	(19,914)	47,643	76,536
Net derivatives	411	536	-	-

Sensitivity analysis

A reasonably possible strengthening (weakening) of Thai Baht against all other foreign currencies at the reporting date would have affected the measurement of financial instruments denominated in a foreign currency. This analysis assumes that all other variables, in particular interest rates, remain constant.

<i>Impact to profit or loss</i>	Movement (%)	Consolidated financial statements		Separate financial statements	
		Strengthening	Weakening <i>(in million Baht)</i>	Strengthening	Weakening
2022					
USD	10				
- Net gain (loss) on foreign exchange rate		(4,498)	4,498	3,902	(3,902)
- Other equity - gain (loss) on cash flow hedges		(32)	32	(32)	32
EUR	10				
- Net gain (loss) on foreign exchange rate		(68)	68	(4,764)	4,764
2021					
USD	10				
- Net gain (loss) on foreign exchange rate		(3,261)	3,261	1,252	(1,252)
- Other equity - gain (loss) on cash flow hedges		(119)	119	(107)	107
EUR	10				
- Net gain (loss) on foreign exchange rate		1,951	(1,951)	(7,654)	7,654
- Other equity - gain (loss) on cash flow hedges		(13)	13	-	-

In addition to forward exchange contracts, the Group uses derivatives financial instruments, principally currency swaps and interest rate swap, to manage exposure to fluctuations in exchange rates and interest rates. As at 31 December 2022, the Group has entered into foreign currency and interest rate swap contracts, totalling Baht 41,291 million (2021: Baht 2,887 million).

The following tables detail the foreign currency forward contracts outstanding at the reporting date for their hedged items related to forecasted purchases. Foreign currency forward contract assets and liabilities are presented in the line "Derivatives" (either as asset or as liabilities) within the statement of financial position.

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THE FINANCIAL STATEMENTS

Consolidated financial statements

	Average exchange rate (rate)	Notional value: Foreign currency million (FC)	Notional value: Local currency (million Baht)	Carrying amount of the hedging instruments assets (liabilities) (million Baht)
At 31 December 2022				
Cash flow hedges				
<i>Buy (USD)</i>	31.15	9	289	27
At 31 December 2021				
Cash flow hedges				
<i>Buy (USD)</i>	30.90	36	1,103	85
<i>Buy (EUR)</i>	38.77	3	129	(3)

Separate financial statements

	Average exchange rate (rate)	Notional value: Foreign currency million (FC)	Notional value: Local currency (million Baht)	Carrying amount of the hedging instruments assets (liabilities) (million Baht)
At 31 December 2022				
Cash flow hedges				
<i>Buy (USD)</i>	31.15	9	289	27
At 31 December 2021				
Cash flow hedges				
<i>Buy (USD)</i>	30.64	32	987	85

The Group assesses effectiveness by comparing the nominal amount of the net assets designated in the hedge relationship with the nominal amount of the hedging instruments. This is a simplified approach because the currency of the exposure and hedging instruments perfectly match and the company identified that there was no change in fair value for hedge ineffectiveness recognized in the income statement.

(b.3.2) Interest rate risk

Interest rate risk is the risk that future movements in market interest rates will affect the results of the Group's operations and its cash flows because the Group's finances loans which have both floating and fixed interest rates for their operations. The Group has managed this risk to ensure the appropriateness to the business operation.

The effective interest rates of interest-bearing liabilities as at 31 December 2022 and 2021 and the periods in which those liabilities mature or re-price were disclosed in note 18 to the financial statement.

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Sensitivity analysis

The sensitivity analyses below have been determined based on the exposure to interest rates for financial liabilities at the reporting date. For floating rate liabilities, the analysis is prepared assuming the amount of liability outstanding at the reporting date was outstanding for the whole year and using an increase or decrease rate by considering the reasonably possible change in interest rates.

<i>Impact to profit or loss</i>	Consolidated financial statements		Separate financial statements	
	Increase in interest rate 1%	Decrease in interest rate 1%	Increase in interest rate 1%	Decrease in interest rate 1%
	<i>(Million Baht)</i>			
2022				
Finance costs	956	(951)	525	(525)
2021				
Finance costs	963	(323)	433	(192)

(b.3.3) Commodity price risk

The Group is exposed to commodity price risk which may occur from purchases and sales. The Group mitigates risk by closely monitoring market situation, feedstock price and product price to appropriately adjust sales and production plans through our value chain amid fluctuating market situations. Moreover, the Group primarily applies derivative and forward contracts to hedge the commodity prices, in order to protect crude oil price and spread in accordance with the framework approved by the Risk Management Committee of the Group, which are not lower than the business plan levels. Those hedging transactions will cause a gain (loss) from derivatives which will be offset against crude oil and product prices, to maintain the Group's gross profit and net profit stability as the business plan are as follows:

- In the event that the crude oil price or spread is less than the forward contracts, there will be gain on derivative. Meanwhile, the gross profit which the Group received in cash will decrease due to the decrease in the crude oil price or spread.
- On the contrary, in the event that the crude oil price or spread is more than the forward contracts, there will be loss on derivative. Meanwhile, the gross profit which the Group received in cash will increase due to the increase in the crude oil price or spread.

Overall, the commodity price risk hedging by using the forward contracts and/or the derivative hedge can mitigate the impact of Group's performance from price and spread fluctuations.

The Group and the Company recognised losses on commodity hedging of Baht 23,057 million for the year ended 31 December 2022 (*2021: Baht 1,440 million and Baht 1,360 million, respectively*) due to the products spread prices were higher compared to the hedged prices of the commodity hedging.

Commodity price sensitivity analysis

The following table details the Group's sensitivity to an increase and decrease in commodity price. The sensitivity analysis includes only outstanding commodity derivative contracts at the reporting date and using an increase or decrease rate by considering the reasonably possible change in commodity price.

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THE FINANCIAL STATEMENTS

	Consolidated financial statements		Separate financial statements	
	Increase	Decrease	Increase	Decrease
	<i>(in million Baht)</i>			
At 31 December 2022				
Net derivatives gain (loss)				
Petroleum Crack Spread hedging +/- 1 USD per BBL	(84)	84	(84)	84
At 31 December 2021				
Net derivatives gain (loss)				
Petroleum Crack Spread hedging +/- 1 USD per BBL	(1,157)	1,157	(1,157)	1,157
Petrochemical Spread hedging +/- 1 USD per Ton	(18)	18	(18)	18

28 Commitments with non-related parties

	Consolidated financial statements		Separate financial statements	
	2022	2021	2022	2021
	<i>(in million Baht)</i>			
Capital commitments				
<i>contracted but not provided for</i>				
Land	2	6	2	1
Plant, machinery and equipment	4,640	6,584	2,261	4,753
Buildings and furniture, fixtures and equipment	428	904	82	20
Others	436	280	332	103
Total	5,506	7,774	2,677	4,877
Non-cancellable lease commitments				
Within one year	88	28	83	20
After one year but within five years	68	28	62	20
Total	156	56	145	40
Other commitments				
Letters of credits	116	181	24	-
Bank guarantees	9,829	4,147	5,188	2,082
Electrical guarantee	7,247	7,457	7,247	7,457
Guarantees to subsidiaries and joint ventures for credit facilities, debentures and bank guarantees	207	501	97,449	96,115
Other agreements	5,187	3,564	444	425
Total	22,586	15,850	110,352	106,079

Under the Equity Contribution and Shareholders Support Agreement between the Company and a subsidiary, the Company will provide financial support in case of occurrence of cash deficiency to a subsidiary according to its shareholding interest not exceeding Baht 410.50 million.

Utilities and Other Services Agreements with minimum purchase quantity

The Group has 25 utilities and other services agreements which have minimum purchase quantity with other parties. These agreements are for the periods from 3 years to 30 years, commencing from the date as specified in each agreement and expiring in March 2023 to March 2036. The minimum purchase quantity, the selling price of products and the renewal of the contract will be subject as specified in the agreements.

29 Litigations

(a) *Oil spill incident legal case*

During the third quarter of 2014, a number of people in Rayong filed several lawsuits with the Civil Court and the Rayong Provincial Court against the Company to claim extra compensation from an oil spill incident and to perform the rehabilitation of the sea and natural environmental recovery. Some cases have been dismissed and some cases have been passed a judgement by the Civil Court on 25 August 2016 which ordered the Company to compensate for damages including interest and rehabilitation of approximately Baht 11.26 million. The Company has appealed on 17 February 2017. Subsequently, on 11 May 2018, the Company made compromise agreements with the majority of plaintiffs at the Civil Court. On 20 December 2018, the Court of Appeal has passed the judgement according to the compromise agreements for which the Company has already paid compensation in full amount. For the remaining plaintiffs, the Court of Appeal ordered the Company to pay compensation with interest according to the judgement of the Court of First Instance and reduced the amount of interest. The Company has paid the compensation to all plaintiffs completely and no petition is submitted to Supreme Court by any plaintiffs. This case has become final.

For the case at Rayong Provincial Court, on 28 September 2018, the Court has made a judgement ordering the Company to pay damage costs with interest of approximately Baht 38 million by deducting the remedy payment paid to the plaintiffs of Baht 24 million. The Company deposited the remaining damage costs with interest with the Rayong Provincial Court on 25 February 2019. Some plaintiffs filed an appeal with the Rayong Provincial Court and the Company has filed an answer to the appeal with the Rayong Provincial Court on 2 October 2019. Subsequently, on September 1, 2020, the Court of Appeal Region 2 passes the judgement ordering the Company to pay additional damages including interest to the plaintiffs. The Company deposited the additional amount of Baht 25 million to the Rayong Provincial Court on 30 September 2020, which is to cover the additional damages ordered under the judgement. Afterwards, on 14 October 2020, the Rayong Provincial Court set an appointment to hear the judgement or the order of the Court of Appeal Region 2 on 26 November 2020. Then, the plaintiffs have filed the Dika appeal period on 1 March 2021. The Supreme Court has issued an order accepting the Dika appeal of the plaintiffs on 2 March 2022 and sent a copy of Dika appeal to the Company on 19 March 2022. The Company filed an answer to the Dika appeal on 13 September 2022. The case is currently under the trial by the Supreme Court.

(b) *Transfer of right for the payment of raw materials legal case of the subsidiary*

- (b.1) On 18 August 2017, Anatta Green Company Limited (“Anatta”), later changed its name to Thai Bio Innovation Company Limited, a subsidiary and Asia Capital Group Public Company Limited (“ACAP”) entered a tripartite MOU where Anatta agreed to be responsible for supplying crude palm oil to the subsidiary and ACAP agreed to provide financial support to Anatta for payment to its suppliers. On the same day, Anatta entered into a loan agreement with ACAP and transferred its right to receive payment for raw materials to ACAP, along with notifying the transfer of such claim to the subsidiary and the subsidiary has given consent to such transfer.

NOTES TO THE FINANCIAL STATEMENTS

During the 2nd quarter of 2018, the subsidiary disclosed the material event of inventory issue to the Stock Exchange of Thailand. At the same time, ACAP has demanded that the subsidiary pay for the raw materials purchased from Anatta under the transfer of claim, a total of 11 items. The subsidiary considered the documents received and clarified to ACAP that such documents were not in the subsidiary's system and did not find evidence of the delivery of the raw materials from Anatta as specified.

Subsequently, on 20 August 2018, ACAP filed a lawsuit in the Civil Court, claiming Anatta and the subsidiary jointly to pay damages totalling Baht 324.65 million and 15% interest per annum. The subsidiary's legal advisor had considered the relevant facts and evidence and provided an opinion that the subsidiary is not liable for the allegation. Therefore, the subsidiary appointed a lawyer and submitted a statement to defend itself.

The Court of First Instance issued its judgement on 10 June 2020, requiring the subsidiary to compensate ACAP in the amount of Baht 289.56 million plus interest of 15% per annum from the date of default until the payment is complete. If the subsidiary does not pay the said debt in full, Anatta shall pay the remaining balance. The subsidiary filed a legal appeal on 25 November 2020.

On 20 January 2022, the Appeal Court upheld the judgment of the Court of First Instance. However, the subsidiary did not agree with the Appeal Court's decision and submitted a request for a petition to the Supreme Court on 9 March 2022. The subsidiary believes that its defenses in facts, laws, and the exercising rights in court in good faith, in the end, the Supreme Court will consider evidences in the case and adjudicate the subsidiary not to be liable for payment of debts according to the judgments of the Court of First Instance and the Court of Appeal. The subsidiary also believes that evidences that the subsidiary has submitted additionally in the Court of Appeal as important evidences, directly related to the issue of the case, and is new evidence that the inquiry official in criminal cases has gathered and prepared from the investigation after the Court of First Instance decided the case, are solid evidences that will make the Supreme Court hear that the transaction documents prepared by Anatta and assisted by former employees of the subsidiary including the evidence used by ACAP for filing against the subsidiary are dishonest and unlawful acts. This is consistent with the fact that the SEC has found fraudulent acts related to inventory issue and unlawful exploitation which caused the subsidiary to be damaged. It is considered as an offense under the Securities and Exchange Act B.E. 2535. The inquiry official has made recommendation to pursue prosecution in some criminal cases and submitted the investigation documents to the public prosecutor already. Therefore, the subsidiary believes that the subsidiary has no debts to be liable to ACAP under the contracts arising from dishonest and unlawful acts. However, the subsidiary has decided to record a provision for damages from the said case amounting to Baht 444 million during 2021.

On 31 March 2022, the enforcement officer at the request of ACAP issued an order to freeze the deposits of the subsidiary. The subsidiary filed a request to withdraw the execution with the Civil Court. Subsequently, on 17 May 2022, the Civil Court has investigated and issued an order granting permission to unfreeze the deposit of the subsidiary and order the subsidiary to provide a bank guarantee amounting to Baht 503.31 million to the Court as guarantee. The subsidiary has pledged certain deposits of the subsidiary as collateral against the guarantee that the subsidiary received from the bank.

(b.2) A company, which was a former supplier of the subsidiary, filed 3 civil lawsuits against the subsidiary regarding breach of agreements concerning the reclaiming of purchase price on raw materials and claiming damages. The total principal and interest are Baht 1,069.23 million. The subsidiary and the subsidiary's legal advisor have considered relevant facts and evidence and provided the opinion that the subsidiary has not breached the agreements and has no obligation to pay as claimed. The subsidiary has appointed a lawyer to assist with the defense. Currently, the cases are under examination and trial at the Court of First Instance. Therefore, the subsidiary has not recorded any provision against any losses from such case.

(c) *Civil Court plaintiff regarding tort, breach of agreements, breach of promise and claiming damages occurred in year 2021 of the subsidiary*

On 28 June 2021, the subsidiary received a summons and a copy of the Civil Court plaintiff in which a company filed a lawsuit against the subsidiary in the Civil Court regarding tort, breach of agreements, breach of promise and claiming damages amounting to Baht 449.77 million, together with interest at the rate of 7.5% per annum. The subsidiary and legal advisor of the subsidiary considered relevant facts and evidence and provided the opinion that the issue of this lawsuit is the same as the case that the subsidiary had filed against such company and the subsidiary has not committed a wrongful act and has not breached the agreements against the plaintiff as claimed. The subsidiary appointed a lawyer and submitted a file testimony with its defense. Subsequently, on 21 March 2022, the Civil Court has rendered its judgment to dismiss such case. However, the case is not yet final as both the plaintiff and the subsidiary have exercised their right to appeal on 21 May 2022 and 20 May 2022, respectively.

30 Event after the reporting period

- (a) At the Board of Directors' meeting, held on 13 December 2021, the Board approved the acquisition of the entire or part of the business and the dissolution of the direct and indirect subsidiaries with 100% shareholding by the Company. The group business restructuring will better support the Company's long-term strategy including the business expansion internationally, sales and development of High Value Products, enhancing the Company's governance efficiency of group of companies both domestically and internationally, and also support the Company's sustainability strategy.

The acquisition of the entire business of PTT Phenol Co.,Ltd. ("Phenol") and GC Oxirane Co.,Ltd. ("GCO") is part of the business restructuring plan which is effective under the law on 1 February 2023 and the Company will further proceed with the dissolution of Phenol and GCO.

- (b) At the Board of Directors' meeting held on 13 February 2023, the Board approved to submit for approval at the Annual General Meeting of the Shareholders, a full year 2022 dividend payment at the rate of Baht 1.00 per share, amounting to Baht 4,509 million, of which Baht 0.75 per share, amounting to Baht 3,382 million, was paid as an interim dividend in September 2022 as disclosed in note 26. Thus, the remaining dividend will be paid at the rate of Baht 0.25 per share, amounting to Baht 1,127 million, to the shareholders entitled to receive dividends. This dividend is subject to the approval of the Shareholders at the Annual General Meeting to be held on 7 April 2023.

04

APPENDIX





TECHNICAL TERMS AND ABBREVIATIONS

Technical Terms & Abbreviations

Acrylonitrile (AN)	AN, an intermediate product, is used for many applications such as acrylic fiber, automotive parts, and electric appliance parts.
Aromatics	A group of cyclic hydrocarbons containing one or more benzene rings of six carbon atoms characterized by single and double bonds, such as benzene, toluene, and xylene.
Bio-based Polybutylene Succinate (Bio-PBS)	Bio-PBS, a natural material made from bio-succinic acid and 1, 4-butanediol, used in applications such as paper coating, compound injection, and packaging.
Bisphenol A (BPA)	BPA, an intermediate product produced from phenol and acetone, is used to produce polycarbonate or epoxy resins.
Butadiene	Butadiene, derived from the extraction of mixed-C4, is used in making synthetic rubber.
Butene-1	Butene-1, a byproduct of the cracking of petroleum (kerosene or gasoil) and naphtha distillation, or extraction of mixed-C4, is used as polymer feedstock.
Crosslinkers (XLR)	Crosslinkers are molecules that connect polymers chains at specific reactive sites, thereby enhancing the performance of coatings by increasing the chemical and scratch resistance. When paired with catalysts they can accelerate the reactivity of formulations.
EO-Based Performance Product	EO-based performance products refers to ethylene oxide derivatives such as ethylene oxide, ethylene glycol, ethanolamine products, and ethoxylate.
Ethanolamine (EA)	EA, obtained from the reaction between ethylene oxide and ammonia, is used in hair conditioner, fabric softener, cosmetics, and pharmaceuticals.
Ethoxylate	Ethoxylate, produced from ethylene oxide, is used as a surfactant in soap and detergent.
Ethylene	Ethylene, obtained from ethane, LPG, or naphtha, is feedstock for polyethylene, vinyl chloride monomer, styrene monomer, and ethylene oxide.
Ethylene Glycol (EG)	EG is synthesized from ethylene oxide reacting with water, producing mono ethylene glycol, diethylene glycol, triethylene glycol, and polyethylene glycol.
Ethylene Oxide (EO)	EO, obtained from the reaction between ethylene and oxygen, is a chemical intermediate of ethylene glycol, ethanolamine, and ethoxylate, and others.
Fatty Alcohol	Fatty alcohol, produced from methyl ester and hydrogen through hydrogenation, is used in personal care products.

Technical Terms & Abbreviations

Glycerin	Glycerin, a byproduct of methyl ester production, is used in pharmaceuticals, food, and personal care products.
Hexamethylene Diisocyanate (HDI)	HDI, obtained from the reaction between hexamethylenediamine and phosgene, is used in polyurethane production.
Hexene-1	An organic compound primary is used as a comonomer in production of polyethylene.
High Density Polyethylene (HDPE)	Produced from ethylene monomers, HDPE is a very dense and crystallized thermoplastic used for containers, including plastic bags, bottles, fuel containers, tanks, and cartons.
Hydrocracking	Hydrocracking is a process of breaking up hydrocarbon molecules by breaking up carbon-carbon bonds with the use of hydrogen and catalysts.
Linear Low Density Polyethylene (LLDPE)	LLDPE, a branched thermoplastic with 65-80% crystallization and a byproduct produced from chemical reaction between ethylene and butene-1 or hexene-1, is found in film and containers.
Liquid Resins and Additives (LRA)	Liquid Resins comprise of functional polymers that are carried in either water or a solvent. Liquid resins form an essential part of many coating formulations with the function of forming a protective film that enhances the appearance and surface protection of coatings applied in automotive, marine, industrial and wood applications. Additives are polymer products used in small amounts in coating formulations but have a significant impact on coating properties such as drying speed and reducing surface defects.
Low Density Polyethylene (LDPE)	LDPE is a branched type of thermoplastic with 65-75% crystallization. Obtained from chemical reaction of ethylene monomer coalescing, it is found in film and containers.
Methyl Ester	Methyl ester, derived from the reaction between crude plant/vegetable oil or animal fats and alcohols under esterification, is used for biodiesel production.
Methyl Methacrylate (MMA)	MMA is an intermediate product for polymethyl methacrylate (PMMA) used for LCD screen light guide panels, automotive parts, and billboards.
Mixed C4	Mixed C4, the byproducts produced from naphtha crackers for olefins production, can be isolated into butadiene, butane-1, and isobutene, and others.
Mixed Xylenes	Aromatics derived from naphtha undergoing a chemical reaction aided by catalysts. They consist of paraxylene, orthoxylene, and metaxylene, all capable of serving as reactants for higher-value aromatics and as industry solvents.

Technical Terms & Abbreviations

Mono Ethylene Glycol (MEG)	MEG, derived from the oxidation of ethylene produced by the reaction of ethylene oxide and water, can serve as an automobile antifreeze agent or a reactant with pure terephthalic acid to produce polyester, clear drinking-water bottles, film, and fiber.
Naphtha	Naphtha is a general term for low-boiling hydrocarbon fractions that is a product of crude oil refining or a condensate splitter. It serves as petrochemical feedstock and as a solvent.
Olefins	Olefins are unsaturated hydrocarbons with at least one carbon-carbon bond. The main olefins include ethylene, propylene, and butadiene.
Oleochemicals	Oleochemicals are natural chemicals derived from plant fats and animal fats, such as fatty alcohols, methyl ester, and glycerin.
O-xylene or Orthoxylene (OX)	This aromatic compound with two methyl groups in the 1- and 2-positions of the benzene ring is used to produce phthalic anhydride, feedstock for plasticizers.
Polymers	Chemicals with molecular weights of 5,000 or more, derived when certain individual monomers come together and link up. Examples are polyethylene, rubber, and cellulose.
Polypropylene	Polypropylene, a thermoplastic polymer derived from the reaction between propylene and catalysts, is used in containers, textiles, and injected plastics.
Polyethylene Terephthalate (PET)	PET is made by combining mono ethylene glycol and pure terephthalic acid. PET and mono ethylene glycol serve as feedstock for synthetic fiber, water bottles, audiotapes, adhesive tapes, film, food packaging, and others.
Polyols	Polyols is a downstream petrochemical product, used as main feedstock to produce polyurethane.
Polystyrene	A thermoplastic made from styrene monomer.
Polyurethane (PU)	PU, a thermoplastic resulting from glycol and diisocyanate condensation, can be stiff, soft, or flexible, depending on the additives used. When blended with rubber, it provides shoe soles, heat insulators, windshield wipers, and others.
Polyvinyl Chloride (PVC)	PVC is a thermoplastic polymer produced from vinyl chloride monomers (VCM), and consists of unplasticized and plasticized PVC. It is used in water pipes, electric wire conduits, artificial leather, among others.
Powder Coating Resins	Powder coating resins are 100% solids (not carried in water or solvent) which upon oven-baking forms a protective film that provides superior durability and weathering resistance to the coated object. They are commonly used to coat metals in applications ranging from agriculture equipment, and household electrical appliances.
PP Compound	A polypropylene with additives added to reinforcing substances to enhance special features.

Technical Terms & Abbreviations

Premix Polyols	A mixture of various polyols and additives co-developed with customers to achieve desired properties.
Propylene	Propylene is an unsaturated hydrocarbon derived from propane, LPG, or naphtha. This feedstock of polypropylene is of three grades: refinery, chemical, and polymer, depending on the proportions of propylene and propane.
Propylene Oxide (PO)	PO is an intermediate petrochemical product derived from propylene, used as feedstock to produce polyols and propylene glycol.
Purified Terephthalic Acid (PTA)	PTA is a hydrocarbon compound resulting from paraxylene and is feedstock for polyester production.
P-xylene or Paraxylene (PX)	PX, feedstock for PTA, is an aromatics hydrocarbon with two methyl groups in the 1- and 4-positions of the benzene ring.
Pyrolysis Gasoline	Pyrolysis gasoline, a byproduct of naphtha distillation, can be blended with gasoline or used as feedstock for aromatics.
Radcure (RAD)	Radiation-Curable Resins, or Radcure, is made up of polymers that contain special functional groups that enable them to react and form a protective film upon the application of Ultra-Violet or Electron Beam radiation. They are commonly used in applications such as wood, plastic, electronic and packaging coatings.
Rotomolding Compound	Rotomolding Compound, a byproduct produced from low-density polyethylene (LLDPE), is plastic powders which are processed through rotational moulding machine at suitable temperature. It is used to manufacture some products such as water tanks, chemical storage tanks, playground, kayaks and other common products.
Toluene	Toluene, an aromatics hydrocarbon with one methyl group connected to the benzene ring, is feedstock for higher-valued aromatics, including benzene and xylene. It is used as a solvent in paints, adhesives, lacquer, thinner, and others.
Post-Consumer Recycled (PCR)	Products are made from recycled plastic under mechanical recycling process to produce high quality post-consumer recycled (PCR) resins.

ATTACHMENT 1

DETAILS OF DIRECTORS, EXECUTIVES, CONTROLLERS AND COMPANY SECRETARY

Directors' Profiles

PTT GLOBAL CHEMICAL PUBLIC COMPANY LIMITED

(As of 1 February 2023)

1

Mr. Piyasvasti Amranand

- **Chairman and Chairman of the Independent Director**
(Non-executive Director)

Age: 69 Years
Appointed: April 9th, 2018,
April 5th, 2021 (1st re-elected)

Education/Training

- Doctor of Philosophy (Ph.D.) in Economics, London School of Economics and Political Science, University of London, U.K.
- Master of Science (Economics), London School of Economics and Political Science, University of London, U.K.
- Bachelor of Arts (Mathematics) (First-Class Honors), University of Oxford, U.K.
- The Executive Program in Energy Literacy for a Sustainable Future, Class 6, Thailand Energy Academy (TEA)

Director Training

- Director Accreditation Program (DAP) Class 35/2005, Thai Institute of Directors Association (IOD)

Board Member/Management in Listed Company – The Stock Exchange of Thailand : 3

- Independent Director and Chairman of the Plan Administrator, Thai Airways International Public Company Limited
- Chairman and Chairman of the Independent Director, PTT Global Chemical Public Company Limited
- Independent Director and Chairman of the Audit Committee, Pruksa Holding Public Company Limited

Board Member/Management in Non-Listed Company – The Stock Exchange of Thailand : 1

- Director, Kiroro Resort Holdings Company Limited

Position in Other Organizations/Institutions : 3

- Member, the National Energy Reform Committee
- Council Member, the Heart Foundation of Thailand under the Royal Patronage
- Chairman, Energy for Environment Foundation

Work Experiences (5-year Previous Experiences)

3 Apr 2013 - 7 Apr 2022	Independent Director and Chairperson of the Risk Oversight Committee, Kasikornbank Public Company Limited
25 May 2020 - 14 Jun 2021	Independent Director and Planner, Thai Airways International Public Company Limited
2015 - May 2020	Chairman of the Audit Committee, Kasikornbank Public Company Limited
1 Jul 2014 - 11 Jul 2018	Independent Director and Chairman, PTT Public Company Limited

Shareholding : None

Relation among Family with Other Directors, Management, Major Shareholders of the Company or Subsidiaries : None

2

Mr. Apisak Tantivorawong

- **Independent Director** (Non-executive Director)
- **Chairman of the Audit Committee**

Age: 69 Years

Appointed: January 24th, 2020,
April 4th, 2022 (1st re-elected)**Education/Training**

- Master of Business Administration (M.B.A.) (Industrial Management), University of Tennessee, U.S.A.
- Bachelor of Engineering (Chemical Engineering), Chulalongkorn University
- Diploma, National Defence College, The Joint State-Private Sector Course, Class 16, National Defence College of Thailand (NDC)

Director Training

- Director Certification Program (DCP) Class 18/2002, Thai Institute of Directors Association (IOD)

Board Member/Management in Listed Company –**The Stock Exchange of Thailand : 4**

- Chairman of the Board of Directors and Independent Director, T.K.S. Technologies Public Company Limited
- Independent Director and Chairman of the Executive Committee, SCB X Public Company Limited
- Chairman of the Board of Directors and Independent Director, S Hotels and Resorts Public Company Limited
- Independent Director and Chairman of the Audit Committee, PTT Global Chemical Public Company Limited

Board Member/Management in Non-Listed Company –**The Stock Exchange of Thailand : None****Position in Other Organizations/Institutions : 2**

- Honorable Committee Members, Chulabhorn Royal Academy Council
- Director of the Rehabilitation Committee, Thai Airways International Public Company Limited

Work Experiences (5-year Previous Experiences)

19 Aug 2015 - 16 Jul 2019 Minister, Ministry of Finance

Shareholding : None**Relation among Family with Other Directors, Management,****Major Shareholders of the Company or Subsidiaries : None**

3

Mr. Pakorn Nilprapunt

- **Independent Director** (Non-executive Director)
- **Chairman of the Nomination & Remuneration Committee**
- **Director to the Audit Committee**

Age: 54 Years

Appointed: April 9th, 2018,
April 5th, 2021 (1st re-elected)**Education/Training**

- Master of Laws (Trade Practices Laws), The University of Sydney, Australia
- Public Sector Management and Organization Change, The Australian National University, Australia
- Bachelor of Laws, Thammasat University
- High-Level Budget Management 1st Edition, Bureau of the Budget
- Program for Chief Executive Training Course, Class 2, The Royal Thai Police
- Train the Trainers Program in Information Communication and Technology Law for the Justice Executive, Class 1, Office of the Secretary of the Electronic Transaction Commission
- Chief Executive Training Program : Leadership with Vision and Morality (AMP 64), The Office of the Civil Service Commission (List of Qualified Candidates for Training)
- East Asian Public Sector Leadership Challenges, National Graduate Institute for Policy Study, Tokyo, Japan

Director Training

- Director Accreditation Program (DAP) Class 153/2018, Thai Institute of Directors Association (IOD)

Board Member/Management in Listed Company –**The Stock Exchange of Thailand : 1**

- Independent Director, Chairman of the Nomination & Remuneration Committee and Director to the Audit Committee, PTT Global Chemical Public Company Limited

Board Member/Management in Non-Listed Company –**The Stock Exchange of Thailand : None****Position in Other Organizations/Institutions : 8**

- Member of the Audit and Monitoring Committee, Chulabhorn Royal Academy
- Commissioner, Civil Service Commission, Office of the Civil Service Commission
- Commissioner, Public Sector Development Commission, Office of the Public Sector Development Commission (OPDC)
- Member, the National Law Reform Committee, The Prime Minister's Office
- Distinguished Member, Educational Innovation Area Policy, Ministry of Education
- Director, The Rehabilitation Committee, Thai Airways International Public Company Limited
- Committee Member, Bank of Thailand
- Secretary-General, Office of the Council of State, The Prime Minister's Office

Work Experiences (5-year Previous Experiences)

23 Apr 2018 - 31 Dec 2022 Director to the Nomination & Remuneration Committee, PTT Global Chemical Public Company Limited

Jun 2018 - Jan 2019 Secretary-General, Office of the Public Sector Development Commission (OPDC)

Jun 2018 - Jan 2019 Director, The Strategic Reform Office on the Promotion of the National Reform, Strategy and Cohesion Deputy Director, Prime Minister's Delivery Unit (PMDU)

2017 - 2018 Deputy Secretary-General, Office of the Council of State

Shareholding : None**Relation among Family with Other Directors, Management, Major Shareholders of the Company or Subsidiaries : None**

4

Professor Somkit Lertpaithoon

- **Independent Director** (Non-executive Director)
- **Chairman of the Corporate Governance and Sustainability Committee**

Age: 63 Years

Appointed: April 9th, 2018,April 5th, 2021 (1st re-elected)**Education/Training**

- Doctorate, (Droit Public Interne), The University Paris II, France
- Degree of Profound Studies, (Droit Public Interne), The University Paris II, France
- Bachelor of Law, Thammasat University
- Barrister-at-Law, Institute of Legal Education Thai Bar Association
- Certification in Local Government, Institut International d' Administration Publique (IIAP), France
- The Executive Program in Energy Literacy for a Sustainable Future, Class 10, Thailand Energy Academy (TEA)

Director Training

- Director Accreditation Program (DAP) Class 181/2021 and Corporate Governance for Executives (CGE) Class 17/2021, Thai Institute of Directors Association (IOD)

Board Member/Management in Listed Company –**The Stock Exchange of Thailand : 2**

- Chairman, Sky ICT Public Company Limited
- Independent Director and Chairman of the Corporate Governance and Sustainability Committee, PTT Global Chemical Public Company Limited

Board Member/Management in Non-Listed Company –**The Stock Exchange of Thailand : None****Position in Other Organizations/Institutions : 7**

- Independent Expert of Board Member, NSTDA Governing Board, National Science and Technology Development Agency (NSTDA)
- Chairperson of the Commissioner, Higher Education Commission
- Independent Expert of Board Member, Board of Governance, Thai Health Promotion Foundation (ThaiHealth)
- Member, The National Law Reform Committee
- Honorary Board Member, King Prajadhipok's Institute
- Member, 10th Council of State, Office of the Council of State
- Professor of Faculty of Law, Thammasat University

Work Experiences (5-year Previous Experiences)

23 Dec 2020 - 30 Jun 2022	Director, Sky ICT Public Company Limited
Feb 2017 - Apr 2018	Independent Director and Member of the Enterprise Risk Management Committee, PTT Public Company Limited

Shareholding : None**Relation among Family with Other Directors, Management, Major Shareholders of the Company or Subsidiaries :** None

5

Mr. Grisada Boonrach

- **Independent Director** (Non-executive Director)
- **Chairman of the Risk Management Committee**

Age: 65 Years

Appointed: June 2nd, 2020**Education/Training**

- Master of Science (Political Science), Thammasat University
- Bachelor of Arts (Political Science), Ramkhamhaeng University
- Bachelor of Laws, Chiang Mai University
- Diploma, National Defence College, The National Defence Course, Class 53, National Defence College of Thailand (NDC)
- Intensive English Program (2019), English Language Center, Georgetown University
- The Management Development Participation, University of Birmingham, U.K. (Scholarships offered by British Embassy, 2001)
- Senior Executives in State and Local Government, Kennedy School of Government Harvard University, U.S.A. (Scholarships offered by Office of the Civil Service Commission, 2009)
- Stability Security Transition and Reconstruction, Asia Pacific Center for Security Studies (APCSS), U.S.A (Scholarships offered by US Embassy, 2007)

Director Training

- Director Certification Program (DCP) Class 298/2020, Thai Institute of Directors Association (IOD)

Board Member/Management in Listed Company –**The Stock Exchange of Thailand : 1**

- Independent Director and Chairman of the Risk Management Committee, PTT Global Chemical Public Company Limited

Board Member/Management in Non-Listed Company –**The Stock Exchange of Thailand : None****Position in Other Organizations/Institutions : 3**

- Assistant Secretary General, Thai Red Cross Society
- Director, Thai Red Cross Chapters Administration Office, Thai Red Cross Society
- Committee Member, Sai Jai Thai Foundation Under Royal Patronage

Work Experiences (5-year Previous Experiences)

2017 - 2019	Minister, Ministry of Agriculture and Cooperative
2017 - 2019	Chairman of National Reform Committee for Public Administration, Office of the National Economic and Social Development Council

Shareholding : None**Relation among Family with Other Directors, Management, Major Shareholders of the Company or Subsidiaries :** None

6

Mrs. Watanan Petersik

- Independent Director (Non-executive Director)
- Director to the Corporate Governance and Sustainability Committee
- Director to the Audit Committee

Age: 62 Years
 Appointed: September 22nd, 2014, April 5th, 2016 (1st re-elected),
 April 5th, 2019 (2nd re-elected),
 April 4th, 2022 (3rd re-elected)

Education/Training

- A.B. degree, Bryn Mawr College, Pennsylvania, U.S.A.

Director Training

- Director Accreditation Program (DAP) English Program Class 83/2010, Thai Institute of Directors Association (IOD)
- Mandatory Accreditation Programme (MAP) for Directors of Public Listed Companies (March 2010), Bursatra Sdn. Bhd.
- Role of Director, Singapore Institute of Directors Course

Board Member/Management in Listed Company –**The Stock Exchange of Thailand : 1**

- Independent Director, Director to the Corporate Governance and Sustainability Committee and Director to the Audit Committee, PTT Global Chemical Public Company Limited

Board Member/Management in Non-Listed Company –**The Stock Exchange of Thailand : 1**

- Non-Executive Director, Jetanin Institute for Assisted Reproduction, Jetanin Company Limited

Position in Other Organizations/Institutions : 5

- Multinational Standards Advisory Council, BCorp, U.S.A.
- Advisory Board, Nanyang Business School, Singapore
- Advisor, TaejaiDotCom (taejai.com)
- Advisor, TPG Capital Asia
- Management Committee, Lien Centre for Social Innovation, Singapore Management University

Work Experiences (5-year Previous Experiences)

Apr 2007 - Jun 2020 Independent Director and Chairperson of Nomination, Remuneration, and Corporate Governance Committee, CIMB Thai Bank Public Company Limited

Jan 2010 - Jan 2019 Independent Director and Non-Executive Director, CIMB Group Sdn. Bhd.

Jan 2010 - Jan 2019 Independent Director and Non-Executive Director, CIMB Group Holdings Berhad, Malaysia

Shareholding : None

Relation among Family with Other Directors, Management, Major Shareholders of the Company or Subsidiaries : None

7

Mr. Somkiat Prajamwong

- Independent Director (Non-executive Director)
- Director to the Nomination & Remuneration Committee

Age: 62 Years
 Appointed: April 4th, 2022

Education/Training

- Doctor of Philosophy in Agricultural and Irrigation Engineering, Utah State University, U.S.A.
- Master of Engineering (Water Resources Development), Asian Institute of Technology (AIT)
- Bachelor of Engineering (Irrigation Engineer), Kasetsart University
- Agricultural and Cooperative Development Course for Senior Management, Class 41, Ministry of Agriculture and Cooperatives
- Change Management Training Programme, RIPA International Training Center, United Kingdom
- Advanced Certificate Course in Public Economic Management for Executives, Class 7, King Prajadipok's Institute (2009)
- Diploma, National Defence College, The National Defence Course, Class 54, National Defence College of Thailand (NDC) (Honorable mentions for Individual Research)
- Foreign Affairs Executive Programme, Class 6, Devawongse Varopakarn Institute of Foreign Affairs, Ministry of Foreign Affairs (Outstanding Individual Research)
- Anti-Corruption Strategic Management for Senior Executives, Class 8, Sanya Dhamasakti National Anti-Corruption Institute, Office of the National Anti-Corruption Commission

Director Training

- Ethical Leadership Program (ELP) Class 28/2022 and Director Certification Program (DCP) Class 329/2022, Thai Institute of Directors Association (IOD)

Board Member/Management in Listed Company –**The Stock Exchange of Thailand : 1**

- Independent Director and Director to the Nomination & Remuneration Committee, PTT Global Chemical Public Company Limited

Board Member/Management in Non-Listed Company –**The Stock Exchange of Thailand : None****Position in Other Organizations/Institutions : 1**

- Special Advisor, Water Management, the Eastern Economic Corridor Office of Thailand (EECO)

Work Experiences (5-year Previous Experiences)

2018 - 2021 Secretary-General, Office of the National Water Resources (ONWR)

2017 - 2018 Director General, Royal Irrigation Department, Ministry of Agriculture and Cooperatives

Shareholding : None

Relation among Family with Other Directors, Management, Major Shareholders of the Company or Subsidiaries : None

8

Lieutenant General Nimit Suwannarat

- **Independent Director** (Non-executive Director)
- **Director to the Nomination & Remuneration Committee**

Age: 51 Years

Appointed: January 1st, 2023**Education/Training**

- Master of Arts in International Relations, Chulalongkorn University
- Master of Science in Electrical Engineering (Communications and Signal Processing), University of Minnesota, Minnesota, U.S.A.
- Bachelor of Science in Electrical Engineering, Virginia Military Institute, Virginia, U.S.A.
- Director's Briefing - Corporate Strategy beyond the Crisis, a Chairman/Board Perspective, Bain & Company, Inc.
- Public Key Infrastructure (Certification Authority, Digital Signature) Course, Ottawa, Canada
- Electronic Commerce Course, Orlando, Florida, U.S.A.
- Computer Emergency Response Team, Carnegie Mellon, Pittsburgh, Pennsylvania, U.S.A.
- National Crisis Management Course, APCSS, Honolulu, Hawaii, U.S.A.
- Command and General Staff College (Class 83), Royal Thai Army
- Joint Staff Course, Joint Staff College
- Intermediate Certificate Course in Political Leadership in the New Era (Class 2), King Prajadhipok's Institute

Director Training

- Director Certification Program (DCP) Class 216/2016, Thai Institute of Directors Association (IOD)

Board Member/Management in Listed Company – The Stock Exchange of Thailand : 2

- Independent Director and Director to the Nomination & Remuneration Committee, PTT Global Chemical Public Company Limited
- Independent Director and Member of the Risk Management Committee, Exploration and Production Public Company Limited

Board Member/Management in Non-Listed Company – The Stock Exchange of Thailand : None**Position in Other Organizations/Institutions : 2**

- Special Advisor, Office of the Permanent Secretary for Defence
- Advisor to the Prime Minister

Work Experiences (5-year Previous Experiences)

2018 - 30 Sep 2021 Deputy Chief of Office, Office of Military Affairs Coordination to the Ministry of Foreign Affairs, Office of Policy Planning Ministry of Defence, Ministry of Defence

Apr 2018 - Sep 2018 Staff Officer to the Minister of Defence, Ministry of Defence

2017 - 2018 Commanding Officer, 1st Development Regiment, Royal Thai Army

Shareholding : None**Relation among Family with Other Directors, Management, Major Shareholders of the Company or Subsidiaries :** None

9

Mom Luang Chayotid Kridakon

- **Independent Director** (Non-executive Director)
- **Director to the Corporate Governance and Sustainability Committee**

Age: 56 Years

Appointed: May 14th, 2022**Education/Training**

- BA (Honors) in South-East Asian History, The School of Oriental and African Studies, University of London
- Capital Market Leader Program (Class 4), Capital Market Academy

Director Training

- Corporate Governance for Capital Market Intermediaries (CGI) Class 12/2016, Thai Institute of Directors Association (IOD)

Board Member/Management in Listed Company – The Stock Exchange of Thailand : 2

- Independent Director and Director to the Corporate Governance and Sustainability Committee, PTT Global Chemical Public Company Limited
- Director and Chairman of the Enterprise Risk Management Committee, PTT Public Company Limited

Board Member/Management in Non-Listed Company – The Stock Exchange of Thailand : 4

- Director, ARUN PLUS Company Limited
- Director, Nimbus Capital Company Limited
- Director, Treasury Properties Development (Thailand) Company Limited
- Director, The Thai Silk Company Limited

Position in Other Organizations/Institutions : 1

- Advisor to Prime Minister, acting as Thailand Trade Representative (TTR)

Work Experiences (5-year Previous Experiences)

11 May 2007 - 19 Nov 2021 Member of Asset Management Committee, Vajiravudh College

5 Jan 2021 - 10 Aug 2021 Chairman of the Board, National Telecom Public Company Limited

1 Oct 2019 - 18 Nov 2020 Director and Managing Director, JPMorgan Securities (Thailand) Limited

1 Oct 2019 - 18 Nov 2020 Senior Country Officer, JPMorgan Chase Bank

Shareholding : None**Relation among Family with Other Directors, Management, Major Shareholders of the Company or Subsidiaries :** None

10

Mrs. Pantip Sripimol

- **Director** (Non-executive Director)
- **Director to the Corporate Governance and Sustainability Committee**

Age: 60 Years
Appointed: November 22nd, 2021

Education/Training

- Master of Public Administration, Chulalongkorn University
- Bachelor of Laws, Ramkhamhaeng University
- Bachelor of Business Administration, Ramkhamhaeng University
- Anti-Corruption Strategic Management for Senior Executives (Class 12), Office of the National Anti-Corruption Commission
- Tourism Management Program for Executives (Class 2), TAT Academy, Tourism Authority of Thailand (TAT)
- Capital Market Leader Program (Class 25), Capital Market Academy
- The Executive Program in Energy Literacy for a Sustainable Future, Class 8, Thailand Energy Academy (TEA)
- Leadership Development Program (LDP 3) Class 2, PTT Leadership and Learning Institute, PTT Public Company Limited
- Private Sector Course Class 26, Diploma, National Defence College
- The Program of Senior Executives on Justice Administration (Class 14), Judicial Training Institute

Director Training

- Director Certification Program (DCP) Class 73/2006, Audit Committee Program (ACP) Class 40/2012 and Role of the Nomination and Governance Committee Program (RNG) Class 5/2013, Thai Institute of Directors Association (IOD)

Board Member/Management in Listed Company -**The Stock Exchange of Thailand : 3**

- Director and Director to the Corporate Governance and Sustainability Committee, PTT Global Chemical Public Company Limited
- Director and Member of the Corporate Social Responsibility Committee, SCB X Public Company Limited
- Director and Member of the Corporate Social Responsibility Committee, The Siam Commercial Bank Public Company Limited

Board Member/Management in Non-Listed Company -**The Stock Exchange of Thailand : None****Position in Other Organizations/Institutions : 2**

- Director, The Rehabilitation Committee, Thai Airways International Public Company Limited
- Director-General, The State Enterprise Policy Office, Ministry of Finance

Work Experiences (5-year Previous Experiences)

- | | |
|---------------------------|---|
| 22 Nov 2017 - 1 Jul 2022 | Director, Don Muang Tollway Public Company Limited |
| 22 Nov 2021 - 23 May 2022 | Director to the Risk Management Committee, PTT Global Chemical Public Company Limited |
| 27 Apr 2021 - 15 Nov 2021 | Independent Director, Esso (Thailand) Public Company Limited |
| 2020 - 2021 | Director and Chairman of Subcommittee, Bank for Agriculture and Agricultural Cooperatives |
| 2019 - 2021 | Deputy Permanent Secretary, Chief of The Revenue Cluster, Ministry of Finance |
| 2019 - 2021 | Director and Chairman of Audit Committee, Tourism Authority of Thailand (TAT) |
| 20 Apr 2012 - 29 Oct 2019 | Independent Director, Member of Audit, Environmental, Social and Governance Committee, Krungthai Card Public Company Limited |
| 6 Oct 2014 - 1 Oct 2019 | Director, Chairman of Risk Management Committee, and Member of Remuneration Committee, MCOT Public Company Limited |
| 2015 - 2019 | State Enterprise Development Advisor (State Enterprise Analysis, Advisory Level), The State Enterprise Policy Office, Ministry of Finance |

Shareholding : None

Relation among Family with Other Directors, Management,
Major Shareholders of the Company or Subsidiaries : None

11

Mr. Sarawut Kaewtathip

- **Director** (Non-executive Director)
- **Director to the Risk Management Committee**

Age: 48 Years
Appointed: July 20th, 2020

Education/Training

- Doctor of Philosophy (PhD) in Chemical Engineering, University of Southern California, U.S.A.
- Master of Science (Chemical Engineering), University of Southern California, U.S.A.
- Bachelor of Science (Chemical Engineering), California State Polytechnic University, U.S.A.
- The Executive Program in Energy Literacy for a Sustainable Future (Class 11), Thailand Energy Academy (TEA)
- Strategist Course, Strategic Studies Center, National Defence Studies Institute
- The Civil Service Executive Development Program (Class 83), Civil Service Training Institute, Office of the Civil Service Commission (OCSC)
- Top Level Energy Administration (Class 7), Ministry of Energy
- LPG - Supply, Economics, Markets and International Trading, Mennta Energy Solutions (formerly The Oxford Princeton Programme), Oxford, U.K.
- International Program for Development Evaluation Training, the World Bank and Carleton University, Ottawa, Canada
- International Training Program on Utility Regulation and Strategy, the World Bank and University of Florida, Florida, U.S.A.
- International Energy Forum, Doha, Qatar

Director Training

- Director Certification Program (DCP) Class 267/2018 and Risk Management Program for Corporate Leaders (RCL) Class 29/2022, Thai Institute of Directors Association (IOD)

Board Member/Management in Listed Company -**The Stock Exchange of Thailand : 1**

- Director and Director to the Risk Management Committee, PTT Global Chemical Public Company Limited

Board Member/Management in Non-Listed Company -**The Stock Exchange of Thailand : None****Position in Other Organizations/Institutions : 1**

- Director General, Department of Mineral Fuels, Ministry of Energy

Work Experiences (5-year Previous Experiences)

- | | |
|--------------------------|---|
| 16 Dec 2019 - 3 Jul 2020 | Director, PTT Public Company Limited |
| 9 Mar 2018 - 16 Dec 2019 | Director and Member of the Enterprise Risk Management Committee, PTT Oil and Retail Business Public Company Limited |
| 6 Apr 2019 - 8 Nov 2019 | Deputy Permanent Secretary, Office of the Permanent Secretary Ministry of Energy |
| 7 Dec 2016 - 5 Apr 2019 | Deputy Director-General, Department of Mineral Fuels |

Shareholding : None

Relation among Family with Other Directors, Management,
Major Shareholders of the Company or Subsidiaries : None

12

Mr. Chadil Chavanalikhorn

- **Director** (Non-executive Director)
- **Director to the Corporate Governance and Sustainability Committee**

Age: 56 Years

Appointed: December 19th, 2022**Education/Training**

- Master of Business Administration, Kasetsart University
- Bachelor of Engineering (Civil Engineering), Kasetsart University
- Certified Internal Auditor (CIA), The Institute of Internal Auditors
- Senior Energy Executive, Thailand Energy Academy, Ministry of Energy
- Administrative Psychological Operation, Institute of Security Psychology, National Defence Studies Institute
- High-Level Anti-Corruption Strategy Executives, The National Anti-Corruption Commission (NACC)
- Senior Executive Program (SEP), Sasin Graduate Institute of Business Administration
- Leadership Development Program II, PTT-Harvard Business School, PTT Leadership and Learning Institute (PLLI), PTT Public Company Limited
- Leadership Development Program III, PTT-IMD, PTT Leadership and Learning Institute (PLLI), PTT Public Company Limited
- Leadership Succession Program (LSP), Institute of Research and Development for Public Enterprises (IRDP)

Director Training

- Successful Formulation & Execution of Strategy (SFE) Class 17/2013, Anti-corruption the Practical Guide (ACPG) Class 2/2013, Company Secretary Program (CSP) Class 65/2015 and Independent Observer Program (IOP) Class 1/2016, Thai Institute of Directors Association (IOD)

Board Member/Management in Listed Company –**The Stock Exchange of Thailand : 2**

- Director and Director to the Corporate Governance and Sustainability Committee, PTT Global Chemical Public Company Limited
- Senior Executive Vice President, Organization Effectiveness and Corporate Governance, PTT Public Company Limited

Board Member/Management in Non-Listed Company –**The Stock Exchange of Thailand : 2**

- Director, Business Services Alliance Company Limited
- Chairman, Business Professional Solutions Recruitment Company Limited

Position in Other Organizations/Institutions : None**Work Experiences (5-year Previous Experiences)**

2019 - 30 Sep 2022	Executive Vice President, Office of Corporate Audit, PTT Public Company Limited
2018 - 2019	Executive Vice President, Corporate Governance, PTT Public Company Limited
2017 - 2018	Executive Vice President, Sustainability Management, PTT Public Company Limited

Shareholding : None**Relation among Family with Other Directors, Management, Major Shareholders of the Company or Subsidiaries :** None

13

Mr. Noppadol Pinsupa

- **Director** (Non-executive Director)
- **Director to the Risk Management Committee**

Age: 58 Years

Appointed: January 23rd, 2023**Education/Training**

- Master of Engineering (Electrical Engineering), Chulalongkorn University
- Bachelor of Engineering (Electrical Engineering), Chulalongkorn University
- The Executive Program in Energy Literacy for a Sustainable Future, Class 14/2019, Thailand Energy Academy (TEA)
- Diploma, National Defence College, The National Defence Course, Class 60, National Defence College of Thailand (NDC)
- TIJ Executive Program on the Rule of Law and Development (RoLD Program), 2017, Thailand Institute of Justice (TIJ)
- Capital Market Leader Program (Class 22/2016), Capital Market Academy
- G-20Y Summit 2015, France
- Mitsui-Harvard Business School Global Management Academy (Japan – U.S.A., 2015), MITSUI & CO.
- Program for Senior Executive on Justice Administration Batch, Class 19/2014, Judicial Training Institute
- Leadership Development Program 3 (LDP 3), PTT Leadership and Learning Institute (PLLI), PTT Public Company Limited
- Breakthrough Program for Senior Executives International Leading Business School (IMD), Lausanne, Switzerland
- Assessor Training Program, Thailand Quality Award (TQA)

Director Training

- Briefing on International Anti-Corruption International Cases and Practices (October 14, 2015), Director Certification Program (DCP) Class 146/2011 and Financial Statements for Directors (FSD) Class 12/2011, Thai Institute of Directors Association (IOD)

Board Member/Management in Listed Company –**The Stock Exchange of Thailand : 3**

- Director and Director to the Risk Management Committee, PTT Global Chemical Public Company Limited
- Chief Operating Officer, Downstream Petroleum Business Group, PTT Public Company Limited
- Director, Member of the Nomination and Remuneration Committee, Chairman of the Risk Management Committee, Global Power Synergy Public Company Limited

Board Member/Management in Non-Listed Company –**The Stock Exchange of Thailand : None****Position in Other Organizations/Institutions : None****Work Experiences (5-year Previous Experiences)**

30 Sep 2022 - 31 Dec 2022	Chief Operating Officer, Downstream Petroleum Business Group, PTT Public Company Limited, working on a secondment as Acting Chief Executive Officer, Thai Oil Public Company Limited
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30 Sep 2022 - 31 Dec 2022	Director and Member of the Risk Management Committee, Thai Oil Public Company Limited
2 Jul 2021 - 1 Dec 2022	Director, Arun Plus Company Limited
1 Oct 2021 - 30 Sep 2022	Chief New Business and Infrastructure Officer, PTT Public Company Limited
1 Oct 2021 - 29 Sep 2022	Director and Director to the Corporate Governance and Sustainability Committee, PTT Global Chemical Public Company Limited
1 Oct 2021 - 22 Nov 2021	Director to the Nomination & Remuneration Committee, PTT Global Chemical Public Company Limited
4 Jan 2021 - 18 Oct 2021	Chairman, Global Renewable Power Company Limited
4 Dec 2020 - 18 Oct 2021	Director, Alpha Com Company Limited
7 Apr 2021 - 1 Oct 2021	Director, and Member of Corporate Governance Committee, PTT Oil and Retail Business Public Company Limited
1 Dec 2020 - 1 Oct 2021	Director, and Member of the Nomination and Remuneration Committee, IRPC Public Company Limited
1 Dec 2020 - 30 Sep 2021	Senior Executive Vice President, Innovation and Digital, PTT Public Company Limited
2 Dec 2020 - 31 Mar 2021	Chairman, PTT Digital Solutions Company Limited
Apr 2019 - Jan 2021	Chairman, IRPC Polyol Company Limited
3 Jul 2020 - 30 Nov 2020	Senior Executive Vice President, PTT Public Company Limited, working on a secondment as President and Chief Executive Officer, IRPC Public Company Limited
1 Feb 2019 - 3 Jul 2020	Senior Executive Vice President, PTT Public Company Limited, working on a secondment as President, IRPC Public Company Limited
Feb 2019 - Aug 2019	Chairman, PTT Energy Solutions Company Limited
1 Oct 2015 - 31 Jan 2019	Senior Executive Vice President, Gas Business Unit, PTT Public Company Limited
1 Oct 2015 - 31 Jan 2019	Director, and Member of the Risk Management Committee, Thai Oil Public Company Limited
Oct 2017 - Jan 2019	Chairman, PTT Global LNG Company Limited
2017 - 2019	Chairman, PTT LNG Company Limited

Shareholding : None

Relation among Family with Other Directors, Management, Major Shareholders of the Company or Subsidiaries : None

14

Mr. Cherdchai Boonchoochaey

- **Non-executive Director**
- **Director to the Risk Management Committee**

Age: **55 Years**

Appointed: **December 19th, 2022**

Education/Training

- Master of Engineering (Chemical Engineering), Chulalongkorn University
- Master of Business Administration, Chulalongkorn University
- Bachelor of Science (Chemical Technology), Chulalongkorn University

Director Training

- Director Certification Program (DCP) Class 320/2022, Thai Institute of Directors Association (IOD)

Board Member/Management in Listed Company – The Stock Exchange of Thailand : 2

- Director and Director to the Risk Management Committee, PTT Global Chemical Public Company Limited
- Senior Executive Vice President, Innovation and New Ventures, PTT Public Company Limited

Board Member/Management in Non-Listed Company – The Stock Exchange of Thailand : 4

- Director, ARUN PLUS Company Limited
- Chairman, PTT Energy Resources Company Limited
- Chairman, Sakari Resources Ltd.
- Chairman, PTT Global Management Company Limited

Position in Other Organizations/Institutions : None

Work Experiences (5-year Previous Experiences)

1 Aug 2021 - 30 Sep 2022	Executive Vice President, Strategy & Portfolio Management, PTT Public Company Limited
29 Apr 2019 - 1 Oct 2021	Director, PTT Natural Gas Distribution Company Limited
12 Sep 2019 - 27 Sep 2021	Director, Trans Thai-Malaysia (Thailand) Limited
12 Sep 2019 - 27 Sep 2021	Director, Trans Thai-Malaysia (Malaysia) Limited
13 Aug 2019 - 27 Sep 2021	Director, TTM Sukuk Berhad
1 Oct 2019 - 31 Jul 2021	Executive Vice President, Natural Gas Supply & Trading, PTT Public Company Limited
1 Oct 2018 - 30 Sep 2019	Executive Vice President, Strategic Planning, Gas Business Unit, PTT Public Company Limited
1 May 2017 - 30 Sep 2018	Vice President, Business Development, Gas Business Unit, PTT Public Company Limited

Shareholding : None

Relation among Family with Other Directors, Management, Major Shareholders of the Company or Subsidiaries : None

15

Mr. Kongkrapan Intarajang

- **Director** (Executive Director) **and Secretary to the Board of Directors**
- **Director to the Risk Management Committee**
- **Chief Executive Officer and President**

Age: 55 Years

Appointed: October 1st, 2019,April 4th, 2022 (1st re-elected)**Education/Training**

- Doctor of Philosophy (Ph.D.) in Chemical Engineering, University of Houston, U.S.A.
- Bachelor of Engineering (Chemical Engineering) (Second-Class Honors), Chulalongkorn University
- Executive Development Training Program, The Royal Thai Police
- Capital Market Leader Program (Class 30), Capital Market Academy
- Leadership Development Program (LDP 3) Class 4, PTT Leadership and Learning Institute (PLLI), PTT Public Company Limited
- The Executive Program in Energy Literacy for a Sustainable Future, Class 14, Thailand Energy Academy (TEA)
- Diploma, National Defence College, The National Defence Course, Class 60, National Defence College of Thailand (NDC)
- Breakthrough Program for Senior Executives, IMD Business School

Director Training

- Role of the Chairman Program (RCP) Class 21/2009 and Director Certification Program (DCP) Class 119/2009, Thai Institute of Directors Association (IOD)

Board Member/Management in Listed Company –**The Stock Exchange of Thailand : 4**

- Chairman, Global Green Chemicals Public Company Limited
- Senior Executive Vice President reporting to Chief Operating Officer, Downstream Petroleum Business Group, PTT Public Company Limited
- Director and Secretary to the Board of Directors, Director to the Risk Management Committee and Chief Executive Officer and President, PTT Global Chemical Public Company Limited
- Director and Member of the Risk Management Committee, Global Power Synergy Public Company Limited

Board Member/Management in Non-Listed Company –**The Stock Exchange of Thailand : 2**

- Chairman and Chairperson of Advisory Committee in relation to its investment in allnex, PTTGC International (Netherlands) B.V.
- Chairman, PTTGC International Private Limited

Position in Other Organizations/Institutions : 12

- Board Member, National Energy Technology Center, National Science and Technology Development Agency (NSTDA)
- Adviser of Small and Medium Industrial Institute, The Federation of Thai Industries

- Director and Member of The Nomination Committee and Remunerating Committee, Thai Institute of Directors Association (IOD)
- Director, Association of Capital Market Academy Alumni
- Director, The Federation of Thai Industries
- Vice President (Supporting), Thailand Swimming Association
- Member of Vidyasirimedhi Institute Council, Vidyasirimedhi Institute of Science and Technology (VISTEC)
- Member of Trustee, The Petroleum Institute of Thailand (PTIT)
- Council of Trustee, Thailand Business Council of Sustainable Development (TBCSD)
- Executive Director, Thailand Energy Academy
- Director, Kamnoetvidya Science Academy (KVIS)
- Co-Chairman, France – Thailand Business Forum

Work Experiences (5-year Previous Experiences)

- | | |
|---------------------------|---|
| 1 Oct 2020 - 31 Mar 2022 | Advisor of the Member Relations, The Federation of Thai Industries |
| 1 Sep 2020 - 15 Feb 2022 | Chairman, GC International Corporation |
| 1 Jul 2015 - 15 Feb 2022 | Chairman, PTTGC America Corporation |
| 1 Jul 2015 - 15 Feb 2022 | Chairman, PTTGC America LLC |
| 24 Aug 2020 - 25 Mar 2021 | Committee Member, Sustainable Energy Foundation |
| 6 Nov 2019 - 20 Oct 2020 | Director, Global Green Chemicals Public Company Limited |
| Nov 2019 - Sep 2020 | Director, Power of Innovation Foundation |
| Oct 2019 - Sep 2020 | Director, Power of Learning Foundation |
| 31 Oct 2019 - 31 Aug 2020 | Director, GC International Corporation |
| 9 Sep 2008 - 31 Aug 2020 | Director, PTTGC International Private Limited |
| May 2017 - Jan 2020 | Director, Thai Tank Terminal Limited |
| Apr 2017 - 30 Sep 2019 | Chief Operating Officer - Upstream Petrochemical Business, PTT Global Chemical Public Company Limited |
| Jul 2015 - Sep 2019 | Director and President & CEO, PTTGC America Corporation |
| Apr 2015 - Sep 2019 | Director, PTTGC Innovation America Corporation |
| Feb 2015 - Sep 2019 | Director, PTTGC International (Netherlands) B.V. |
| Jan 2015 - Sep 2019 | Director, Vencorex Holding |
| Nov 2008 - Sep 2019 | Director, Emery Oleochemicals (M) Sdn. Bhd. |
| Nov 2008 - Sep 2019 | Director, Emery Specialty Chemicals Sdn. Bhd. |
| Sep 2014 - Dec 2018 | Director, NatureWorks LLC |
| Sep 2014 - Dec 2018 | Director/Vice President, GC International Corporation (Formerly, PTTGC International (USA) Inc.) |

Shareholding : None**Relation among Family with Other Directors, Management, Major Shareholders of the Company or Subsidiaries : None**

Profile of GC Executives

PTT GLOBAL CHEMICAL PUBLIC COMPANY LIMITED

Mr. Kongkrapan Intarajang

■ Chief Executive Officer and President

Age: 55 Years

Appointed: October 1st, 2019

Education/Training

- Doctor of Philosophy (Ph.D.) in Chemical Engineering, University of Houston, U.S.A.
- Bachelor of Engineering (Chemical Engineering) (Second-Class Honors), Chulalongkorn University
- Executive Development Training Program, The Royal Thai Police
- Capital Market Leader Program (Class 30), Capital Market Academy
- Leadership Development Program (LDP 3) Class 4, PTT Leadership and Learning Institute (PLLI), PTT Public Company Limited
- The Executive Program in Energy Literacy for a Sustainable Future, Class 14, Thailand Energy Academy (TEA)
- Diploma, National Defence College, The National Defence Course, Class 60, National Defence College of Thailand (NDC)
- Breakthrough Program for Senior Executives, IMD Business School

Director Training

- Role of the Chairman Program (RCP) Class 21/2009 and Director Certification Program (DCP) Class 119/2009, Thai Institute of Directors Association (IOD)

Board Member/Management in Listed Company – The Stock Exchange of Thailand : 4

- Chairman, Global Green Chemicals Public Company Limited
- Senior Executive Vice President reporting to Chief Operating Officer, Downstream Petroleum Business Group, PTT Public Company Limited
- Director and Secretary to the Board of Directors, Director to the Risk Management Committee and Chief Executive Officer and President, PTT Global Chemical Public Company Limited
- Director and Member of the Risk Management Committee, Global Power Synergy Public Company Limited

Board Member/Management in Non-Listed Company – The Stock Exchange of Thailand : 2

- Chairman and Chairperson of Advisory Committee in relation to its investment in allnex, PTTGC International (Netherlands) B.V.
- Chairman, PTTGC International Private Limited

Position in Other Organizations/Institutions : 12

- Board Member, National Energy Technology Center, National Science and Technology Development Agency (NSTDA)
- Adviser of Small and Medium Industrial Institute, The Federation of Thai Industries

- Director and Member of The Nomination Committee and Remunerating Committee, Thai Institute of Directors Association (IOD)
- Director, Association of Capital Market Academy Alumni
- Director, The Federation of Thai Industries
- Vice President (Supporting), Thailand Swimming Association
- Member of Vidyasirimedhi Institute Council, Vidyasirimedhi Institute of Science and Technology (VISTEC)
- Member of Trustee, The Petroleum Institute of Thailand (PTIT)
- Council of Trustee, Thailand Business Council of Sustainable Development (TBCSD)
- Executive Director, Thailand Energy Academy
- Director, Kamnoetvidya Science Academy (KVIS)
- Co-Chairman, France - Thailand Business Forum

Work Experiences (5-year Previous Experiences)

- | | |
|---------------------------|---|
| 1 Oct 2020 - 31 Mar 2022 | Advisor of the Member Relations, The Federation of Thai Industries |
| 1 Sep 2020 - 15 Feb 2022 | Chairman, GC International Corporation |
| 1 Jul 2015 - 15 Feb 2022 | Chairman, PTTGC America Corporation |
| 1 Jul 2015 - 15 Feb 2022 | Chairman, PTTGC America LLC |
| 24 Aug 2020 - 25 Mar 2021 | Committee Member, Sustainable Energy Foundation |
| 6 Nov 2019 - 20 Oct 2020 | Director, Global Green Chemicals Public Company Limited |
| Nov 2019 - Sep 2020 | Director, Power of Innovation Foundation |
| Oct 2019 - Sep 2020 | Director, Power of Learning Foundation |
| 31 Oct 2019 - 31 Aug 2020 | Director, GC International Corporation |
| 9 Sep 2008 - 31 Aug 2020 | Director, PTTGC International Private Limited |
| May 2017 - Jan 2020 | Director, Thai Tank Terminal Limited |
| Apr 2017 - 30 Sep 2019 | Chief Operating Officer - Upstream Petrochemical Business, PTT Global Chemical Public Company Limited |
| Jul 2015 - Sep 2019 | Director and President & CEO, PTTGC America Corporation |
| Apr 2015 - Sep 2019 | Director, PTTGC Innovation America Corporation |
| Feb 2015 - Sep 2019 | Director, PTTGC International (Netherlands) B.V. |
| Jan 2015 - Sep 2019 | Director, Vencorex Holding |
| Nov 2008 - Sep 2019 | Director, Emery Oleochemicals (M) Sdn. Bhd. |
| Nov 2008 - Sep 2019 | Director, Emery Specialty Chemicals Sdn. Bhd. |
| Sep 2014 - Dec 2018 | Director, NatureWorks LLC |
| Sep 2014 - Dec 2018 | Director/Vice President, GC International Corporation (Formerly, PTTGC International (USA) Inc.) |

Shareholding : None

Relation among Family with Other Directors, Management, Major Shareholders of the Company or Subsidiaries : None

Mr. Varit Namwong

■ Chief Operating Officer – Value Added Products

Age: 59 Years

Appointed: February 1st, 2022

Education/Training

- Master of Business Administration (International Program), Ramkhamhaeng University
- Bachelor of Business Administration, Assumption Business Administration College
- Diploma, National Defence College, The National Defence Course, Class 61/2018, National Defence College of Thailand (NDC)
- The Executive Program in Energy Literacy for a Sustainable Future, Class 10/2017, Thailand Energy Academy (TEA)
- Advanced Human Resource Executive Program 2014, The Stephen M. Ross School of Business, University of Michigan
- Leadership Development Program (LDP 3), PTT Leadership and Learning Institute, PTT Public Company Limited
- Senior Executive Program (SEP), Sasin Graduate Institute of Business Administration of Chulalongkorn University
- Subsidiary Governance and Business and Legal Issues for Directors and Executives 2022, Director's Legal Liabilities, Ethical Leadership for New Era and High Performing Board & Board Effectiveness 2021 (In-house Programs by GC), Role of the Chairman Program (RCP) Class 47/2021, Director Certification Program (DCP) Class 160/2012 and Director Accreditation Program (DAP) Class 91/2011, Thai Institute of Directors Association (IOD)

Board Member/Management in Listed Company –

The Stock Exchange of Thailand : 2

- Chief Operating Officer - Value Added Products, PTT Global Chemical Public Company Limited
- Director, Director to Nomination and Remuneration Committee and Director to Risk Management Committee, Global Green Chemicals Public Company Limited

Board Member/Management in Non-Listed Company –

The Stock Exchange of Thailand : 5

- Chairman, HMC Polymers Company Limited
- Chairman, GC Marketing Solutions Company Limited
- Chairman, PTT Asahi Chemical Company Limited
- Chairman, GC Polyols Company Limited
- Director, PTTGC International Private Limited

Position in Other Organizations/Institutions : 1

- Committee Member and Vice Chairman of Industrial Promotion and Support Committee, The Federation of Thai Industries

Work Experiences (5-year Previous Experiences)

- | | |
|---------------------------|--|
| 28 Oct 2019 - 22 Feb 2022 | Director, GC Marketing Solutions Company Limited |
| 21 Dec 2016 - 16 Feb 2022 | Chairman, GC Maintenance and Engineering Company Limited |
| 13 Nov 2016 - 16 Feb 2022 | Chairman, NPC Safety and Environmental Service Company Limited |
| 1 Oct 2016 - 31 Jan 2022 | Chief Operating Officer - Center of Excellence, PTT Global Chemical Public Company Limited |
| 30 Apr 2018 - 26 Jan 2022 | Director, HMC Polymers Company Limited |
| 20 Aug 2015 - 31 Jan 2022 | Director, PTTGC America Corporation |
| 20 Aug 2015 - 31 Jan 2022 | Director, PTTGC America LLC |
| Dec 2015 - 30 Sep 2019 | Director, PTT Energy Solutions Company Limited |
| Apr 2012 - Jan 2019 | Director, Sport Services Alliance Limited |

Shareholding : 128,939 Shares (0.002860%)
As of December 31st, 2022

Relation among Family with Other Directors, Management, Major Shareholders of the Company or Subsidiaries : None

Mr. Toasaporn Boonyapipat

- **Chief Operating Officer –
Base and Intermediate Chemicals**

Age: 57 Years

Appointed: February 1st, 2022**Education/Training**

- Master of Business Administration, Burapha University
- Bachelor of Engineering (Mechanical) (Second-Class Honors), Chiang Mai University
- ASEAN Executive Program (AEP), General Electric, Crotonville, U.S.A.
- PTTCHEM Leadership Development Program TBS/IMBA, Thammasat University, 2010
- Subsidiary Governance, Business and Legal Issues for Directors and Executives and Transformative Leadership for Global Enterprise 2022, Director's Legal Liabilities, Ethical Leadership for New Era and High Performing Board & Board Effectiveness 2021 (In-house Programs by GC), Role of the Chairman Program (RCP) Class 47/2021 and Director Certification Program (DCP) Class 197/2014, Thai Institute of Directors Association (IOD)

Board Member/Management in Listed Company –**The Stock Exchange of Thailand : 1**

- Chief Operating Officer - Base and Intermediate Chemicals, PTT Global Chemical Public Company Limited

Board Member/Management in Non-Listed Company –**The Stock Exchange of Thailand : 5**

- Chairman, GC Oxirane Company Limited
- Chairman, PTT Phenol Company Limited
- Vice Chairman of the Board of Directors, AGC Vinythai Public Company Limited
- Director, GC Maintenance and Engineering Company Limited
- Director, Thai Tank Terminal Limited

Position in Other Organizations/Institutions : 1

- Associate Vice President of Community Partnership Association (CPA) or Puenchumchon

Work Experiences (5-year Previous Experiences)

23 Feb 2022 - 25 Aug 2022	Chairman, GC Glycol Company Limited
5 Jan 2021 - 16 Feb 2022	Chairman, GC Estate Company Limited
1 Jan 2021 - 31 Jan 2022	Senior Executive Vice President - Upstream Petrochemical Business, PTT Global Chemical Public Company Limited
1 Jan 2021 - 1 Aug 2021	Director, Global Power Synergy Public Company Limited
2019 - 2020	Executive Vice President reporting to Chief Executive Officer, PTT Global Chemical Public Company Limited appointed as Secondment to PTTGC America LLC
2017 - 2020	Director, PTTGC America LLC
2017 - 2020	Director, PTTGC International (Netherlands) B.V.
2016 - 2020	Director, Emery Specialty Chemicals Sdn. Bhd.
2016 - 2020	Director, Emery Oleochemicals (M) Sdn. Bhd.
2016 - 2020	President and CEO, PTTGC America LLC
2014 - 2020	Director, Vencorex Holding
2018 - 2019	Director, GC Ventures Company Limited
2017 - 2019	Director and Chief Executive Officer, PTTGC International Private Limited
2017 - 2019	Executive Vice President - International Business Operations, PTT Global Chemical Public Company Limited appointed as Secondment to PTTGC America LLC

Shareholding : None**Relation among Family with Other Directors, Management, Major Shareholders of the Company or Subsidiaries :** None

Mr. Pirun Krimwongrut

- Chief Operating Officer – Center of Excellence

Age: 54 Years

Appointed: January 1st, 2023

Education/Training

- Master of Engineering Science (Electrical Engineering), University of New South Wales, Australia
- Bachelor of Engineering (Electrical Engineering), (Second-Class Honors), Khon Kaen University
- Leadership Development Program (LDP 1), PTT Leadership and Learning Institute, PTT Public Company Limited
- Subsidiary Governance, Business and Legal Issues for Directors and Executives and Transformative Leadership for Global Enterprise 2022, Director's Legal Liabilities, Ethical Leadership for New Era and High Performing Board & Board Effectiveness 2021 (In-house Programs by GC) and Director Certification Program (DCP) Class 257/2018, Thai Institute of Directors Association (IOD)

Board Member/Management in Listed Company –

The Stock Exchange of Thailand : 1

- Chief Operating Officer – Center of Excellence, PTT Global Chemical Public Company Limited

Board Member/Management in Non-Listed Company –

The Stock Exchange of Thailand : 7

- Chairman, GC Estate Company Limited
- Chairman, GC Maintenance and Engineering Company Limited
- Chairman, NPC Safety and Environmental Service Company Limited
- Director, PTTGC America LLC
- Director, PTTGC America Corporation
- Director, GC International Corporation
- Director, PTT Asahi Chemical Company Limited

Work Experiences (5-year Previous Experiences)

- 23 Jan 2018 - 10 Jan 2023 Director, GC Estate Company Limited
- 28 Nov 2019 - 5 Jan 2023 Director, Sport Services Alliance Company Limited
- 11 Oct 2019 - 1 Jan 2023 Director, PTT Digital Solutions Company Limited
- 1 Oct 2020 - 31 Dec 2022 Executive Vice President - Organizational Effectiveness, PTT Global Chemical Public Company Limited
- 1 Oct 2019 - 30 Sep 2020 Acting Executive Vice President - Organizational Effectiveness, PTT Global Chemical Public Company Limited
- Nov 2019 - Nov 2020 Director, GC Styrenics Company Limited
- Mar 2018 - Dec 2019 Director, Thai Tank Terminal Limited
- Mar 2018 - Oct 2019 Director, Eastern Fluid Transport Company Limited
- Apr 2018 - Sep 2019 Senior Vice President - Group Performance Center - Utilities, PTT Global Chemical Public Company Limited
- Sep 2017 - Mar 2018 Acting Senior Vice President - Group Performance Center - Utilities, PTT Global Chemical Public Company Limited

Shareholding : 27,033 Shares (0.000600%)

As of December 31st, 2022

Relation among Family with Other Directors, Management, Major Shareholders of the Company or Subsidiaries : None

Mr. Narongsak Jivakanun

- **Chief Operating Officer – International Business**

Age: 53 Years

Appointed: February 1st, 2022**Education/Training**

- Master of Science (Chemical Engineering), Oregon State University, Oregon, U.S.A.
- Bachelor of Engineering (Chemical Engineering), Chulalongkorn University
- IMD-TLCA Leadership Development Program (LDP) Class 1, 2013 organized by Thai Listed Companies Association (TLCA) and IMD Business School, Switzerland
- The Executive Program in Energy Literacy for a Sustainable Future, Class 8, Thailand Energy Academy (TEA)
- Subsidiary Governance, Business and Legal Issues for Directors and Executives 2022, Director's Legal Liabilities, Ethical Leadership for New Era and High Performing Board & Board Effectiveness 2021 (In-house Programs by GC) and Director Certification Program (DCP) Class 165/2012, Thai Institute of Directors Association (IOD)

Board Member/Management in Listed Company – The Stock Exchange of Thailand : 1

- Chief Operating Officer - International Business, PTT Global Chemical Public Company Limited

Board Member/Management in Non-Listed Company – The Stock Exchange of Thailand : 12

- Chairman, GC Ventures Company Limited
- Chairman, PTTGC America Corporation
- Chairman, GC Ventures America Corporation
- Chairman, PTTGC America LLC
- Chairman and Managing Director, GC International Corporation
- Chairman, Vencorex Holding
- Chairman, PTTGC Innovation America Corporation
- Chairman, NatureWorks LLC
- Director, Kuraray GC Advanced Materials Company Limited
- Director and Managing Director, PTTGC International Private Limited
- Director and President and Member of Advisory Committee, PTTGC International (Netherlands) B.V.
- Director, Chairman of Risk and Audit Committee and Chairman of Executive Committee, Emery Oleochemicals UK Limited

Work Experiences (5-year Previous Experiences)

- 1 Oct 2020 - 16 Feb 2022 President & CEO, PTTGC America LLC
- 1 Oct 2019 - 31 Jan 2022 Executive Vice President - International Business Operations, PTT Global Chemical Public Company Limited
- 1 Oct 2019 - 1 Nov 2021 Director and Executive Committee, Emery Oleochemicals (M) Sdn. Bhd.
- 1 Oct 2019 - 1 Nov 2021 Director and Executive Committee, Emery Specialty Chemicals Sdn. Bhd.
- 21 Sep 2017 - 21 Nov 2019 Director, Vice Chairman and Director to the Nomination and Remuneration Committee, Vinythai Public Company Limited
- 23 Jan 2018 - 14 Oct 2019 Chairman, GC Estate Company Limited
- 2 Jun 2017 - 9 Nov 2019 Director, GC Polyols Company Limited
- 18 Feb 2016 - 14 Oct 2019 Director and Director to the Risk Management Committee, Global Green Chemicals Public Company Limited
- 11 Apr 2016 - 30 Sep 2019 Director, PTT Phenol Company Limited
- 1 Jan 2017 - 30 Sep 2019 Executive Vice President - Corporate Strategy, PTT Global Chemical Public Company Limited
- 3 Sep 2017 - 31 Jan 2018 Chairman, PTT MCC Biochem Company Limited

Shareholding : None
Relation among Family with Other Directors, Management, Major Shareholders of the Company or Subsidiaries : None

Miss Pattaralada Sa-NGasang

■ Executive Vice President – Finance and Accounting

Age: 56 Years

Appointed: January 1st, 2021

Education/Training

- Master of Business Administration, Thammasat University
- Mini Master of Business Administration, National Institute of Development Administration
- Bachelor of Accounting, Thammasat University
- The Executive Program in Energy Literacy for a Sustainable Future, Class 17, Thailand Energy Academy (TEA)
- Advanced International Trade Law (IT Bar 2022), The Central Intellectual Property and International Trade Court
- Diploma, National Defence College, The National Defence Course Class 61, National Defence College of Thailand (NDC)
- Capital Market Leader Program (Class 22), Capital Market Academy
- PTT-HBS Leadership Development Program, Class 2, Harvard Business School, U.S.A.
- IMD-TLCA Leadership Development Program (LDP) Class 1, organized by Thai Listed Companies Association (TLCA) and IMD Business School, Switzerland
- Treasury Management Program, Class 2, Fiscal Policy Research Institute Foundation, Ministry of Finance
- Executive Development Program (EDP) Class 5, Thai Listed Companies Association (TLCA)
- Global Leadership Business, Class 2, Cornell University, U.S.A.
- Leadership Succession Program, Class 11, Institute of Research and Development for Public Enterprises (IRDP)
- Subsidiary Governance, Business and Legal Issues for Directors and Executives and Transformative Leadership for Global Enterprise 2022, Director's Legal Liabilities, Ethical Leadership for New Era and High Performing Board & Board Effectiveness 2021 (In-house Programs by GC), Strategic Board Master Class (SBM) Class 1/2017, Role of the Chairman Program (RCP) Class 38/2016 and Director Certification Program (DCP) Class 151/2011, Thai Institute of Directors Association (IOD)

Board Member/Management in Listed Company – The Stock Exchange of Thailand : 2

- Senior Executive Vice President reporting to Chief Financial Officer, PTT Public Company Limited
- Executive Vice President - Finance and Accounting, PTT Global Chemical Public Company Limited

Board Member/Management in Non-Listed Company – The Stock Exchange of Thailand : 12

- Chairperson, GC Treasury Center Company Limited
- Director and Executive Committee, Thai Tank Terminal Limited
- Director, GC Polyols Company Limited
- Director, GC Oxirane Company Limited
- Director, GC Logistics Solutions Company Limited
- Director, PTTGC International Private Limited
- Director, PTTGC America Corporation
- Director, PTTGC America LLC
- Director, GC International Corporation
- Director, Vencorex Holding
- Director, Emery Oleochemicals UK Limited
- Director, PL Global Transport Company Limited

Position in Other Organizations/Institutions : 1

- Board Member and Chairman of the Management Accounting Profession Committee, Federation of Accounting Professions

Work Experiences (5-year Previous Experiences)

- | | |
|--------------------------|--|
| 1 Jan 2021 - 31 Jan 2022 | Director, PTTGC Innovation America Corporation |
| 15 Jan 2021 - 1 Nov 2021 | Director, Emery Oleochemicals (M) Sdn. Bhd. |
| 15 Jan 2021 - 1 Nov 2021 | Director, Emery Specialty Chemicals Sdn. Bhd. |
| 1 Oct 2015 - 31 Dec 2020 | Executive Vice President - Finance and Accounting, Thai Oil Public Company Limited |
| May 2017 - 31 Dec 2020 | Chairperson, Thai Oil Treasury Center Company Limited |
| Jan 2010 - 31 Dec 2020 | Director, Ubon Bio Ethanol Public Company Limited |
| Apr 2016 - 31 Dec 2020 | Director, Thai Oil Ethanol Company Limited |
| Mar 2017 - 31 Dec 2020 | Director, Thai Oil Energy Services Company Limited |
| Dec 2015 - 31 Dec 2020 | Director, Sapthip Company Limited |

Shareholding : None

Relation among Family with Other Directors, Management, Major Shareholders of the Company or Subsidiaries : None

Mrs. Warawan Tippawanich

- Executive Vice President – Corporate Strategy

Age: 59 Years
Appointed: October 1st, 2019

Education/Training

- Master of Business Administration, Chulalongkorn University
- Bachelor of Science (Chemical Engineering), Chulalongkorn University
- Leadership Development Program (LDP 2) and (LDP 3), PTT Leadership and Learning Institute, PTT Public Company Limited
- Subsidiary Governance, Business and Legal Issues for Directors and Executives and Transformative Leadership for Global Enterprise 2022, Director's Legal Liabilities, Ethical Leadership for New Era and High Performing Board & Board Effectiveness 2021 (In-house Programs by GC), Board Matters and Trends (BMT) Class 2/2017, Company Secretary Program (CSP) Class 57/2014, Board Reporting Program (BRP) Class 15/2014, Company Reporting Program (CRP) Class 10/2014 and Director Certification Program (DCP) Class 190/2014, Thai Institute of Directors Association (IOD)

**Board Member/Management in Listed Company –
The Stock Exchange of Thailand : 1**

- Executive Vice President - Corporate Strategy, PTT Global Chemical Public Company Limited

**Board Member/Management in Non-Listed Company –
The Stock Exchange of Thailand : 8**

- Director, AGC Vinythai Public Company Limited
- Director, Solution Creation Company Limited
- Director, GC Polyols Company Limited
- Director, PTTGC International Private Limited
- Director, PTTGC America Corporation
- Director, PTTGC America LLC
- Director, GC Ventures Company Limited
- Director, GC Ventures America Corporation

Work Experiences (5-year Previous Experiences)

1 Sep 2019 - 31 Jan 2022 Director, GC International Corporation

24 Dec 2019 - 30 Nov 2020 Director, GC-M PTA Company Limited

24 Dec 2019 - 30 Nov 2020 Director, Thai PET Resin Company Limited

Sep 2017 - 14 Sep 2019 Director, Sarn Palung Social Enterprise Company Limited

Jan 2015 - 11 Nov 2019 Director, GC Glycol Company Limited

1 Jan 2015 - 30 Sep 2019 Senior Vice President - Corporate Affairs and Corporate Secretary, PTT Global Chemical Public Company Limited

Shareholding : Spouse 25,000 Shares (0.000554%), As of December 31st, 2022

Relation among Family with Other Directors, Management, Major Shareholders of the Company or Subsidiaries : None

Mr. Saroj Putthammawong

- Executive Vice President - Marketing and Sales, Industry Platforms

Age: 54 Years
Appointed: January 1st, 2023

Education/Training

- Master of Business Administration, Thammasat University
- Bachelor of Engineering (Chemical Engineering), Chulalongkorn University
- The Executive Program in Energy Literacy for a Sustainable Future, Class 11/2018, Thailand Energy Academy (TEA)
- Subsidiary Governance, Business and Legal Issues for Directors and Executives and Transformative Leadership for Global Enterprise 2022, Director's Legal Liabilities, Ethical Leadership for New Era and High Performing Board & Board Effectiveness 2021 (In-house Programs by GC) and Director Certification Program (DCP) Class 220/2016, Thai Institute of Directors Association (IOD)

**Board Member/Management in Listed Company –
The Stock Exchange of Thailand : 1**

- Executive Vice President - Marketing and Sales - Industry Platforms, PTT Global Chemical Public Company Limited

**Board Member/Management in Non-Listed Company –
The Stock Exchange of Thailand : 2**

- Director, HMC Polymers Company Limited
- Director, Revolve Group Limited

Work Experiences (5-year Previous Experiences)

22 Feb 2022 - 7 Feb 2023 Chairman, GC-M PTA Company Limited

22 Feb 2022 - 7 Feb 2023 Chairman, Thai PET Resin Company Limited

17 Mar 2021 - 1 Jan 2023 Director, PTT Phenol Company Limited

18 Dec 2017 - 1 Jan 2023 Director, GC Treasury Center Company Limited

2 Jun 2017 - 1 Jan 2023 Director, GC Oxirane Company Limited

1 Oct 2019 - 31 Dec 2022 Executive Vice President - Marketing, Commercial and Supply Chain, PTT Global Chemical Public Company Limited

28 Oct 2019 - 19 Oct 2022 Director, GC Marketing Solutions Company Limited

27 Dec 2016 - 25 Aug 2022 Director, GC Glycol Company Limited

29 Sep 2020 - 28 Mar 2022 Committee Member of Industry Standards (ISC), The Federation of Thai Industries

27 Jun 2018 - 2020 Committee Member of Industrial Excellence Center (IEC), The Federation of Thai Industries

Oct 2015 - Sep 2019 Senior Vice President - Marketing, Commercial and Supply, PTT Global Chemical Public Company Limited

2017 - 2019 Director, GC Logistics Solutions Company Limited

18 Nov 2015 - 8 Apr 2018 Director, Solution Creation Company Limited

21 Dec 2015 - 2 Mar 2018 Director, Thai Tank Terminal Limited

Shareholding : 4,900 Shares (0.000109%) As of December 31st, 2022

Relation among Family with Other Directors, Management, Major Shareholders of the Company or Subsidiaries : None

Mr. Chaya Chandavasu

■ Executive Vice President – Sustainability

Age: 49 Years

Appointed: February 1st, 2022

Education/Training

- Doctor of Chemical Engineering, New Jersey Institute of Technology, U.S.A.
- Master of Chemical Engineering, New Jersey Institute of Technology, U.S.A.
- Bachelor of Science (Chemistry), (First-Class Honors), Mahidol University
- The Executive Program in Energy Literacy for a Sustainable Future, Class 16/2022, Thailand Energy Academy (TEA)
- Advanced Senior Executive Program, Sasin & Kellogg School of Management, 2008
- Subsidiary Governance and Transformative Leadership for Global Enterprise 2022, Director's Legal Liabilities, Ethical Leadership for New Era and High Performing Board & Board Effectiveness 2021 (In-house Programs by GC) and Director Certification Program (DCP) Class 152/2011, Thai Institute of Directors Association (IOD)

Board Member/Management in Listed Company –

The Stock Exchange of Thailand : 1

- Executive Vice President - Sustainability
PTT Global Chemical Public Company Limited

Board Member/Management in Non-Listed Company –

The Stock Exchange of Thailand : 4

- Director, GC Ventures Company Limited
- Director, Solution Creation Company Limited
- Director, Sarn Palung Social Enterprise Company Limited
- Director, GC Ventures America Corporation

Work Experiences (5-year Previous Experiences)

1 Oct 2019 - 31 Jan 2022	Senior Vice President - Sustainability and Corporate Branding, PTT Global Chemical Public Company Limited
Oct 2021 - Feb 2022	Director, Emery Oleochemicals UK Limited
22 Oct 2020 - 1 Nov 2021	Director, Emery Oleochemicals (M) Sdn. Bhd.
22 Oct 2020 - 1 Nov 2021	Director, Emery Specialty Chemicals Sdn. Bhd.
23 May 2018 - 30 Oct 2019	Managing Director, GC Ventures Company Limited
2016 - 2019	Director, PTTGC Innovation America Corporation
27 Jan 2016 - 30 Sep 2019	Director, Solution Creation Company Limited
1 Nov 2015 - 30 Sep 2019	Senior Vice President - Science and Innovation, PTT Global Chemical Public Company Limited
2013 - 2019	Chairman, Auria BioChemicals Company Limited

Shareholding : None

Relation among Family with Other Directors, Management, Major Shareholders of the Company or Subsidiaries : Spouse : Mrs. Rattiya Chandavasu, Senior Vice President - Specialty Business

Mr. Siridech Kumvongdee

- Executive Vice President – Marketing, Commercial and Supply Chain

Age: 57 Years
Appointed: January 1st, 2023

Education/Training

- Master of Science (Chemical Engineering), Washington University, U.S.A.
- Bachelor of Science (Chemistry), Ramkhamhaeng University
- Advanced Management Programme (AMP), INSEAD
- Certificate of Leadership Development Program (LDP 3), Class 2, PTT Leadership and Learning Institute, PTT Public Company Limited
- Certificate of Senior Executive Program (SEP), SASIN Graduate Institute of Business Administration of Chulalongkorn University
- Certificate of Politics and Governance in Democratic Systems for Senior Executives, Class 24, King Prajadhipok's Institute
- Subsidiary Governance, Business and Legal Issues for Directors and Executives and Transformative Leadership for Global Enterprise 2022, Director's Legal Liabilities and Ethical Leadership for New Era 2021 (In-house Programs by GC), Board Matters and Trends (BMT) Class 2/2017 and Director Certification Program (DCP) Class 209/2015, Thai Institute of Directors Association (IOD)

Board Member/Management in Listed Company –**The Stock Exchange of Thailand : 1**

- Executive Vice President - Marketing, Commercial and Supply Chain, PTT Global Chemical Public Company Limited

Board Member/Management in Non-Listed Company –**The Stock Exchange of Thailand : 4**

- Chairman, GC-M PTA Company Limited
- Chairman, Thai PET Resin Company Limited
- Director, GC Treasury Center Company Limited
- Director and Executive Chairman, HMC Polymers Company Limited

Work Experiences (5-year Previous Experiences)

22 Jun 2020 - 12 Dec 2022 Director, Basell Advanced Polyolefins (Thailand) Company Limited

19 Dec 2019 - 12 Dec 2022 Director, Rayong Olefins Company Limited

13 Dec 2019 - 12 Dec 2022 President, HMC Polymers Company Limited

1 Jan 2017 - 30 Sep 2019 Executive Vice President - Organizational Effectiveness, PTT Global Chemical Public Company Limited

15 Nov 2016 - 1 Oct 2019 Director, Vencorex Holding

3 Feb 2015 - 1 Oct 2019 Directors, PTT Digital Solutions Company Limited

Shareholding : Spouse 11,515 Shares (0.000255%)
As of December 31st, 2022

Relation among Family with Other Directors, Management, Major Shareholders of the Company or Subsidiaries : None

Mr. Anutin Chuaypen

- Executive Vice President – Organizational Effectiveness

Age: 56 Years
Appointed: January 1st, 2023

Education/Training

- Master of Science (Computer & Engineering Management), Assumption University
- Bachelor of Science (Chemical Engineering), Chulalongkorn University
- Leadership Development Program (LDP 2), PTT Leadership and Learning Institute, PTT Public Company Limited
- Subsidiary Governance, Business and Legal Issues for Directors and Executives and Transformative Leadership for Global Enterprise 2022, Director's Legal Liabilities, Ethical Leadership for New Era and High Performing Board & Board Effectiveness 2021 (In-house Programs by GC) and Director Certification Program (DCP) Class 200/2015, Thai Institute of Directors Association (IOD)

Board Member/Management in Listed Company –**The Stock Exchange of Thailand : 1**

- Executive Vice President - Organizational Effectiveness, PTT Global Chemical Public Company Limited

Board Member/Management in Non-Listed Company –**The Stock Exchange of Thailand : 3**

- Director, GC Estate Company Limited
- Director, PTT Digital Solutions Company Limited
- Director, Sport Services Alliance Company Limited

Work Experiences (5-year Previous Experiences)

29 Oct 2019 - 4 Jan 2023 Director, NPC Safety and Environmental Service Company Limited

11 Nov 2019 - 25 Aug 2022 Director, GC Styrenics Company Limited

1 Oct 2019 - 31 Dec 2022 Senior Vice President - Aromatics, PTT Global Chemical Public Company Limited

27 Apr 2015 - 1 Jan 2020 Director, Thai Tank Terminal Limited

10 Jul 2014 - 30 Oct 2019 Director, GC Maintenance and Engineering Company Limited

1 Jan 2014 - 30 Sep 2019 Senior Vice President - Group Performance Center, Refinery and Shared Facilities, PTT Global Chemical Public Company Limited

16 Nov 2015 - 15 Mar 2018 Director, Eastern Fluid Transport Company Limited

Shareholding : 36,591 Shares (0.000812%)
As of December 31st, 2022

Relation among Family with Other Directors, Management, Major Shareholders of the Company or Subsidiaries : None

Mr. Pornsak Mongkoltrirat

■ Executive Vice President – Polymers

Age: 56 Years

Appointed: April 1st, 2020

Education/Training

- Master of Business Administration (Management), Kasetsart University
- Bachelor of Engineering (Mechanical Engineering), Kasetsart University
- Business and Legal Issues for Directors and Executives and Transformative Leadership for Global Enterprise 2022, Director's Legal Liabilities, Ethical Leadership for New Era and High Performing Board & Board Effectiveness 2021 (In-house Programs by GC), Role of the Chairman Program (RCP) Class 48/2021 and Director Certification Program (DCP) Class 263/2017, Thai Institute of Directors Association (IOD)

Board Member/Management in Listed Company –

The Stock Exchange of Thailand : 1

- Executive Vice President - Polymers, PTT Global Chemical Public Company Limited

Board Member/Management in Non-Listed Company –

The Stock Exchange of Thailand : 10

- Chairman and Managing Director, GC Logistics Solutions Company Limited
- Chairman, ENVICCO Limited
- Chairman, Solution Creation Company Limited
- Chairman, Revolve Group Limited
- Chairman, PL Global Transport Company Limited
- Chairman of the Executive Committee, PTT Asahi Chemical Company Limited
- Director, GC-M PTA Company Limited
- Director, Thai PET Resin Company Limited
- Director, Dynachisso Thai Company Limited
- Executive Committee Member, HMC Polymers Company Limited

Work Experiences (5-year Previous Experiences)

28 Oct 2019 - 19 Oct 2022	Director, GC Marketing Solutions Company Limited
11 Nov 2019 - 25 Aug 2022	Chairman, GC Styrenics Company Limited
28 Sep 2020 - 22 May 2022	Director, Revolve Group Limited
29 Mar 2019 - 16 Mar 2022	Director, GC Maintenance and Engineering Company Limited
23 Feb 2021 - 7 Feb 2022	Director, Solution Creation Company Limited
1 Oct 2019 - 30 Mar 2020	Acting Executive Vice President - Group Performance Center - Polymers Business Unit, PTT Global Chemical Public Company Limited
27 Dec 2018 - 12 Nov 2019	Director, GC-M PTA Company Limited
27 Dec 2018 - 12 Nov 2019	Director, Thai PET Resin Company Limited
16 Jul 2017 - 1 Oct 2019	Director and Managing Director, GC Glycol Company Limited
1 Jan 2017 - 30 Sep 2019	Senior Vice President EO-Based Performance Business Unit, PTT Global Chemical Public Company Limited

Shareholding : 11,958 Shares; Spouse 12,958 Shares (0.000553%) As of December 31st, 2022

Relation among Family with Other Directors, Management, Major Shareholders of the Company or Subsidiaries : None

Mr. Pukpong Wungrattanasopon

■ Executive Vice President – Olefins

Age: 52 Years

Appointed: April 1st, 2020

Education/Training

- Master of Science (Petrochemical Technology), The Petroleum and Petrochemical College, Chulalongkorn University
- Bachelor of Science (Chemical Technology), Chulalongkorn University
- Subsidiary Governance, Business and Legal Issues for Directors and Executives and Transformative Leadership for Global Enterprise 2022, Director's Legal Liabilities, Ethical Leadership for New Era and High Performing Board & Board Effectiveness 2021 (In-house Programs by GC) and Director Certification Program (DCP) Class 236/2017, Thai Institute of Directors Association (IOD)

Board Member/Management in Listed Company –

The Stock Exchange of Thailand : 1

- Executive Vice President - Olefins, PTT Global Chemical Public Company Limited

Board Member/Management in Non-Listed Company –

The Stock Exchange of Thailand : 2

- Director, PTT Phenol Company Limited
- Director, HMC Polymers Company Limited

Position in Other Organizations/Institutions : 1

- Vice President, Thai Institute of Chemical Engineering and Applied Chemistry

Work Experiences (5-year Previous Experiences)

2 Jan 2020 - 7 Dec 2022	Director, Thai Tank Terminal Limited
14 Jul 2020 - 7 Dec 2022	Executive Committee Member, Thai Tank Terminal Limited
1 Jan 2021 - 25 Aug 2022	Director, GC Glycol Company Limited
1 Oct 2019 - 31 Mar 2020	Acting Executive Vice President - Group Performance Center - Olefins, PTT Global Chemical Public Company Limited
1 Aug 2016 - 30 Sep 2019	Senior Vice President - Group Performance Center, Aromatics, PTT Global Chemical Public Company Limited

Shareholding : None

Relation among Family with Other Directors, Management, Major Shareholders of the Company or Subsidiaries : None

Mrs. Jeeranee Pimthanothai

- Executive Vice President – Technical, Engineering and Maintenance

Age: 58 Years
Appointed: July 1st, 2022

Education/Training

- Master of Engineering (Petrochemical Technology), Chulalongkorn University
- Bachelor of Science (Chemical Technology), Chulalongkorn University
- Leadership Innovation & Strategy, GE Crotonville, U.S.A.
- Leadership Development Program (LDP 1), PTT Leadership and Learning Institute, PTT Public Company Limited
- NIDA-Wharton Executive Leadership Program, U.S.A.
- The Columbia Senior Executive Program, U.S.A.
- Subsidiary Governance, Business and Legal Issues for Directors and Executives and Transformative Leadership for Global Enterprise 2022, Director's Legal Liabilities, Ethical Leadership for New Era and High Performing Board & Board Effectiveness 2021 (In-house Programs by GC), Director Certification Program (DCP) Class 249/2017 and Corporate Governance: The Role of Manager in Supporting Directors, Thai Institute of Directors Association (IOD)

Board Member/Management in Listed Company –**The Stock Exchange of Thailand : 1**

- Executive Vice President - Technical, Engineering and Maintenance, PTT Global Chemical Public Company Limited

Board Member/Management in Non-Listed Company –**The Stock Exchange of Thailand : 1**

- Director, GC Maintenance and Engineering Company Limited

Work Experiences (5-year Previous Experiences)

1 Nov 2018 - 29 Dec 2022 Director,
PTT Energy Solutions
Company Limited

1 Sep 2015 - 30 Jun 2022 Senior Vice President -
Technical, Engineering and
Maintenance, PTT Global
Chemical Public Company Limited

2017 - 2019 Director, PTT Asahi Chemical
Company Limited

Shareholding : 15,543 Shares (0.000345%)
As of December 31st, 2022

**Relation among Family with Other Directors, Management,
Major Shareholders of the Company or Subsidiaries :** None

Mr. Amorn Putiphrawan

- Senior Vice President – Internal Audit

Age: 59 Years
Appointed: January 1st, 2018

Education/Training

- Master of Engineering (Chemical Engineering), Chulalongkorn University
- Bachelor of Science (Fuel Technology), Chulalongkorn University
- Leadership Development Program (LDP 1) and (LDP 2), PTT Leadership and Learning Institute, PTT Public Company Limited
- Subsidiary Governance and Business and Legal Issues for Directors and Executives 2022, Director's Legal Liabilities, Ethical Leadership for New Era and High Performing Board & Board Effectiveness 2021 (In-house Programs by GC), Thai Institute of Directors Association (IOD)

Board Member/Management in Listed Company –**The Stock Exchange of Thailand : 1**

- Senior Vice President - Internal Audit, PTT Global Chemical Public Company Limited

Board Member/Management in Non-Listed Company –**The Stock Exchange of Thailand : None****Position in Other Organizations/Institutions : 1**

- Member of the Audit and Monitoring Committee, Chulabhorn Royal Academy

Work Experiences (5-year Previous Experiences)

1 Oct 2017 - 31 Dec 2017 Vice President reporting to
Chief Executive Officer and
President, PTT Global
Chemical Public Company
Limited

16 Jun 2014 - 30 Sep 2017 Vice President - Corporate
Risk Management and Internal
Control System, PTT Global
Chemical Public Company
Limited

Shareholding : None

**Relation among Family with Other Directors, Management,
Major Shareholders of the Company or Subsidiaries :** None

Mrs. Pilasphan Udomjarumanee

- **Senior Vice President – Corporate Secretary and Legal and Company Secretary**

Age: **57 Years**
 Appointed: **October 1st, 2019**

Education/Training

- Master Degree of Business Administration (Finance), Royal Melbourne Institute of Technology, Melbourne, Australia
- Post Graduate Diploma Degree in Business Administration, Victoria University, Melbourne, Australia
- Bachelor of Arts (English), Silpakorn University
- Leadership Development Program (LDP 2) PLLI, INSEAD
- Supply Chain and Supply Sourcing, McKinsey
- Strategy Management Program - 2018, Fiscal Policy Research Institute Foundation, Ministry of Finance
- M&A Training for Senior Leadership - 2018, Institute for Merger, Acquisition & Alliance
- Leadership Development Program (LDP) 2/2015, Sasin Graduate Institute of Business Administration of Chulalongkorn University
- Ethical Leadership (EPL) Class 27/2022, Company Secretary Refreshment Training Program (RFP) Class 4/2021, Subsidiary Governance, Business and Legal Issues for Directors and Executives and Transformative Leadership for Global Enterprise 2022, Director's Legal Liabilities, Ethical Leadership for New Era and High Performing Board & Board Effectiveness 2021 (In-house Programs by GC), Board Reporting Program (BRP) Class 35/2020, Company Reporting Program (CRP) Class 26/2020, Company Secretary Program (CSP) Class 107/2020, Corporate Governance for Executives (CGE) Class 16/2020 and Director Certification Program (DCP) Class 287/2019, Thai Institute of Directors Association (IOD)

**Board Member/Management in Listed Company –
 The Stock Exchange of Thailand : 1**

- Senior Vice President – Corporate Secretary and Legal and Company Secretary, PTT Global Chemical Public Company Limited

**Board Member/Management in Non-Listed Company –
 The Stock Exchange of Thailand : None**

Position in Other Organizations/Institutions : 1

- Committee Member of Thai Company Secretary Club, Thai Listed Companies Association

Work Experiences (5-year Previous Experiences)

1 Sep 2016 - 30 Sep 2019 Vice President - Strategy and Planning Department, PTT Global Chemical Public Company Limited

Shareholding : 18,400 Shares (0.000408%)
 As of December 31st, 2022

**Relation among Family with Other Directors, Management,
 Major Shareholders of the Company or Subsidiaries :** None

Mr. Ratchada Sawasdirak

- **Senior Vice President – Refinery**

Age: **54 Years**
 Appointed: **October 1st, 2019**

Education/Training

- Master of Public Administration, Chulalongkorn University
- Bachelor of Engineering (Mechanical Engineering), Mahanakorn University of Technology
- Ethical Leadership 2020 : Ethical Challenges in New Normal, PTT Global Chemical Public Company Limited
- Subsidiary Governance and Transformative Leadership for Global Enterprise 2022, Director's Legal Liabilities, Ethical Leadership for New Era and High Performing Board & Board Effectiveness 2021 (In-house Programs by GC) and Director Certification Program (DCP) Class 287/2019, Thai Institute of Directors Association (IOD)

**Board Member/Management in Listed Company –
 The Stock Exchange of Thailand : 1**

- Senior Vice President - Refinery, PTT Global Chemical Public Company Limited

**Board Member/Management in Non-Listed Company –
 The Stock Exchange of Thailand : 1**

- Director, NPC Safety and Environmental Service Company Limited

Work Experiences (5-year Previous Experiences)

1 Jan 2020 - 7 Dec 2022 Director, Thai Tank Terminal Limited
 2008 - Sep 2019 Vice President - Refinery, PTT Global Chemical Public Company Limited

Shareholding : 21,500 Shares (0.000477%)
 As of December 31st, 2022

**Relation among Family with Other Directors, Management,
 Major Shareholders of the Company or Subsidiaries :** None

Mr. Paisarn Sarapee■ **Senior Vice President – EO and Derivatives**

Age: **59 Years**
 Appointed: **January 1st, 2023**

Education/Training

- Master of Business Administration, Graduate School of Commerce, Burapha University
- Bachelor of Science (Industrial Chemistry), Chiang Mai University
- Head of Company Program, INSEAD
- Senior Executive Program (SEP) 2005, Sasin Graduate Institute of Business Administration of Chulalongkorn University
- Subsidiary Governance, Business and Legal Issues for Directors and Executives and Transformative Leadership for Global Enterprise 2022, Director's Legal Liabilities, Ethical Leadership for New Era and High Performing Board & Board Effectiveness 2021 (In-house Programs by GC), Financial Statements for Directors (FSD) Class 41/2020 and Director Certification Program (DCP) Class 286/2019, Thai Institute of Directors Association (IOD)

**Board Member/Management in Listed Company –
 The Stock Exchange of Thailand : 1**

- Senior Vice President under Chief Operating Officer - Value Added Products, PTT Global Chemical Public Company Limited

**Board Member/Management in Non-Listed Company –
 The Stock Exchange of Thailand : 3**

- Director, GC Maintenance and Engineering Company Limited
- Director, NPC Safety and Environmental Service Company Limited
- Director and Managing Director, GC Oxirane Company Limited

Work Experiences (5-year Previous Experiences)

- | | |
|--------------------------|--|
| 1 May 2022 - 30 Jun 2022 | Senior Vice President under Chief Operating Officer - Value Added Products, PTT Global Chemical Public Company Limited |
| 1 Oct 2019 - 30 Apr 2022 | Senior Vice President - Phenol Business Unit, PTT Global Chemical Public Company Limited |
| 1 Oct 2019 - 1 May 2022 | Director and Managing Director, PTT Phenol Company Limited |
| 1 Jan 2015 - 30 Sep 2019 | Vice President - Phenol Operation Department, PTT Phenol Company Limited |

Shareholding : None

**Relation among Family with Other Directors, Management,
 Major Shareholders of the Company or Subsidiaries :** None

Mr. Paranai Waitayaseewee■ **Senior Vice President – Procurement**

Age: **59 Years**
 Appointed: **February 16th, 2021**

Education/Training

- Master of Public Administration (Political Science), Thammasat University
- Bachelor of Engineering (Production Engineering and Industrial Engineering), King Mongkut's University of Technology Thonburi
- Extraordinary Leader 2016, PTT Global Chemical Public Company Limited
- Leadership Development Strategy Engagement Centric Engagement Creating an Innovation, Leadership Engagement & Change Engagement, Thammasat Business Consulting Center
- Leadership Development Program (LDP 2/2015), PTT Leadership and Learning Institute, PTT Public Company Limited
- Subsidiary Governance and Business and Legal Issues for Directors and Executives 2022, Director's Legal Liabilities, Ethical Leadership for New Era and High Performing Board & Board Effectiveness 2021 (In-house Programs by GC) and Director Certification Program (DCP) Class 319/2022, Thai Institute of Directors Association (IOD)

**Board Member/Management in Listed Company –
 The Stock Exchange of Thailand : 1**

- Senior Vice President - Procurement, PTT Global Chemical Public Company Limited

**Board Member/Management in Non-Listed Company –
 The Stock Exchange of Thailand : 1**

- Director, GC Estate Company Limited

Work Experiences (5-year Previous Experiences)

- | | |
|--------------------------|--|
| 1 Feb 2021 - 15 Feb 2021 | Vice President - Procurement, PTT Global Chemical Public Company Limited |
| 1 Jun 2019 - 31 Jan 2021 | Vice President - Production Planning, Sales & Marketing, PTT Phenol Company Limited |
| 1 Sep 2013 - 31 May 2019 | Vice President – Production Planning, Sales & Marketing - EO-Based Performance, PTT Global Chemical Public Company Limited |

Shareholding : 96,966 Shares (0.002151%),
 As of December 31st, 2022

**Relation among Family with Other Directors, Management,
 Major Shareholders of the Company or Subsidiaries :** None

Mr. Sawat Trongdilokrat■ **Senior Vice President – Phenol and Derivatives**

Age: 55 Years
Appointed: May 1st, 2022

Education/Training

- Master of Business Administration (Marketing), Sripatum University
- Bachelor of Science (Chemical Engineering), Chulalongkorn University
- Leadership Development Program (LDP 1) and (LDP 2), PTT Leadership and Learning Institute, PTT Public Company Limited
- Subsidiary Governance, Business and Legal Issues for Directors and Executives and Transformative Leadership for Global Enterprise 2022 (In-house Programs by GC) and Director Certification Program (DCP) Class 325/2022, Thai Institute of Directors Association (IOD)

Board Member/Management in Listed Company –**The Stock Exchange of Thailand : 1**

- Senior Vice President - Phenol and Derivatives, PTT Global Chemical Public Company Limited

Board Member/Management in Non-Listed Company –**The Stock Exchange of Thailand : 1**

- Director and Managing Director, PTT Phenol Company Limited

Work Experiences (5-year Previous Experiences)

- 1 Apr 2022 - 30 Apr 2022 Vice President under Chief Operating Officer Value Added Products, PTT Global Chemical Public Company Limited
- 1 Oct 2019 - 31 Mar 2022 Vice President - Aromatics Maintenance, PTT Global Chemical Public Company Limited
- 1 Jan 2017 - 30 Apr 2019 Vice President - Aromatics Plant 2, PTT Global Chemical Public Company Limited

Shareholding : 15,000 Shares (0.000333%)
As of December 31st, 2022

Relation among Family with Other Directors, Management, Major Shareholders of the Company or Subsidiaries : None

Mrs. Chananchida Wiboonkanarak■ **Senior Vice President – Strategy, Business Development and Commercial Excellence**

Age: 49 Years
Appointed: April 1st, 2018

Education/Training

- Master of Engineering (Chemical Engineering), Chulalongkorn University
- Bachelor of Science (Chemical Engineering), Chulalongkorn University
- Leadership Development Program 2, 2015, Sasin Graduate Institute of Business Administration of Chulalongkorn University
- Leadership Development Program (LDP 2), General Electric, U.S.A.
- PTT-HBS Leadership Development Program (LDP 1), Harvard Business School Campus, Shanghai, The People's Republic of China
- Subsidiary Governance, Business and Legal Issues for Directors and Executives and Transformative Leadership for Global Enterprise 2022, Director's Legal Liabilities, Ethical Leadership for New Era and High Performing Board & Board Effectiveness 2021 (In-house Programs by GC) and Director Certification Program (DCP) Class 267/2018, Thai Institute of Directors Association (IOD)

Board Member/Management in Listed Company –**The Stock Exchange of Thailand : 1**

- Senior Vice President - Strategy, Business Development and Commercial Excellence, PTT Global Chemical Public Company Limited

Board Member/Management in Non-Listed Company –**The Stock Exchange of Thailand : 9**

- Chairperson, PTT MCC Biochem Company Limited
- Director, AGC Vinythai Public Company Limited
- Director, PTT Phenol Company Limited
- Director, Solution Creation Company Limited
- Director, Kuraray GC Advanced Materials Company Limited
- Director, PTT Asahi Chemical Company Limited
- Director, Emery Oleochemicals UK Limited
- Director, GC Marketing Solutions Company Limited
- Executive Committee Member, HMC Polymers Company Limited

Work Experiences (5-year Previous Experiences)

- 13 Nov 2019 - 25 Aug 2022 Director, GC Glycol Company Limited
- 8 Feb 2018 - Apr 2022 Director and Chairperson of Executive Committee, PTT MCC Biochem Company Limited
- 15 Oct 2020 - 1 Mar 2022 Director, Vencorex Holding
- 2 Sep 2020 - 16 Feb 2022 Director, NatureWorks LLC
- 15 Oct 2020 - 16 Feb 2022 Director, PTTGC International (Netherlands) B.V.
- 27 Dec 2018 - 22 Dec 2019 Director, GC-M PTA Company Limited
- 27 Dec 2018 - 22 Dec 2019 Director, Thai PET Resin Company Limited
- 26 Feb 2016 - 5 Nov 2018 Director, Thai Fatty Alcohols Company Limited
- 1 Oct 2017 - 31 Mar 2018 Acting Senior Vice President - Downstream Strategy and Business Development, PTT Global Chemical Public Company Limited

Shareholding : None

Relation among Family with Other Directors, Management, Major Shareholders of the Company or Subsidiaries : None

Mr. Thitipol Artsanchorn

- Senior Vice President - Marketing and Sales - General Applications

Age: 52 Years
Appointed: July 1st, 2022

Education/Training

- Master of Business Administration (MBA), Kasetsart University
- Bachelor Degree in Mechanical Engineering, Kasetsart University
- Leadership Program 2012, Ashridge Business School, UK
- Supply Chain Process Optimization 2010, Marcus Evans, Singapore
- Key Account Management - Leadership 2001, Cranfield, Bangkok
- Subsidiary Governance, Business and Legal Issues for Directors and Executives and Transformative Leadership for Global Enterprise 2022, Director's Legal Liabilities, Ethical Leadership for New Era and High Performing Board & Board Effectiveness 2021 (In-house Programs by GC) and Director Certification Program (DCP) Class 273/2019, Thai Institute of Directors Association (IOD)

Board Member/Management in Listed Company –**The Stock Exchange of Thailand : 1**

- Senior Vice President - Marketing and Sales - General Applications, PTT Global Chemical Public Company Limited

Board Member/Management in Non-Listed Company –**The Stock Exchange of Thailand : 10**

- Chairman, GC Marketing Solutions Vietnam Company Limited
- Chairman, GC Marketing Solutions Myanmar Company Limited
- Chairman, PT GCM Marketing Solutions Indonesia
- Chairman, GCM Polymer Trading DMCC
- Chairman, GC Marketing Solutions (Shanghai) Company Limited
- Director and Managing Director, GC Marketing Solutions Company Limited
- Director, GC Logistics Solutions Company Limited
- Director, ENVICCO Limited
- Director, PL Global Transport Company Limited
- Executive Committee Member, HMC Polymers Company Limited

Work Experiences (5-year Previous Experiences)

- | | |
|---------------------------|---|
| 1 Mar 2019 - 30 Jun 2022 | Senior Vice President under Chief Operating Officer - Downstream Petrochemical Business, PTT Global Chemical Public Company Limited |
| 26 Mar 2019 - 28 Sep 2020 | Director, Revolve Group Limited |
| 2 May 2016 - 28 Feb 2019 | General Manager, Piovan Indonesia, Jakarta, Indonesia |
| 2 May 2016 - 28 Feb 2019 | General Manager, Piovan Asia Pacific |

Shareholding : None

Relation among Family with Other Directors, Management, Major Shareholders of the Company or Subsidiaries : None

Mr. Monton Rochvatanaboon

- Senior Vice President - CAPEX Excellence

Age: 59 Years
Appointed: August 1st, 2022

Education/Training

- Master of Public Administration, The National Institute of Development Administration (NIDA)
- Bachelor of Engineering (Electrical Engineering), Khon Kaen University
- Extraordinary Program, PTT Global Chemical Public Company Limited
- Leadership Development Program (LDP 2), PTT Global Chemical Public Company Limited
- Subsidiary Governance, Business and Legal Issues for Directors and Executives and Transformative Leadership for Global Enterprise 2022, Director's Legal Liabilities, Ethical Leadership for New Era and High Performing Board & Board Effectiveness 2021 (In-house Programs by GC), Director Certification Program (DCP) Class 309/2021, Thai Institute of Directors Association (IOD)

Board Member/Management in Listed Company –**The Stock Exchange of Thailand : 1**

- Senior Vice President - CAPEX Excellence, PTT Global Chemical Public Company Limited

Board Member/Management in Non-Listed Company –**The Stock Exchange of Thailand : 2**

- Director, GC-M PTA Company Limited
- Director, Thai PET Resin Company Limited

Work Experiences (5-year Previous Experiences)

- | | |
|--------------------------|---|
| 1 Jul 2021 - 30 Jun 2022 | Director and Managing Director, GC Oxirane Company Limited |
| 1 Apr 2021 - 30 Jun 2021 | Senior Vice President under Downstream Petrochemical Business, PTT Global Chemical Public Company Limited |
| May 2017 - Mar 2021 | Project Director of Olefins Reconfiguration, PTT Global Chemical Public Company Limited |

Shareholding : None

Relation among Family with Other Directors, Management, Major Shareholders of the Company or Subsidiaries : None

Mrs. Chatsuda Kanjanarat

- Senior Vice President - Transformation Excellence

Age: 54 Years
Appointed: July 1st, 2017

Education/Training

- Bachelor of Engineering (Electrical-Electronics) (Second-Class Honors), King Mongkut's Institute of Technology Ladkrabang
- PTT-HBS Leadership Development Program (LDP 1) PTT Leadership and Learning Institute, PTT Public Company Limited
- Leading Digital Business Transformation (LDBT) 2017, Institute for Management Development (IMD)
- Executive Education Certificate Program in Cybersecurity (Executive CISO) Class 1, National Cyber Security Agency (NCSA)
- Subsidiary Governance, Business and Legal Issues for Directors and Executives and Transformative Leadership for Global Enterprise 2022, Director's Legal Liabilities, Ethical Leadership for New Era and High Performing Board & Board Effectiveness 2021 (In-house Programs by GC) and Director Certification Program (DCP) Class 249/2017, Thai Institute of Directors Association (IOD)

**Board Member/Management in Listed Company –
The Stock Exchange of Thailand : 1**

- Senior Vice President - Transformation Excellence, PTT Global Chemical Public Company Limited

**Board Member/Management in Non-Listed Company –
The Stock Exchange of Thailand : 1**

- Director, PTT Digital Solutions Company Limited

Work Experiences (5-year Previous Experiences)

13 Jun 2016 - 30 Jun 2017 Vice President - PTTGC
Business Performance
Improvement - Project MAX,
PTT Global Chemical Public
Company Limited

Shareholding : None

**Relation among Family with Other Directors, Management,
Major Shareholders of the Company or Subsidiaries :** None

Mr. Sakesiri Piyavej

- Senior Vice President - Quality, Safety, Occupational Health and Environment

Age: 56 Years
Appointed: January 1st, 2022

Education/Training

- Master of Public Administration (Honor Class), The National Institute of Development Administration (NIDA)
- Bachelor of Engineering (Electrical Engineering), Chulalongkorn University
- Bachelor of Safety Science, Rajabhat Rajanagarindra University
- Subsidiary Governance, Business and Legal Issues for Directors and Executives and Transformative Leadership for Global Enterprise 2022 (In-house Programs by GC) and Director Certification Program (DCP) Class 321/2022, Thai Institute of Directors Association (IOD)

**Board Member/Management in Listed Company –
The Stock Exchange of Thailand : 1**

- Senior Vice President - Quality, Safety, Occupational Health and Environment, PTT Global Chemical Public Company Limited

**Board Member/Management in Non-Listed Company –
The Stock Exchange of Thailand : 1**

- Director, NPC Safety and Environmental Service Company Limited

Work Experiences (5-year Previous Experiences)

Oct 2018 - Dec 2021	Vice President - Technical Safety and PSM, PTT Global Chemical Public Company Limited
Jan 2016 - Sep 2018	Vice President - Technical and Enhance SHE, PTT Global Chemical Public Company Limited

Shareholding : 10,000 Shares; Spouse 1,000 Shares (0.000244%) As of December 31st, 2022

**Relation among Family with Other Directors, Management,
Major Shareholders of the Company or Subsidiaries :** None

Mr. Kamel Ramdani

- Senior Vice President – Product Innovation and Innovation Management and Acting Senior Vice President – Long Term Innovation and Corporate Venture Capital

Age: 50 Years
Appointed: December 1st, 2021

Education/Training

- Doctor of Philosophy (Ph.D.) in Chemical Engineering, French Institute of Petroleum & French National Research Center, Lyon, France
- Master of Business Administration, Wharton School Philadelphia, U.S.A.
- Master of Science (Chemistry and Catalysis), University Pierre & Marie Curie, Paris VI, France
- Bachelor of Engineering (Chemical Engineering), University Claude Bernard, Lyon, France

Board Member/Management in Listed Company – The Stock Exchange of Thailand : 1

- Senior Vice President - Product Innovation and Innovation Management and Acting Senior Vice President - Long Term Innovation and Corporate Venture Capital, PTT Global Chemical Public Company Limited

Board Member/Management in Non-Listed Company – The Stock Exchange of Thailand : 4

- Director and Managing Director, GC Ventures Company Limited
- Director, PTT MCC Biochem Company Limited
- Director, GC Ventures America Corporation
- Director, Vencorex Holding

Work Experiences (5-year Previous Experiences)

2013 - 2021 Senior Vice President, Research & Innovation - Global Technology VP
Solvay Group, Global Business Unit
Novecare, Princeton, New Jersey, U.S.A.

Shareholding : None

Relation among Family with Other Directors, Management, Major Shareholders of the Company or Subsidiaries : None

Mrs. Rattiya Chandavas

- Senior Vice President – Specialty Business and Acting Senior Vice President – Merger and Acquisition

Age: 45 Years
Appointed: February 1st, 2022

Education/Training

- Master of Science (Petrochemical Technology), The Petroleum and Petrochemical College, Chulalongkorn University
- Bachelor of Science (Chemical Technology), Chulalongkorn University
- Leadership Development Program (LDP 2) 2019, PTT Leadership and Learning Institute, PTT Public Company Limited
- Leadership Management Program, 2015, PacRim Group
- Management Development Program, 2013, Chulalongkorn University
- Effective Communications and Human Relation, Dale Carnegie
- Beyond Deal Making, Melanie Billing, Yun
- Project Management, Problem Solving and Decision Making, Kepner Tregoe
- Performance Management and Coaching Skills, Professional Negotiation Skills, Management Interpersonal Relationship, Achieve Global
- Subsidiary Governance, Business and Legal Issues for Directors and Executives and Transformative Leadership for Global Enterprise 2022, Director's Legal Liabilities and Ethical Leadership for New Era 2021 (In-house Programs by GC), Thai Institute of Directors Association (IOD)

Board Member/Management in Listed Company – The Stock Exchange of Thailand : 1

- Senior Vice President - Specialty Business and Acting Senior Vice President - Merger and Acquisition, PTT Global Chemical Public Company Limited

Board Member/Management in Non-Listed Company – The Stock Exchange of Thailand : 3

- Director and Member of Executive Committee, Emery Oleochemicals UK Limited
- Director, NatureWorks LLC
- Director, Synthese (Thailand) Company Limited

Work Experiences (5-year Previous Experiences)

1 Nov 2019 - 15 Feb 2022 Managing Director, GC Ventures Company Limited
1 Oct 2017 - 31 Jan 2022 Vice President, International Strategy and Business Development, PTT Global Chemical Public Company Limited

Shareholding : None

Relation among Family with Other Directors, Management, Major Shareholders of the Company or Subsidiaries : Spouse : Mr. Chaya Chandavas, Executive Vice President - Sustainability

Mr. Panod Awaiwanond

- Senior Vice President - US Second Home

Age: 54 Years
Appointed: February 1st, 2022

Education/Training

- Master of Business Administration (Finance), University of Akron, Ohio, U.S.A.
- Bachelor of Arts (Economic), Southern Illinois University at Carbondale, Illinois, U.S.A.
- Business and Legal Issues for Directors and Executives and Transformative Leadership for Global Enterprise 2022 (In-house Programs by GC), Thai Institute of Directors Association (IOD)

**Board Member/Management in Listed Company –
The Stock Exchange of Thailand : 1**

- Senior Vice President - US Second Home, PTT Global Chemical Public Company Limited

**Board Member/Management in Non-Listed Company –
The Stock Exchange of Thailand : 2**

- Director and Managing Director, PTTGC America Corporation
- Director, President & CEO, PTTGC America LLC

Work Experiences (5-year Previous Experiences)

- | | |
|--------------------------|--|
| 1 Dec 2019 - 30 Sep 2021 | Vice President - International Business Operations, PTT Global Chemical Public Company Limited |
| 1 Jun 2017 - 30 Nov 2019 | Vice President - US Business Development, PTT Global Chemical Public Company Limited |

Shareholding : None

Relation among Family with Other Directors, Management, Major Shareholders of the Company or Subsidiaries : None

Mr. Panchoak Auetanapa

- Acting Senior Vice President - Utilities

Age: 51 Years
Appointed: January 1st, 2023

Education/Training

- Bachelor of Engineering (Electrical Engineering), Chulalongkorn University
- GC X INSEAD Global Leadership Acceleration Program 2022 (G-LAP) (In-house Programs by GC), INSEAD
- Extraordinary Leader, 2017, PTT Global Chemical Public Company Limited
- Leadership Development Program (LDP 1/2015 and LDP 2/2017), PTT Global Chemical Public Company Limited
- Subsidiary Governance, Business and Legal Issues for Directors and Executives and Transformative Leadership for Global Enterprise 2022, Director's Legal Liabilities, Ethical Leadership for New Era and High Performing Board & Board Effectiveness 2021 (In-house Programs by GC) and Director Certification Program (DCP) Class 305/2021, Thai Institute of Directors Association (IOD)

**Board Member/Management in Listed Company –
The Stock Exchange of Thailand : 1**

- Acting Senior Vice President - Utilities, PTT Global Chemical Public Company Limited

**Board Member/Management in Non-Listed Company –
The Stock Exchange of Thailand : 1**

- Director, GC Estate Company Limited

Work Experiences (5-year Previous Experiences)

- | | |
|--------------------------|---|
| 1 Jul 2022 - 31 Dec 2022 | Vice President - PS Plant, PTT Global Chemical Public Company Limited |
| 1 Feb 2021 - 30 Jun 2022 | Director and Managing Director, GC Styrenics Company Limited |
| 1 Mar 2019 - 31 Jan 2021 | Vice President - Utilities Technology & Maintenance, PTT Global Chemical Public Company Limited |
| 1 Nov 2017 - 28 Feb 2019 | Vice President - Utilities Support, PTT Global Chemical Public Company Limited |

Shareholding : None

Relation among Family with Other Directors, Management, Major Shareholders of the Company or Subsidiaries : None

Mr. Sombat Silsangwon■ **Senior Vice President - Aromatics**

Age: 54 Years

Appointed: March 1st, 2023**Education/Training**

- Bachelor of Industrial Technology, King Mongkut's Institute of Technology Ladkrabang
- GC X INSEAD Global Leadership Acceleration Program 2022 (G-LAP) (In-house Programs by GC and INSEAD)
- Advance Management Program 2019, PTT Leadership and Learning Institute, PTT Public Company Limited
- Management Development Program #24/2016, Thailand Management Association

Board Member/Management in Listed Company –**The Stock Exchange of Thailand : 1**

- Senior Vice President - Aromatics, PTT Global Chemical Public Company Limited

Board Member/Management in Non-Listed Company –**The Stock Exchange of Thailand : None****Work Experiences (5-year Previous Experiences)**

- | | |
|--------------------------|--|
| 1 Oct 2016 - 28 Feb 2023 | Vice President - Olefins Plant II,
PTT Global Chemical Public
Company Limited |
| Apr 2014 - Sep 2016 | Division Manager - Plant
Operation I and Olefins Plant II,
PTT Global Chemical Public
Company Limited |

Shareholding : Spouse 4,000 Shares (0.000089%)
as of December 31st, 2022

**Relation among Family with Other Directors, Management,
Major Shareholders of the Company or Subsidiaries :** None

EXECUTIVE VICE PRESIDENT AND SENIOR VICE PRESIDENT APPOINTED AS EXECUTIVES OF GC'S SUBSIDIARIES / PROJECT LEADER

Mr. Kridsada Prasertsuko

Senior Vice President –
Value Added Products
Secondment as Managing Director,
Global Green Chemicals Public Company Limited

Miss Kornkamol Korpaisarn

Senior Vice President –
Value Added Products
Secondment as Managing Director,
GC Polyols Company Limited

Mrs. Wilawan Songjaroen

Senior Vice President –
Center of Excellence
Secondment as Managing Director,
GC Maintenance and Engineering Company Limited

Mr. Theerapol Muenpakdee

Senior Vice President –
Base and Intermediate Chemicals
Secondment as Managing Director,
Thai Tank Terminal Limited

Mr. Prakart Buttamart

Acting Senior Vice President – Center of Excellence
Secondment as Managing Director,
NPC Safety and Environmental Service
Company Limited

Mr. Kasem Leewongjaroen

Acting Senior Vice President –
Base and Intermediate Chemicals
Secondment as President,
GC-M PTA Company Limited
and Thai PET Resin Company Limited

Mrs. Panida Chinayone

Senior Vice President –
Reporting to Chief Executive Officer and President,
Business Process Redesign Project Leader

PROFILE OF THE PERSON SUPERVISING ACCOUNTING (CHIEF ACCOUNTANT) PTT GLOBAL CHEMICAL PUBLIC COMPANY LIMITED

1

Mrs. Sutha Suwanrath

■ Vice President – Financial Accounting I

Age: 60 Years
Appointed: August 1st, 2020

Education/Training

- Master of Business Administration, Burapha University
- Thai Financial Reporting Standards Workshop, 2020
- Inventory Accounting, 2020
- Process Business Overview, 2019
- Career Plan #3, 2019
- Roles of Executives and Internal Control #4, 2019
- Corporate Income Tax Planning, 2019
- IFRS15-16, 2019
 - 2021 TFRS Update Session 1
 - 2021 TFRS Update Session 2
- “Revenue” TFRS15 and NPAEs chapter 18
- Summary changes and significant issues of TFRS
- Insights into the problem and practice of assets, depreciation as TA

Board Member/Management in Listed Company – The Stock Exchange of Thailand : 1

- Vice President, Financial Accounting I, Finance and Accounting, PTT Global Chemical Public Company Limited

Board Member/Management in Non-Listed Company – The Stock Exchange of Thailand : None

Work Experiences (5-year Previous Experiences)

- | | |
|--------------------------|---|
| 1 Aug 2020 - 28 Nov 2022 | Vice President Financial Accounting I, Finance and Accounting, PTT Global Chemical Public Company Limited |
| 1 Sep 2018 - 31 Jul 2020 | Vice President Financial Accounting, PTT Global Chemical Public Company Limited |
| 1 Jan 2017 - 31 Aug 2018 | Vice President - Financial Accounting I, Finance and Accounting, PTT Global Chemical Public Company Limited |

Shareholding : None

Relation among Family with Other Directors,
Management, Major Shareholders of the Company
or Subsidiaries : None

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Miss Duanthip Wuttichartkreingrai

■ Vice President – Financial Accounting I

Age: 50 Years
Appointed: January 1st, 2023

Education/Training

- Bachelor of Accounting, Thammasat University
- Accountants in the Digital 4.0 Era and Financial Information Technology, 2019
- Thai Financial Reporting Standards Workshop for GC Group, 2019
- Taxes from International Payments and the Double Taxation Treaty, 2019
- Highlighted Principles and Issues of Group's Investment Reporting, 2019
- Fintech: Disruptive & Innovation, 2019
- Thai Financial Reporting Standards Workshop, 2020
- Accounting Adjustment and Period Ended Closing in Accordance with TFRS, 2020
- Thai Financial Reporting Standards Workshop, 2021
- Financial statement Analysis, 2021
- Accounting Information System 1, 2022
- TFRS update, 2022

Board Member/Management in Listed Company – The Stock Exchange of Thailand : 1

- Vice President, Accounting Policy and Tax Strategy and Acting Vice President, Financial Accounting I, Finance and Accounting, PTT Global Chemical Public Company Limited

Board Member/Management in Non-Listed Company – The Stock Exchange of Thailand : None

Work Experiences (5-year Previous Experiences)

- | | |
|--------------------------|--|
| 1 Oct 2019 - 31 Dec 2022 | Vice President - Financial Accounting II, Finance and Accounting, PTT Global Chemical Public Company Limited |
| 1 May 2019 - 30 Sep 2019 | Acting Vice President - Financial Accounting II, Finance and Accounting, PTT Global Chemical Public Company Limited |
| 1 Oct 2018 - 30 Apr 2019 | Acting Vice President - Financial Accounting I, Finance and Accounting, PTT Global Chemical Public Company Limited |
| 1 Nov 2015 - 30 Sep 2018 | Division Manager - General Accounting and Consolidation Financial Accounting I, Finance and Accounting, PTT Global Chemical Public Company Limited |

Shareholding : None

Relation among Family with Other Directors, Management,
Major Shareholders of the Company or Subsidiaries : None

ATTACHMENT 2

DETAILS OF DIRECTORS OF SUBSIDIARIES

List of the Board of Directors in Subsidiaries / Associates / Related Companies (As of 1 February 2023)

No.	Name – Surname	GC	Subsidiaries			Associates/ Related Companies		
			GGC	GC Inter	GC BV	GPSC	PTT	PTTEP
1	Mr. Piyasvasti Amranand	▲						
2	Mr. Apisak Tantivorawong	■						
3	Mr. Pakorn Nilprapunt	■						
4	Professor Somkit Lertpaithoon	■						
5	Mr. Grisada Boonrach	■						
6	Mrs. Watanan Petersik	■						
7	Mr. Somkiat Prajamwong	■						
8	M.L. Chayotid Kridakon	■					■	
9	Lieutenant General Nimit Suwannarat	■						■
10	Mr. Chadil Chavanalikhorn	■					●	
11	Mrs. Pantip Sripimol	■						
12	Mr. Sarawut Kaewtathip	■						
13	Mr. Cherdchai Boonchoochaey	■					●	
14	Mr. Noppadol Pinsupa	■				■	●	
15	Mr. Kongkrapan Intarajang	■ ●	▲	▲	▲	■	●	

Remarks: ▲ = Chairman

■ = Director

● = Executive

Subsidiaries

GGC = Global Green Chemicals Public Company Limited
GC Inter = PTTGC International Private Limited
GC BV = PTTGC International (Netherlands) B.V.

Associates/Related Companies

GPSC = Global Power Synergy Public Company Limited
PTT = PTT Public Company Limited
PTTEP = PTT Exploration and Production Public Company Limited

List of GC’S Executives in Subsidiaries / Associates / Joint Ventures / Related Companies (As of 1 February 2023)

No.	Name - Surname	Subsidiaries																			Associates/Joint Ventures/ Related Companies												
1	Mr. Kongkrapan Intarajang	GC	GGC	PPCL	GCO	GCME	NPC	GCTC	GCEC	GCM	GCL	GCP	GCA Corp.	GCA	GC Inter	GCIA	GCV	GCVA	GC BV	Vencorex	GCI	PTT	GPSC	PLGT	NatureWorks	EOUK	PTTAC	HMC	TTT	KGK	AVT		
2	Mr. Varit Namwong	●	■							▲		▲			■	▲			▲			●	■				▲						
3	Mr. Toasaporn Boonyapipat	●		▲	▲	■																								■		■	
4	Mr. Pirun Krimwongrut	●				▲	▲		▲				■														■						
5	Mr. Narongsak Jivakanun	●											▲	▲	■ ●	▲	▲	▲	■ ●	▲	●				■	■					■		
6	Miss Pattaralada Sa-ngasang	●			■			▲			■	■	■	■	■									■						■			

Remarks: ▲ = Chairman ■ = Director ● = Executive

Subsidiaries			Associates/Related Companies			Related Companies					
GGC	=	Global Green Chemicals Public Company Limited	GCA Corp.	=	PTTGC America Corporation	PLGT	=	PL Global Transport Company Limited	PTT	=	PTT Public Company Limited
PPCL	=	PTT Phenol Company Limited	GCA	=	PTTGC America LLC	NatureWorks	=	NatureWorks LLC	GPSC	=	Global Power Synergy Public Company Limited
GCO	=	GC Oxirane Company Limited	GC Inter	=	PTTGC International Private Limited	EOUK	=	Emery Oleochemicals UK Limited			
GCME	=	GC Maintenance and Engineering Company Limited	GCI	=	PTTGC Innovation America Corporation	PTTAC	=	PTT Asahi Chemical Company Limited			
NPC	=	NPC Safety and Environmental Service Company Limited	GCV	=	GC Ventures Company Limited	HMC	=	HMC Polymers Company Limited			
GCTC	=	GC Treasury Center Company Limited	GCV	=	GC Ventures America Corporation	TTT	=	Thai Tank Terminal Limited			
GCEC	=	GC Estate Company Limited	GC BV	=	PTTGC International (Netherlands) B.V.	KGK	=	Kuraray GC Advanced Materials Company Limited			
GCM	=	GC Marketing Solutions Company Limited	Vencorex	=	Vencorex Holding	AVT	=	AGC Vinythai Public Company Limited			
GCL	=	GC Logistics Solutions Company Limited	GCI	=	GC International Corporation						
GCP	=	GC Polyols Company Limited									

List of Directors in Subsidiaries wholly 100% owned by GC (As of 1 February 2023)

1. PTT Phenol Company Limited

List of Directors		Position
1	Mr. Toasaporn Boonyapipat	Chairman
2	Mr. Pukpong Wungrattanasopon	Director
3	Mrs. Chananchida Wiboonkanarak	Director
4	Mr. Sawat Trongdilokrat	Director/ Managing Director

4. GC Maintenance and Engineering Company Limited

List of Directors		Position
1	Mr. Pirun Krimwongrut	Chairman
2	Mr. Toasaporn Boonyapipat	Director
3	Mrs. Jeeranee Pimthanothai	Director
4	Mr. Paisarn Sarapee	Director
5	Mrs. Wilawan Songjaroen	Director/ Managing Director

2. Solution Creation Company Limited

List of Directors		Position
1	Mr. Pornsak Mongkoltrirat	Chairman
2	Mrs. Warawan Tippawanich	Director
3	Mr. Chaya Chandavas	Director
4	Mrs. Chananchida Wiboonkanarak	Director
5	Mr. Weerayuth Lersathian	Director/ Managing Director

5. NPC Safety and Environmental Service Company Limited

List of Directors		Position
1	Mr. Pirun Krimwongrut	Chairman
2	Mr. Paisarn Sarapee	Director
3	Mr. Ratchada Sawasdirak	Director
4	Mr. Sakesiri Piyavej	Director
5	Mr. Prakart Buttamart	Director/ Managing Director

3. GC Oxirane Company Limited

List of Directors		Position
1	Mr. Toasaporn Boonyapipat	Chairman
2	Miss Pattaralada Sa-ngasang	Director
3	Mr. Paisarn Sarapee	Director/ Managing Director

6. GC Treasury Center Company Limited

List of Directors		Position
1	Miss Pattaralada Sa-ngasang	Chairman
2	Mr. Siridech Kumvongdee	Director
3	Miss Kanoknun Buranapunsri	Director
4	Miss Pornsook Limsathit	Director/ Managing Director

7. GC Estate Company Limited

List of Directors		Position
1	Mr. Pirun Krimwongrut	Chairman
2	Mr. Anutin Chuaypen	Director
3	Mr. Panchoak Auetanapa	Director
4	Mr. Paranai Waitayasewee	Director
5	Mrs. Wacharee Hanwongpaiboon	Director/ Managing Director

10. PTTGC America Corporation

List of Directors		Position
1	Mr. Narongsak Jivakanun	Chairman
2	Mr. Pirun Krimwongrut	Director
3	Miss Pattaralada Sa-ngasang	Director
4	Mrs. Warawan Tippawanich	Director
5	Mr. Panod Awaiwanond	Director/ Managing Director

8. GC Marketing Solutions Company Limited

List of Directors		Position
1	Mr. Varit Namwong	Chairman
2	Mrs. Chananchida Wiboonkanarak	Director
3	Mr. Thitipol Artsanchorn	Director/ Managing Director

11. PTTGC International Private Limited

List of Directors		Position
1	Mr. Kongkrapan Intarajang	Chairman
2	Mr. Varit Namwong	Director
3	Miss Pattaralada Sa-ngasang	Director
4	Mrs. Warawan Tippawanich	Director
5	Mr. Narongsak Jivakanun	Director/ Managing Director

9. GC Logistics Solutions Company Limited

List of Directors		Position
1	Mr. Pornsak Mongkoltrirat	Chairman
2	Miss Pattaralada Sa-ngasang	Director
3	Mrs. Wilawan Songjaroen	Director
4	Mr. Thitipol Artsanchorn	Director
5	Mr. Pornsak Mongkoltrirat	Director/ Managing Director

12. GC Ventures Company Limited

List of Directors		Position
1	Mr. Narongsak Jivakanun	Chairman
2	Mrs. Warawan Tippawanich	Director
3	Mr. Chaya Chandavas	Director
4	Mr. Kamel Ramdani	Director/ Managing Director

ATTACHMENT 3

DETAILS OF THE HEADS OF THE INTERNAL AUDIT AND COMPLIANCE UNITS

HEAD OF INTERNAL AUDIT and HEAD OF CORPORATE COMPLIANCE

1. HEAD OF INTERNAL AUDIT

The Audit Committee Meeting No. 8/2017 convened on September 18, 2017 resolved to approve the appointment of Mr. Amorn Putiphrawan as Senior Vice President, Internal Audit, responsible for evaluating and enhancing the internal control effectiveness, supervising the operations of the internal audit function to be in accordance with the objectives and the international standards, including objectivity and independent consulting on the company's subsidiaries and report directly to the Audit Committee

Name – Surname : Mr. Amorn Putiphrawan
Senior Vice President – Internal Audit

Age : 59

Appointed : January 1st, 2018

Education/Training : Master of Engineering (Chemical Engineering), Chulalongkorn University
 : Bachelor of Science (Fuel Technology), Chulalongkorn University
 : Leadership Development Program (LDP 1) & (LDP 2), PTT Leadership and Learning Institute
 : Subsidiary Governance and Business and Legal Issues for Directors and Executives 2022, Director's Legal Liabilities, Ethical Leadership for New Era and High Performing Board & Board Effectiveness 2021 (In-house Programs by GC), Thai Institute of Directors Association (IOD)

Board Member/Management in Listed Company – The Stock Exchange of Thailand : 1

: Senior Vice President - Internal Audit, PTT Global Chemical Public Company Limited

Board Member/Management in Non-Listed Company – The Stock Exchange of Thailand: None

Position in Other Organizations/Institutions : 1

: Member of the Audit and Monitoring Committee, Chulabhorn Royal Academy

Work Experiences (5-year past experiences)

1 Oct 2017 - 31 Dec 2017	Vice President reporting to Chief Executive Officer and President, PTT Global Chemical Public Company Limited
16 Jun 2014 - 30 Sep 2017	Vice President – Corporate Risk Management and Internal Control System, PTT Global Chemical Public Company Limited

Shareholding : None

Relation among Family with Other Directors, Management, Major Shareholders of the Company or Subsidiaries : None

2. HEAD OF CORPORATE COMPLIANCE

Mrs. Rattana Nakasiri as Vice President, Corporate Governance, has been assigned as Head of Corporate Compliance. The responsibilities include overseeing corporate compliance, promoting corporate governance in business practices, and ensuring that the Executives and employees of GC Group comply with laws, rules, and regulations in countries where GC operates.

Name – Surname : **Mrs. Rattana Nakasiri**
Vice President – Corporate Governance

Age : 59

Appointed : October 15th, 2015

Education/Training : Master of Business Administration, National Institute of Development Administration
 : Bachelor of Economics, Ramkhamhaeng University
 : PTTGC Group VP: Leadership Development Program (LDP 2) 2015 (by GC)
 : Business Simulation for VP: CELEMI Decision Base, KNOWLEDGE CO., LTD
 : Corporate Compliance Overview - Executive, Hunton & Williams
 : Company Secretary Challenges in Building Trust in the Boardroom Seminar 2022, Subsidiary Governance, Business and Legal Issues for Directors and Executives and Transformative Leadership for Global Enterprise 2022, Director's Legal Liabilities, Ethical Leadership for New Era and High Performing Board & Board Effectiveness 2021 (In-house Programs by GC), Director Certification Program (DCP) Class 290/2020, Ethical Leadership Program (ELP) Class 15/2019, Risk Management Program for Corporate Leaders (RCL) Class 11/2018, IT Governance and Cyber Resilience Program (ITG) Class 8/2018, Company Reporting Program (CRP) Class 17/2017, Roles of Company Secretaries in Corporate Governance Promotion Seminar, IOD Open House 1/2017, Company Secretary Program (CSP) Class 69/2016, Board Reporting Program (BRP) Class 20/2016, Effective Minute Taking (EMT) Class 35/2016, Anti-Corruption: The Practical Guide (ACPG) Class 29/2016, and Corporate Governance for Executive (CGE) Class 7/2016, Thai Institute of Directors Association (IOD)

Board Member/Management in Listed Company – The Stock Exchange of Thailand : 1

: Vice President - Corporate Governance, PTT Global Chemical Public Company Limited

Board Member/Management in Non-Listed Company – The Stock Exchange of Thailand : None

Work Experiences (5-year past experiences)

29 Oct 2019 - 1 Oct 2021 : Director, GC Estate Company Limited

Shareholding : None

Relation among Family with Other Directors, Management, Major Shareholders of the Company or Subsidiaries : None

ATTACHMENT 4

ASSETS USED IN BUSINESS OPERATIONS AND DETAILS OF ASSET VALUATIONS

Property, Plant, and Equipment

As at December 31, 2022, the net book value of GC's and subsidiaries' operating fixed assets less accumulated depreciation and allowance for impairment was Baht 296,321 million, respectively. The total fixed assets shown in the consolidated financial statements are GC's and subsidiaries' owned assets.

(Unit: Million Baht)

No.	Item	Ownership	Book Value	Obligation
			Dec 31, 2022	
1	Land and land improvement	GC and subsidiaries	18,475	47
2	Plant, machinery, equipment, and factory tools	GC and subsidiaries	231,381	7,884
3	Buildings and buildings improvement	GC and subsidiaries	19,633	1,427
4	Furniture, fixtures, and equipment	GC and subsidiaries	1,049	-
5	Vehicles	GC and subsidiaries	152	-
6	Assets under construction	GC and subsidiaries	25,631	-
Total			296,321	9,358

Investment Properties

(Unit: Million Baht)

No.	Item	Ownership	Book Value
			Dec 31, 2022
1	Land	GC and subsidiaries	6,035
2	Buildings	GC and subsidiaries	27
3	Investment property under construction	GC and subsidiaries	12
Total			6,074

Rights of Use

As at December 31, 2022, GC and its subsidiaries' right-of-use assets less accumulated depreciation and allowance for impairment was Baht 25,617 million in net value, as detailed below.

(Unit: Million Baht)

No.	Item	Ownership	Book Value Dec 31, 2022	Remaining Lease Period
1	Land and land improvement	Long-term lease	8,178	1-88 years
2	Plant, machinery, equipment, and factory tools	Long-term lease	15,281	1-18 years
3	Buildings and buildings improvement	Long-term lease	1,343	1-75 years
4	Furniture, fixtures, and equipment	Long-term lease	151	1-6 years
5	Vehicles	Long-term lease	664	1-6 years
Total			25,617	

Details of Significant Rights of Use Other Land Leasehold Rights

Land Lease Agreements with PTT

1. A land lease agreement for the construction of a jetty and a seaside tank farm for liquid chemicals in Map Ta Phut Sub-district, Rayong, with a term of 22 years and 4 days from December 28, 2014 to December 31, 2037, consisting of:
 - The rental rate of a 8-2-70.90 rai land parcel to which PTT has gained the right through expropriation by the Treasury Department
 - The rental rate of a 67-2-52.90 rai land parcel owned by PTT
2. A land lease agreement for a parcel of land of 5 rai, 3 ngan, and 56.73 square wah, with a term of 17 years from January 1, 2021 to December 31, 2037.
3. A land lease agreement for a portion of land in PTT Gas Separation Plant for a power station with a total area of 2 ngan and 50 square wah, with a term of 3 years from 1 January 2022 to 31 December 2024
4. An agreement for use of assets for the installation of underground wiring in PTT Gas Separation Plant with a total area of 2 ngan and 74.5 square wah with a term of 3 years from 1 January 2022 to 31 December 2024

Lease Agreement and Service Agreement with Energy Complex Company Limited

555/1 Energy Complex Building A

- A lease agreement for a 14,227 sq.m. office space in Lobby A, on Floors 14-18 in Building A, storage and pantry for a term of 3 years from October 1, 2021, to September 30, 2024, consisting of:
 - (1) 302 sq.m. office space in Lobby A;
 - (2) 13,675 sq.m. office space on Floors 14-18;
 - (3) 135 sq.m. storage space on Floors 14, 16-17;
 - (4) 65 sq.m. storage space on M Floor in Building F; and
 - (5) 50 sq.m. pantry
 As of November 1, 2022, the rental of the 715 sq.m. office space on Floor 15 and the 10 sq.m. pantry on Floor 15 was discontinued.

Lease Agreement with the State Railway of Thailand

An area in the Map Ta Phut train station with a total area of 15,900 square meters with a term of 3 years from 16 June 2022 to 15 June 2025

Intangible Assets

The intangible assets of GC and its subsidiaries as at December 31, 2022 consist of:

(Unit: Million Baht)

Intangible Asset	Net value after accumulated amortization and allowance for impairment	Useful life
Production license fees	5,003	10-35 years
Computer software	3,625	3-20 years
Customer contracts and the related customer relationships	16,263	5-25 years
Other rights of use and operations	34,628	10-23 years
Intangible assets under development	713	
Total	60,232	

Details of Significant Intangible Assets

PTT Global Chemical Public Company Limited

Rights to Use Pipe Racks

GC has been granted the right to charge right-of-use fees from users making a request to lay pipes on its pipe racks at the rate specified in the pipe rack agreement. The amount of the right-of-use fee charged to each user will depend on the value of GC's investment and the location where the user is laying pipes.

Electricity Generation Licenses

- (1) GC (Branch 2) was granted a license to operate an electricity generation business with a capacity of over 150 megawatts from the Energy Regulatory Commission.
 - Installed capacity of 357.230 megawatts (capacity expansion of 35.300 megawatts on June 2, 2021)
 - The license is valid for 15 years from December 3, 2009 to December 2, 2024.

- (2) GC (Branch 2) was granted a license to operate an electricity sale business from the Energy Regulatory Commission. The license is valid for 15 years from December 3, 2009, to December 2, 2024.
- (3) GC (Branch 2) was granted a license to operate an electricity distribution system business from the Energy Regulatory Commission. The license is valid for 15 years from December 3, 2009 to December 2, 2024.
- (4) GC (Branch 6) was granted a license to operate an electricity generation business with an installed capacity of over 10 megawatts but not exceeding 150 megawatts from the Energy Regulatory Commission.
 - Installed capacity of 98.752 megawatts
 - The first license was valid for 10 years from February 14, 2011 to February 13, 2021.
 - The license was renewed (first renewal) for another five years from February 14, 2021 to February 13, 2026. The renewal was approved on January 27, 2021.
 - Four specific conditions to operate an electricity business were stipulated (specified in the license).

Thai Tank Terminal Company Limited

Thai Tank Terminal Company Limited (PPP) has been granted a concession from the Industrial Estate Authority of Thailand to manage and operate a liquid product handling and storage business in Map Ta Phut Industrial Estate in Tambon Map Ta Phut, Amphoe Muang, Rayong. On December 9, 2022, TTT entered into a public-private partnership (PPP) with the Industrial Estate Authority of Thailand in a public jetty management project for the handling of liquid products in Map Ta Phut Industrial Estate, Rayong for a period of 30 years from the signature date.

BOI Investment Promotion Certificates

GC and its subsidiaries have been granted investment promotion certificates from the Thailand Board of Investment (BOI), which offer tax privileges such as exemption from import duty on machinery and business taxes on imported machinery and equipment as well as exemption from corporate income taxes on net profit derived from business operation from the date on which income is first generated.

The details of the investment promotion certificates that BOI approved and awarded to GC and its subsidiaries and that were in effect as of December 31, 2022 as given below.

No.	Promoted Project	Date of Issuance	Product and Capacity	Expiration of Corporate Income Tax Privilege	Remark
1	Manufacture of petrochemicals Certificate No. 2264(2)/Or./2554	October 19, 2011	Production of approximately 97,937 tons of ethylene per year and 6,307 tons of pyrolysis gas per year	January 30, 2022	Transferred from PTTH on October 19, 2011
2	Scientific laboratories Certificate No. 2265(4)/Or./2554	October 19, 2011	Provision of scientific laboratory services related to petrochemicals, petroleum, chemicals, polymers, water, and the environment; approximately 60,000 assignments per year.	January 18, 2023	Transferred from PTTH on October 19, 2011
3	Manufacture of petrochemicals Certificate No. 2266(2)/Or./2554	October 19, 2011	Production of approximately 75,000 tons of butadiene per year, approximately 40,000 tons of butene-1 per year, and approximately 95,000 tons of by-products, namely isobutene, isobutylene, n-butane, raffinate, C4 acetylene, and C5+.	April 29, 2027	Transferred from PTTH on October 19, 2011
4	Production of electricity and steam Certificate No. 2267(2)/Or./2554	October 19, 2011	Electricity production capacity of 112.5 megawatts and steam production capacity of 560 tons/hour	February 28, 2025	Transferred from PTTH on October 19, 2011
5	Manufacture of upstream petrochemicals Certificate No. 1936(2)/Or./2556	July 1, 2013	Production of approximately 1,124,450 tons of ethylene per year, approximately 31,700 tons of propylene per year and approximately 863,600 tons of polyethylene (PE) per year	November 25, 2022	Transferred from PTPE on July 1, 2013
6	Manufacture of downstream petrochemicals Certificate No. 1937(2)/Or./2556	July 1, 2013	Production of approximately 300,600 tons of HDPE per year and transportation of approximately 138,528,000 liters of petroleum and petrochemicals via pipeline	December 3, 2022	Transferred from BPE on July 1, 2013

No.	Promoted Project	Date of Issuance	Product and Capacity	Expiration of Corporate Income Tax Privilege	Remark
7	Manufacture of downstream petrochemicals Certificate No. 1938(2)/Or/2556	July 1, 2013	Production of approximately 16,000 tons of compound plastics	June 3, 2023	Transferred from BPE on July 1, 2013
8	Manufacture of petrochemicals Certificate No. 1616(2)/2556	May 8, 2013	Production of approximately 137,760 tons of paraxylene per year, approximately 73,800 tons of benzene per year, approximately 46,700 tons of toluene per year, and approximately 21,900 tons of othoxylene per year	December 22, 2028	
9	Manufacture of chemicals Certificate No. 1623(2)/2556	May 10, 2013	Production of approximately 154,176,000 cubic meters of purified hydrogen per year	January 30, 2030	
10	Manufacture of petrochemicals Certificate No. 1715(2)/2557	June 9, 2014	Production of approximately 55,000 tons of hexene-1 per year and approximately 4,000 tons of heavy polymers per year	May 29, 2031	
11	Manufacture of petrochemicals Certificate No. 2215(2)/2557	September 30, 2014	Production of approximately 400,000 tons of polyethylene (PE) per year	January 7, 2031	
12	Manufacture of petrochemicals Certificate No. 60-1300-0-00-1-0	November 20, 2017	Approximately 521,430 tons of ethylene per year Approximately 272,140 tons of propylene per year	March 1, 2034	ORP Project
13	Utilities and basic services Certificate No. 61-0929-0-00-1-0	August 8, 2018	Capacity of electricity production from natural gas of 56 megawatts and steam production capacity of 140 tons/hour	February 28, 2022	GTG-J Project
14	Utilities and basic services Certificate No. 61-1336-0-00-1-0	November 15, 2018	Goods handling and marine vessels; oil and petroleum product handling capacity of approximately 3,000,000 tons per year	13 years after income recognition	Jetty 4 Project
15	Manufacture of petroleum Certificate No. 62-1427-1-04-1-0	December 23, 2019	Energy efficiency improvement. Petroleum production of 150,000 barrels per day.	December 23, 2022	Pinch Project
16	Research and development Certificate No. 64-0228-1-00-2-0	March 3, 2021	Pilot research and development for the manufacturing of catalysts for various types of polymerization	8 years after income recognition	
17	Research and development Certificate No. 64-0264-1-00-2-0	March 12, 2021	Pilot research and development for the manufacturing of polyethylene products	8 years after income recognition	

No.	Promoted Project	Date of Issuance	Product and Capacity	Expiration of Corporate Income Tax Privilege	Remark
18	Manufacture of petrochemicals Certificate No. 64-1078-1-04-1-0	October 14, 2021	Energy efficiency improvement. Production of ethylene, propylene, mixed C4 and pyrolysis gas products	3 years after income recognition	OMP
19	Manufacture of other chemicals Certificate No. 65-1157-0-00-0-2	September 14, 2022	Production of approximately 27,500 tons of MEA per year, approximately 27,500 tons of DEA per year, approximately 18,650 tons of TEA per year, and by-products, consisting of approximately 2,009 tons of amine per year and approximately 182 tons of crude DEA per year	August 25, 2022	Previous certificate No. 2535(2)/Or./2555 dated October 12, 2012, transferred from GC Glycol
20	Manufacture of other chemicals Certificate No. 65-1158-0-00-0-2	September 14, 2022	Production of approximately 60,000 tons of purified ethylene oxide per year	December 4, 2028	Previous certificate No. 2384(2)/Or./2557 dated October 31, 2014, transferred from GC Glycol
21	Manufacture of petrochemicals Certificate No. 65-1159-0-00-0-2	September 14, 2022	Approximately 3,100 tons of TEG per year Approximately 1,600 tons of by-products, namely PEG, per year	October 21, 2030	New TEG Project Previous certificate No. 61-0448-1-18-1-0 dated April 23, 2018, transferred from GC Glycol
22	Manufacture of petrochemicals Certificate No. 65-1154-1-04-1-2	September 14, 2022	Energy efficiency improvement Production of approximately 88,500 tons of polystyrene per year (Operating 24 hours/day: 333 days/year)	3 years after income recognition	Previous certificate No. 65-0327-1-04-1-0, dated March 23, 2022, transferred from GC Styrenics
23	Manufacture of petrochemicals Certificate No. 65-1250-1-05-1-0	October 6, 2022	Machinery adjustment for partial production efficiency improvement. Production of approximately 149,110 tons of propylene per year (Operating 24 hours/day: 360 days/year)	3 years after income recognition	OIP
PPCL					
24	Manufacture of petrochemicals Certificate No. 1609(2)/2551	June 16, 2008	Production of approximately 179,580 tons of bisphenol-A (BPA) per year and by-products, consisting approximately 7,008 tons of TAR per year and approximately 350 tons of purge light oil per year	January 7, 2024	

No.	Promoted Project	Date of Issuance	Product and Capacity	Expiration of Corporate Income Tax Privilege	Remark
25	Manufacture of petrochemicals Certificate No. 1126(2)/2556	January 30, 2013	Production of approximately 301,125 tons of phenol per year, approximately 186,700 tons of acetone per year, and by-products, consisting of approximately 2,285 tons of benzene & dips drag per year, approximately 2,520 tons of heavy aromatics per year, approximately 13,190 tons of heavy residue per year, and approximately 11,620 tons of alpha –methylstyrene (AMS) per year.	April 24, 2029	
26	Manufacture of petrochemicals Certificate No. 61-0709-0-00-1-0	June 20, 2018	Production of approximately 76,650 tons of epoxy resin per year	13 years after income recognition	
VENCOREX					
27	Manufacture of chemical products for industries Certificate No. 1403(2)/2557	March 28, 2014	Production of approximately 18,000 tons of hexamethylene diisocyanate derivatives (HDI Derivatives) per year	April 6, 2029	
GC Oxirane					
28	Manufacture of petrochemicals Certificate No. 60-0769-0-00-1-0	July 13, 2017	Approximately 228,000 tons of propylene oxide per year By-products consist of: Approximately 3,420 tons of fuel gas per year Approximately 33,288 tons of fuel oil per year	November 13, 2033	
GC Polyols					
29	Manufacture of petrochemicals Certificate No. 60-0770-0-00-1-0	July 13, 2017	Approximately 198,000 tons of polyols per year, consisting of polyether polyols (PPG), polymer polyols (POP), and formulated polyols (PREMIX)	September 28, 2033	
Envicco					
30	Manufacture of recycled plastic: rPET(FOOD GRADE) and rHDPE Certificate No. 63-1102-1-00-1-0	June 17, 2020	Production of approximately 35,040 tons of rPET (FOOD GRADE) per year, approximately 16,650 tons of rHDPE, and by-products, consisting of metal scraps, plastic scraps (excluding PET and HDPE), and scraps and waste from manufacturing	13 years after income recognition	

ATTACHMENT 5

GC POLICY AND PRACTICES OF CORPORATE GOVERNANCE AND BUSINESS CODE OF CONDUCT

PTT Global Chemical Public Company Limited operates its business responsibly, transparently, accountably, fairly, ethically and with due regard to all of its stakeholders by adhering to the principles of good corporate governance. The Company recognizes that its adherence to the principles of good corporate governance will contribute to the operational and management efficiency of the GC Group. The Company also bolsters its credibility and fosters sustainable growth, not only for the Company itself but also for the society and the nation as a whole in order to achieve its vision “To Be a Leading Chemical Company for Better Living.”

In order to accomplish such goal, the Board of Directors has integrated the Corporate Governance Policy into the Company’s Business Operations Policy and has made the Corporate Governance and Business Code of Conduct Handbook. This handbook has been distributed throughout the Company since its establishment in order for directors, executives and employees to adhere to code of conduct and all policies when performing their duties.

To express intention to develop and improve our good corporate governance to be rated “Excellence” in accordance with international standard, the Company has reviewed and revised the handbook so as to keep them up-to-date, and to keep them abreast of any changes. This handbook must also be in line with business strategies and corporate governance principles, both domestically and internationally and related regulations. This handbook has been comprehensively and directions communicated to all Directors, Executives and Employees, who have acknowledged and understood it entirely, and are expected to stringently implement the handbook as a guideline for executing their duties. They are also required to inform individuals involved in GC Group’s businesses, namely suppliers, customers and joint-business partners, both local and overseas, of the Corporate Governance and Business Code of Conduct Handbook in order for all concerned parties to understand and comply with these important practices.

In this regard, the full details of the Company’s policies and practices from the Corporate Governance and Business Code of Conduct Handbook can be found on the GC website:

 <https://www.pttgcgroup.com/storage/document/cg-handbook/20220323-pttgc-cg-handbook-en.pdf>





250 hardcopies (both Thai and English versions) of PTT Global Chemical Public Company Limited's Annual Registration Statements/Annual Report 2022 (Form 56-1 One Report) were certified with the carbon footprint label with the total emission amount of 42.5 kg CO₂e/report.

GC achieved zero greenhouse gas emission from carbon offsetting project compensation, resulting in Thailand Greenhouse Gas Management Organization (Public Organization) (TGO) Carbon neutral certification. This is part of GC's efforts to demonstrate our responsibility to the society and the environment.



PTT Global Chemical Public Company Limited

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This report is certified with Net-Zero greenhouse gas emission
by the Thailand Greenhouse Gas Management Organization (Public Organization),
which is one of our environmental impact reduction goal.



Please scan QR Code
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Annual Report 2022
(Form 56-1 One Report)

www.pttggroup.com