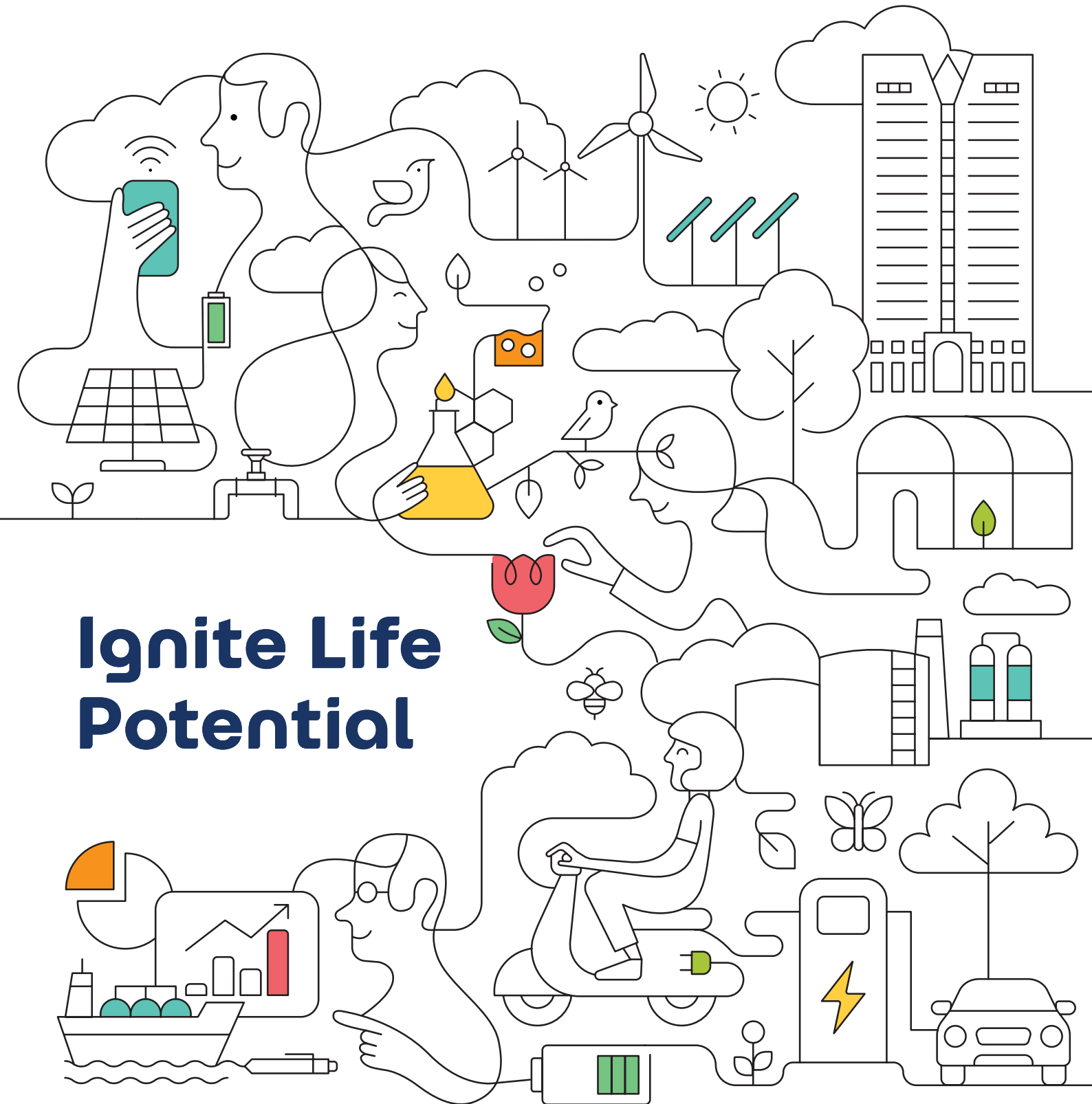


Supplementary of  
Form 56-1 One Report  
for Year  
**2023**



**Ignite Life  
Potential**

# Supplement Information for 56-1 One Report 2023

## Nature of Business/Procurement/Distribution of Businesses invested through PTT Group

*Details of businesses invested by PTT through PTT Group as listed below provide additional information to Item 1.2.2 Nature of Business/ Procurement/ Distribution of Businesses in the 56-1 One Report 2023.*

### 1. Upstream Businesses Invested through PTT Group

#### 1.1 Gas related Business

PTT has operated businesses related to natural gas through its affiliates. For example, Liquefied Natural Gas (LNG) business operates LNG receiving and distribution station services, LNG storage, and LNG regasification to support LNG import, investment expansion and the operations of integrated LNG business. Its portfolio has even included the development and construction of gas transmission pipelines systems and natural gas transportation. To support PTT Group's status as the fully integrated natural gas business operator, PTT has invested in the following companies:

1.1.1 [PTT Natural Gas Distribution Company Limited \(PTTNGD\)](#)

1.1.2 [Trans Thai-Malaysia \(Thailand\) Limited \(TTM\(T\)\) and  
Trans Thai-Malaysia \(Malaysia\) Sdn.Bhd. \(TTM\(M\)\)](#)

1.1.3 [PTT LNG Company Limited \(PTTLNG\)](#)

1.1.4 [Map Ta Phut Air Products Company Limited \(MAP\)](#)

#### 1.2 Petroleum Exploration and Production Business

PTT has conducted petroleum exploration and production business through [PTT Exploration and Production Public Company Limited \(PTTEP\)](#), which is PTT Group's flagship company in the petroleum exploration and production. PTTEP has operated its business both domestic and international as well as invested in related businesses to explore petroleum sources of crude oil and natural gas to ensure Thailand's energy security and supplies petroleum products from domestic and regional projects, mostly natural gas, primarily to the domestic market. As of 31 December 2023, PTTEP had petroleum exploration and production projects in domestic and overseas for over 50 projects in 12 countries including Thailand.

#### 1.3 Investments in Other Upstream Businesses

PTT has operated energy businesses both domestic and overseas to find new sources of energy and alternative energy to ensure security for the country and extend its own existing businesses by leveraging the knowledge, expertise, and experiences of its human resources as well as collaborations within PTT group. PTT has invested in the following companies:

1.3.1 [PTT Energy Resources Company Limited \(PTTER\)](#)

1.3.2 [PTT Green Energy Company Limited \(PTTGE\)](#)

## 2. Downstream Businesses invested through PTT Group

### 2.1 International Trading Business

PTT invested in international trading business to undertake full function on international trading transactions and to expand trading networks covering transactions with various trading partners in all regions around the world through 3 companies as follows:

- 2.1.1 [PTT International Trading Pte Ltd \(PTTT\)](#)
- 2.1.2 [PTT International Trading London Ltd \(PTTT LDN\)](#)
- 2.1.3 [PTT International Trading USA Inc. \(PTTT USA\)](#)

### 2.2 Petrochemical & Refining, Oil and Retailing Businesses

PTT invests in refining business in 3 out of 6 existing refineries in Thailand, with a combined capacity of 770,000 barrels per day (BPD), accounting for 62% of the national refining capacity (as of December 31, 2023) and integrated petrochemical business covering upstream to downstream, from production to distribution of fuel oil, upstream-midstream and downstream petrochemicals both olefins and aromatics, which focus on value creation, including marine terminal and tank services. PTT procures crude oil and purchases fuels and petrochemical products partially from PTT Group to supply both domestic and international markets. Performance of oil, petrochemical, and refining businesses mainly depends on economic situation and spreads between crude and feedstock to petroleum and petrochemical products in the global market which fluctuate according to global demand and supply, as well as year-end inventories. For PTT Group, PTT Global Chemical Public Company Limited (GC) is the Petrochemical Flagship, Thai Oil Public Company Limited (TOP) is the Refinery Flagship, IRPC Public Company Limited (IRPC) is the Integrated Petrochemical and Refinery Flagship, and PTT Oil and Retail Business Public Company Limited (OR) is the Oil and Retail Business Flagship. OR conducts the business of distributing petroleum products, retails, and other services (Non-Oil), both domestic and overseas. Its business includes distribution of petroleum and other products in retail and commercial markets, coffee business, food and beverages, convenience stores, and space management. PTT Tank Terminal Company Limited (PTT TANK) operates the business of receiving, storing, and transferring of products to PTT Group. PTT exercises direct and indirect governance of its affiliates through representatives that serve as directors and secondment.

PTT has invested in the petrochemical and refining business, as well as the oil and retail business through shareholding in 5 companies in PTT Group as follows:

- 2.2.1 [PTT Global Chemical Public Company Limited \(GC\)](#)
- 2.2.2 [Thai Oil Public Company Limited \(TOP\)](#)
- 2.2.3 [IRPC Public Company Limited \(IRPC\)](#)
- 2.2.4 [PTT Oil and Retail Business Public Company Limited \(OR\)](#)
- 2.2.5 [PTT Tank Terminal Company Limited \(PTT TANK\)](#)

## 3. New Businesses and Infrastructure Operated through PTT Group

The following companies are in PTT Group and under the supervision of the New Business and Infrastructure Group:

- 3.1 [Global Power Synergy Public Company Limited \(GPSC\)](#)
- 3.2 [District Cooling System and Power Plant Company Limited \(DCAP\)](#)
- 3.3 [Energy Complex Company Limited \(EnCo\)](#)
- 3.4 [PTT Energy Solutions Company Limited \(PTTES\)](#)
- 3.5 [PTT Digital Solution Company Limited \(PTT DIGITAL\)](#)

Currently, the power business is a core business under the New Business and Infrastructure Group. PTT Group has engaged in the power business through GPSC, a Power Flagship company. GPSC conducts its business primarily in the production and distribution of electricity, steam, industrial water, and other public utilities, which operates by itself and by investing in other companies. As of year-end 2023, its total committed equity capacities were 9,315 megawatts (MW) of power generation (4,431 MW from conventional and 4,884 MW from renewable energy), 2,858 tons per hour of steam, 7,026 cubic meters per hour of industrial water, 15,400 refrigerated tons of chilled water, and 314 megawatts hour of energy storage unit.

**Renewable Energy Business** operates through GPSC, a flagship company in renewable energy business investment both domestically and internationally, to achieve the goal of 15,000 MW of power generation from renewable energy by 2030. As of the year-end 2023, GPSC's power generation capacity from renewable energy totaled 4,884 MW.

In addition, PTT Group has set the strategic direction by moving towards the future energy and new business. In this regard, PTT had established new subsidiaries under PTT Global Management Company Limited (PTTGM) group to execute these new businesses or New S-Curve businesses under the vision of Powering Life with Future Energy and Beyond. The following new businesses have already started its commercialization.

**EV Value Chain Business:** ARUN PLUS Company Limited (ARUN PLUS) operates a fully integrated EV business which covers the EV ecosystem, recognizing significant environmental awareness and global change. While aiming to be a leader in developing and driving the EV ecosystem in ASEAN, not only ARUN PLUS has explored EV manufacturing opportunities in Thailand through business partnerships such as providing EV air-conditioned bus services, distributing EV chargers, and expanding EV charging stations outside gas stations, etc., but also invested through subsidiaries are as follows: HORIZON PLUS Co., Ltd. (HORIZON PLUS) is set up to operate EV manufacturing in Thailand targeted to start its commercialization in 2025 with an initial production capacity of approximately 50,000 vehicles per year. EVME PLUS Co., Ltd. (EVME PLUS) is the first and only fully integrated EV rental service provider in Thailand through the EVme application, such as EV rental services, information service on charging stations, and maintenance stations for EVs. AIONEX Co., Ltd. (Aionex) operates the business of manufacturing 2-wheel EVs to sell and provide battery swapping services for 2-wheel EVs with projected commercial operation in 2024. Swap and Go Co., Ltd. (Swap and Go) provides an infrastructure platform and battery-swapping network for electric motorcycles without waiting for charging.

**Energy Storage and System Related Business** has established NUOVO PLUS Co., Ltd. (NUOVO PLUS) to support investment in the battery value chain, accommodating the EV industry according to the policy to drive the country's automotive industry, including the Energy Storage System (ESS), a system that supports the storage of electric energy from renewable energy and investment in related businesses. NV Gotion Co., Ltd., in which NUOVO PLUS holds 51% shares and Gotion Singapore Pte. Ltd. holds 49% shares, designs, develops, inspects, manufactures, procures, and operates after-sales service for battery modules and battery packs with battery management system for all types of commercial vehicles, passenger cars, SUVs, two-wheelers and tricycles, as well as energy storage system. In addition, ARUN PLUS has completed the establishment of A C Energy Solution Company Limited (A C Energy Solution) by early 2024, collaboration with Contemporary Amperex Technology Co., Limited (CATL) to construct a Cell-To-Pack Battery plant in Thailand to operate the Cell-To-Pack Battery business, with targeted commercial operation by 2025.

**Life Science Business:** Innobic (Asia) Company Limited (Innobic (Asia)), leading in Life Science business engages in pharmaceutical, nutrition, medical equipment, medical diagnosis businesses, etc. The investment in this business will enhance PTT's capability in life science and create added value for the country. For example, Innobic (Asia) has purchased common stock of Lotus Pharmaceutical Company Limited (LOTUS), a listed company in Taiwan Stock Exchange whose core business is research and development (R&D), manufacturing, and distribution of the generic drugs that cover various therapeutic areas especially oncology, central nervous system, etc. Moreover, Innobic Nutrition Company Limited was established to operate supplementary food and medical food business. The company has now distributed Probiotics Series, Pro Beta-Glucan+, Daily Nutrigen, Gummy Triphala & Cola Flavours and Stevia Syrup via both modern-trade outlets and online channels. Moreover, it has constructed its own plant-based protein factory. With its construction completed in 2023, this factory has the annual production capacity of 3,000 tons which is the largest integrated plant-based protein production facility in ASEAN.

**AI, Robotics, and Digitalization Business:** Alpha Com Co., Ltd. (Alpha Com) serves as an investment vehicle in new businesses for PTT and PTT Group, whereby new business concepts and models can be assessed before actual investments. PTT Raise Co., Ltd. (PTT RAISE) supplies and installs robotics and automation system for industrial customers. PTT and TGES Optec Co., Ltd. (OPTEC) operate One-stop Total Improving Efficiency Technology Solutions/ Services that deploy technology to enhance the efficiency of industrial equipment and machinery. Mekha V Co., Ltd. (Mekha V) which holds shares through NewVersal Co., Ltd. (NewVersal) is a flagship to accommodate investment in AI & Robotics. T-Ecosys Co., Ltd. (T-ECOSYS) operates a digital platform business called "Industrial Digital Platform" (IDP) for driving industrial transformation in the Thai industry through connecting service providers with industrial users who want to access the robotics technology, automation, and digital technology services which is the basic ecosystem to support the growth of the industry sector.

**Logistics & Infrastructure business:** Global Multimodal Logistics Company Limited (GML) was established to connect transportation networks in Thailand and also seamlessly connecting the international transportation network. Its main services include freight services (by rail, sea, land, and air), cold chain management, property management and asset rental of properties and real estate related to logistic business. This will help entrepreneurs increase their market competitiveness as well as reduce their logistics costs.

#### 4. Other Business Group

The following companies are in PTT Group under the other business group.

4.1 [PTT Treasury Center Company Limited \(PTT TCC\)](#) offers financial services to PTT and PTT Group. PTT TCC provides both short-term and long-term financing in foreign currencies as well as THB for PTT and PTT Group. Moreover, PTT TCC also provide services in debt management, liquidity management and financial management for the best interest of PTT's Group.

4.2 [PTT Global Management Company Limited \(PTTGM\)](#) acts as a holding company to support investment in PTT's businesses both domestically and internationally or operate new businesses according to PTT's vision and strategic direction.

**Details of Businesses Invested through  
PTT Group  
2023**

## 1. Upstream Businesses invested through PTT Group

### 1.1 Gas-related businesses

PTT has operated gas-related businesses via PTT Group affiliates in order to support the group’s role as the fully integrated natural gas business operator. Details are as follows:

#### 1.1.1 PTT Natural Gas Distribution Company Limited (PTTNGD)

PTT Natural Gas Distribution Company Limited (PTTNGD) was founded on 24 June 1996 to operate the development and constructions of gas distribution pipeline systems for natural gas transport and distribution. Its current shareholders are (1) PTT Public Company Limited; (2) Gulf Energy Development Public Company Limited; and (3) Gulf LNG Company Limited. PTTNGD has developed and constructed distribution pipeline systems for natural gas transmission and distribution to customers in industrial zones around Bangkok, its perimeter, and Rayong. As of 31 December 2023, PTTNGD had the registered and paid-up capital of THB 500 million. Its current shareholders are PTT Plc., with 58.00% and Gulf Energy Development Plc., with 42.00% of its registered and paid-up capital.

PTTNGD invests in constructing distribution pipeline systems, using Steel and High-Density Polyethylene (HDPE) pipe branching off from PTT’s transmission pipelines to customers located in industrial zones around Bangkok Metropolis, its perimeter, and Rayong. Additionally, PTT assists PTTNGD in procuring land as well as the rights to use land to construct the natural gas pipeline distribution network. PTTNGD also extends its business and investment to address customers’ needs by providing energy services, cogeneration business, and alternative-energy businesses along with other business activities, for instance providing additional services regarding pipeline transmission systems.

#### 1) Procurement

PTT procured all natural gas for PTTNGD through sale and purchase agreements that are valid for 5-10 years. Natural gas price structure includes the price of natural gas under the regulation of Energy Regulatory Commission (ERC), pipeline tariff, and the return for the gas supply, marketing and distribution of natural gas as well as the price structure under Energy Pool Price.

#### 2) Distribution

As of 31 December 2023, PTTNGD’s distribution pipeline system delivered natural gas to 13 industrial zones namely the Bangpoo Industrial Estate, the industrial zone in Bangpoo Mai, the Bang Plee Industrial Estate, the Lat Kra Bang Industrial Estate, the industrial zone in Rangsit, the Rojana Industrial Park, the Nava Nakorn Industrial Estate, the Theparak Industrial Town, the Bang Pa-In Industrial Estate, the Bangkok Industrial Park, the Eastern Seaboard Industrial Park (Rayong), the WHA Eastern Seaboard Industrial Estate 1, and the Bangpoo Industrial Estate (North). The gas sale and purchase agreements with customers are valid for 5 to 7 years with gas price set at a rate that could compete against alternative fuels namely fuel oil or LPG. In 2023, PTTNGD recorded the natural-gas sales volume of 49.00 MMSCFD – a decrease of 13.23% from 2022 with a total of 258 customers. Its natural-gas sales and number of customers between 2021 and 2023 are as follows:

Sales	2021	2022	2023
Volume (MMSCFD)	56.96	56.47	49.00
Number of customers	253	253	258

In addition, PTTNGD expanded its channel for sales of natural gas by co-venturing with 80.00% holding in Amata Natural Gas Distribution Company Limited (AMATA NGD) to construct a natural gas pipeline distribution network for customers in Amata City Chonburi Industrial Estate and the Amata City Rayong Industrial Estate.

### 3) Management

PTTNGD’s Board of Directors, as of 31 December 2023, had 10 directors, 5 of whom were appointed by PTT, including the Chairman. In addition, PTT has assigned its executives to take the position of the PTTNGD's management, including the Managing Director.

### 4) Finance

The operating results of PTTNGD between 2021 and 2023 are as follows:

Unit : THB million

Separate financial statements	2021	2022	2023*
Revenue from sales and services	7,491	11,042	9,163
Total revenue	8,028	11,240	9,574
Total expenses (including taxes)	6,967	11,140	8,449
Net profit (loss)	1,061	100	1,125

Unit : THB million

Separate financial statements	2021	2022	2023*
Total assets	3,345	3,105	3,222
Total liabilities	1,277	1,300	1,292
Shareholders’ equity	2,068	1,805	1,930

\*2023 data are unaudited.

#### 1.1.2 Trans Thai – Malaysia (Thailand) Company Limited (TTM(T)) and Trans Thai-Malaysia (Malaysia) Sdn. Bhd. (TTM(M))

PTT and Petronas, Malaysia’s National oil company, jointly established Trans Thai-Malaysia (Thailand) Company Limited (TTM(T)) in Thailand on 4 February 2000 and Trans Thai-Malaysia (Malaysia) Sdn. Bhd. (TTM(M)) in Malaysia on 21 March 2000. TTM(T) services have transported natural gas via transmission pipelines from the Malaysia-Thailand Joint Development Area (JDA) for utilization within Thailand and also to Thai – Malaysia border as well as providing gas separation services in Songkhla and transporting Liquefied Petroleum Gas via pipelines from Songkhla to Thai – Malaysia border. TTM(M), meanwhile, has transported natural gas and Liquefied Petroleum Gas via pipelines from Thai – Malaysia border to Malaysia for utilization within the country. As of 31 December 2023, TTM(T) had issued and paid-up capital of THB 6,343.6 million while TTM(M) issued and paid-up capital of MYR 52.8 million and held redeemable preference shares amounting to MYR 15 million, in which PTT and Petronas own a 50.00 % of paid-up shares each in both companies.

#### 1) Services

TTM (T) has provided the transmission service of natural gas and Liquefied Petroleum Gas, and gas separation services to only PTT and Petronas. Both are the shareholders of TTM(T). Meanwhile, TTM(M) has provided transmission service of natural gas



and Liquefied Petroleum Gas to Petronas and its wholly owned subsidiary, Petronas Energy & Gas Trading Sdn. Bhd. (PEGT). The services are provided under a mutual service agreement. The companies have been providing natural gas transmission services (onshore and offshore) since January 2006 with natural gas being processed through carbon dioxide separation units. Gas separation services and Liquefied Petroleum Gas transmission services started on 14 April 2006. Additionally, TTM(T) expanded a commercial gas delivery for PTT to Chana Power Plant with a capacity of 131 MMSCFD since the third quarter of 2008 and subsequently increased by 7 MMSCFD, starting from June 2011 to deliver to NGV mother station in Thailand's southern region. The installation of pipeline from the MTJDA-A18 gas field, which is connected to PTT's third gas pipeline, began in December 2006. Having delivery capacity of 300 MMSCFD, it then started its gas transmission in late 2008. Consequently, the commercial service from MTJDA-B17, which is connected to PTT's third gas pipeline, started on 1 June 2010 with increased capacity by 300 MMSCFD.

Moreover, the gas transmission pipeline from the MTJDA-B17 field was connected with Petronas' pipeline at the edge of the JDA for further delivery to Kerteh, Malaysia, started commercial from 1 May 2015. Such expansion not only generates additional revenue, but it also helps PTT procure sufficient gas supply to meet its customers' demand. This move has also stabilized and strengthened Thailand's energy security.

As of 31 December 2023, service details were as follows:

• Natural-gas production (Feed Gas) (Block A18)	790	MMSCFD
• Natural-gas production (Feed Gas) (Block B17)	275	MMSCFD
• Gas Delivery (Sales Gas)	300	MMSCFD
• LPG Delivery	164,119	metric tons per year
• NGL Delivery	42,928	metric tons per year

## 2) Management

The Boards of Directors of TTM(T) and TTM(M), as of 31 December 2023, comprised 6 members each; 3 appointed from PTT and another 3 appointed from Petronas. Currently, the directors appointed by PTT have served as the chairman of the boards for both companies with a 3-year term and then alternating this position with Petronas's appointee.

## 3) Finance

The operating results of TTM(T) between 2021 and 2023 are as follows:

Unit : THB million

Financial statements	2021	2022	2023*
Revenue from sales and services	3,054	3,407	3,439
Total revenue	3,281	3,612	3,631
Total expenses (including taxes)	2,104	2,001	2,249
Net profit (loss)	1,177	1,611	1,382

Unit : THB million

Financial statements	2021	2022	2023*
Total assets	13,613	12,730	11,238
Total liabilities	6,227	4,886	3,603
Shareholders' equity	7,386	7,844	7,635

\* 2023 data are unaudited.

The operating results of TTM(M) between 2021 and 2023 are as follows:

Unit : Ringgit million

Financial statements	2021	2022	2023*
Revenue from sales and services	68	56	64
Total revenue	79	73	72
Total expenses (including taxes)	49	40	76
Net profit (loss)	30	33	(4)

Unit : Ringgit million

Financial statements	2021	2022	2023*
Total assets	610	549	443
Total liabilities	373	290	200
Shareholders' equity	237	259	243

\* 2023 data are unaudited

### 1.1.3 PTTLNG Company Limited (PTTLNG)

PTT established PTT LNG Company Limited (PTTLNG) on 30 August 2004 to operate a Liquefied Natural Gas receiving terminal and provide Liquefied Natural Gas storage and regasification services. As of 31 December 2023, PTTLNG had the registered capital of THB 27,748 million and the paid-up capital of THB 27,748 million.

#### 1) Nature of Business

Its Liquefied Natural Gas Receiving Terminal 1 (LNG Map Ta Phut Terminal 1: LMPT1) Project is consisted of LNG receiving terminal, LNG storage tanks, and LNG regasification unit with the capacity of 11.5 million tons per annum of the total capacity, 5 million tons per annum achieved in Phase 1 and ramp up to 10 million tons per annum in Phase 2 and an additional expansion of phase 2 of 1.5 million tons per annum. Moreover, it also transports LNG by truck up to 182,500 tons of LNG a year.

LNG Receiving Terminal 2 (LNG Map Ta Phut Terminal 2: LMPT2) is consisted of LNG receiving terminal, 2 LNG storage tanks with capacity to store 250,000 cubic meters of LNG, and an LNG regasification unit with the capacity of 7.5 million tons of LNG per annum.

#### 2) Progress

The construction of LNG Receiving Terminal 2 (LNG Map Ta Phut Terminal 2: LMPT2) was already completed, with the capacity of regasification up to 7.5 million tons per annum, since 24 November 2022.

Also, the natural gas pipelines connected between LMPT1 and LMPT2 were already constructed. Designed to add inter-terminal transmission flexibility, the pipelines have started its operation of gas transmission since 31 March 2023.

#### 3) Services

PTTLNG provides services and management of LNG receiving terminals and collect terminal tariffs service, where LNG is supplied and imported by clients.

- Demand Charge (Ld) : Ld rate for the year 2018-2022 was at THB 18.3506 per MMBTU for both LMPT1 and LMPT2. The rate shall also be valid until the ERC approves adjustment.

- Commodity Charge (Lc) : Lc rate was at THB 0.4807 per MMBTU from 1 January to 30 June 2023 and at THB 0.6543 per MMBTU from 1 July to 31 December 2023 for both LMPT1 and LMPT2. The rate shall also be valid until the ERC approves adjustment.
- Current customers of LMPT1: PTT and PTTGL
- Current customers of LMPT2: PTT and EGAT

#### 4) Management

PTTLNG’s Board of Directors consists of 6 members. Of them, 5 were PTT’s executives and another was a representative of the Ministry of Finance, nominated by PTT as an expert.

#### 5) Finance

The operating results of PTTLNG between 2021 and 2023 are as follows:

Unit : THB million

Financial statements	2021	2022	2023*
Revenue from sales and services	9,691	9,949	13,073
Total revenue	9,705	9,988	13,258
Total expenses (including taxes)	2,743	4,212	6,873
Net profit (loss)	6,962	5,776	6,385

Unit : THB million

Financial statements	2021	2022	2023*
Total assets	69,394	79,643	83,058
Total liabilities	18,155	22,371	21,705
Shareholders’ equity	51,239	57,272	61,353

\* 2023 data are unaudited.

#### 1.1.4 Map Ta Phut Air Products Company Limited (MAP)

PTT Board of Directors, at its meeting on 16 November 2018, issued a resolution for PTT to establish MAP with PTT Group holding 51.00% and Bangkok Industrial Gas Company Limited (BIG) holding 49.00% of MAP’s shares. In response to the resolution, PTT registered MAP on 15 January 2019 to operate a business that utilizes excess cold energy from Liquefied Natural Gas and reduces operating cost in Air Separation Unit (ASU) Project for the production and distribution of industrial gases namely nitrogen, oxygen, liquid nitrogen, liquid oxygen, and liquid argon. The construction of ASU plant was completed on 1 September 2021 and started its commercial operation since 1 October 2021.

##### 1) Nature of Business

- Joint venture with BIG in ASU Project as a Production JVC to produce industrial gases with approximately 0.67 million tons of excess cold energy from Liquefied Natural Gas per year.
- ASU Project utilizes excess cold energy from Liquefied Natural Gas. It has constructed a cold air-duct system that links to PTT LNG Receiving Terminal in order to transport Liquefied Natural Gas to its facilities that will take cold Energy out from Liquefied

Natural Gas Following the usage, the ASU will send natural gas via ducts back to PTT LNG Receiving Terminal, which will forward it to natural gas users. PTT LNG has invested in the project’s air-duct system.

- The parent company of BIG, Air Products and Chemicals, Inc. (APC), provides manufacturing technologies to ASU facilities.

- ASU Project is located on 9.5 rai of land in the Map Ta Phut Industrial Port in Rayong, which is operated by the Industrial Estate Authority of Thailand (I-EA-T). Its location is about 1 kilometer away from PTT LNG Receiving Terminal.

## 2) Distribution

MAP distributes industrial gas products to BIG, PTT Group, and other users in various industries with a selling price formula that follows the cost-plus pricing principle which will change according to the production cost. The retail marketing will be managed by BIG for distributing the gases to end users in different economic sectors, such as the frozen industry, electronics industry, welding industry, and hospitals, which will be delivered through pipelines and transport trucks.

## 3) Management

MAP Board of Directors is consisted of 4 members. Of them, 2 were PTT’s executives and another 2 were BIG’s executives.

## 4) Finance

The operating results of MAP between 2021 and 2023 are as follows:

Unit : THB million

Financial statements	2021	2022	2023
Revenue from sales and services	195	746	849
Total revenue	200	748	871
Total expenses (including taxes)	170	570	638
Net profit (loss)	30	178	233

Unit : THB million

Financial statements	2021	2022	2023
Total assets	1,604	1,668	1,545
Total liabilities	1,230	1,116	883
Shareholders’ equity	374	552	662

## 1.2 Petroleum Exploration and Production

PTT has operated petroleum exploration and production business through its subsidiary PTTEP, which was established on 20 June 1985 with the initial registered capital of THB 400,000 as the Petroleum Exploration and Production Flagship Company of PTT. On 10 June 1993, PTTEP was listed on Thai stock market. As of 31 December 2023, PTTEP had the registered capital of THB 3,969,985,400 with PTT holding 63.79 % of PTTEP’s registered and paid-up capital.

To operate its petroleum exploration and production businesses in Thailand and overseas, PTTEP must comply with conditions and laws of relevant countries, which could be in forms of (1) Production Sharing Contracts (PSC) (2) Concessions, or (3) Services Agreements. In Thailand, PTTEP also has to adhere to Petroleum Act B.E. 2514 (and amendments), as well as other applicable laws.

PTTEP Group has mainly operated in Southeast Asia namely Thailand, Myanmar, Malaysia, Vietnam, and Indonesia. Moreover, PTTEP has also invested in other regions including Oman, the United Arab Emirates, Algeria, Mozambique, Kazakhstan, Australia and Mexico. As of 31 December 2023, PTTEP conducted more than 50 petroleum exploration and production projects in 12 countries, both in Thailand and overseas with proved reserves of 1,436 million barrels of oil equivalent consisting of crude oil, condensate and Liquefied Petroleum Gas which were at 353 million barrels and the volume of natural gas which was at 6,620 billion cubic feet. Moreover, the Probable Reserves had the volume of 844 million barrels of oil equivalent. The total proven reserves of PTTEP and its subsidiaries at the year-end of 31 December 2021 – 2023 were as follows:

Unit : million barrels of oil equivalent

<b>Proved reserves</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>
Indigenous Thailand	605	712	746
International	745	730	690
<b>Total</b>	<b>1,350</b>	<b>1,442</b>	<b>1,436</b>

PTTEP, moreover, has invested in new businesses outside petroleum exploration and production field in pursuit of energy transition and long-term growth. These investments focus on the development of its current technologies and R&D capabilities that support its current businesses such as renewable energy business and future energy business. PTTEP has urgently expedited the growth of its artificial intelligence (AI) and robotics businesses via AI & Robotics Ventures Company Limited (ARV). Not only that ARV aims to become a tech leader in AI and robotics field, but it also intends to provide forums where young talents are able to apply their concepts and technologies to the commercial market in a systematic manner and make positive changes in the world.

PTTEP has also entered into joint ventures for its investments outside petroleum exploration and production field. For instance, it has co-invested in gas pipeline projects in Myanmar namely the Zawtika Project and the Yadana Project. It has also joined an investment in a liquefaction plant in Oman. Also, PTTEP has formed some joint ventures with PTT Group. For example, PTT and PTTEP jointly invested in Energy Complex Company Limited to operate office-space rental business. They each hold 50% of Energy Complex's shares. In 2023, PTTEP was awarded the integrated Green Hydrogen Concession in Oman. Additionally, PTTEP entered into a Share Purchase Agreement (SPA) to invest in the Seagreen Offshore Wind Farm in Scotland and the completion of this transaction is subject to customary conditions outlined in the SPA.

The operating results of PTTEP mainly depend on global crude oil prices, the success of its petroleum exploration and production projects, continued enhancement of operational performance and cost management, and investment opportunities. In summary, its operating results are as follows:

### 1) Production

As of 31 December 2023, the total production capacity of PTTEP and its subsidiaries was 638,319 barrels of oil equivalent per day (BOED). The total annual production for 2021 - 2023 is summarized as follows:

Unit : BOED

<b>Production volume</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>
All projects	494,877	585,244	638,319

## 2) Distribution

PTTEP and its subsidiaries have produced four types of products namely crude oil, natural gas, Liquefied Natural Gas, and condensate for distribution with most products sold to PTT and its subsidiaries (69 % of PTTEP's 2023 sales). Regarding natural gas sales and purchases, PTT and PTTEP have signed long-term contracts that are valid for 15 to 30 years. There is also a minimum purchase requirement in each year. For crude oil and condensate, the prices under sale / purchase agreements between PTT and PTTEP are made in reference to the global crude oil prices, which have similar qualification in order to reflect the value of its product at the rate as close as possible to market price. PTT has signed sale / purchase agreement on crude oil and condensate with PTTEP.

As of 31 December 2023, the total sales volume of all four types of products by PTTEP and its subsidiaries was approximately 462,007 BOED, a decrease of 1% when compared to 468,130 BOED in 2022, primarily from Oman Block 61 Project due to lower contractor entitlement and shutdown in this year, along with Bongkot Project end of concession in March 2023. However, it was offset with G1/61 Project and G2/61 Project due to full year recognition of sales volume, also G1/61 Project has successfully ramped up the natural gas production since the end of June 2023. Sales of PTTEP and its subsidiaries by product type between 2021 and 2023 are as follows:

Products	2021	2022	2023
Crude oil (thousand barrels per day)	71	72	75
Natural gas (MMSCFD)	1,829	2,079	2,039
Liquefied Petroleum Gas (metric tons per day)	186	177	163
Condensate (thousand barrels per day)	45	53	52
All products (BOED)	416,141	468,130	462,007
Average selling prices (USD per barrels of oil equivalent)	43	53	48

## 3) Management

PTT governs PTTEP through its executives nominated as members of the Board of Directors with authority to define and supervise policies and business activities under good governance. PTTEP's Board of Directors as of December 31, 2023, consisted of 13 directors, 3 of whom were nominated by PTT.

## 4) Finance

The operating results of PTTEP between 2021 and 2023 are as follows:

Unit : THB million

Financial statements *	2021	2022	2023
Revenue from sales and services	219,068	331,350	300,694
Total revenue	234,631	339,902	315,216
Total expenses (including taxes)	196,256	269,668	239,988
Net profit (loss)	38,864	70,901	76,705

Unit : THB million

Financial statements *	2021	2022	2023
Total assets	783,536	869,864	902,821
Total liabilities	368,186	402,744	403,378
Shareholders' equity	415,350	467,120	499,443

\* From 1 January 2011, PTTEP has chosen USD as functional currency. Therefore, any figure in THB in financial statements is converted from USD.

## 5) Project progress and projects under development

PTTEP's primary operational bases are mostly in Southeast Asia namely Thailand, Myanmar, Malaysia, Vietnam, and Indonesia. In 2023, the average sales volume from projects in Thailand was about 306,750 BOED, which accounted for 66% of total sales volume. In other Southeast Asian nations, the average sales volume was approximately 93,653 BOED, which accounted for 20% of total sales volume.

Key progress are as follows: In Thailand, PTTEP has successfully increased production capacity of its G1/61 (Erawan) Project to 400 MMSCFD in late June 2023. To achieve a production level of 800 MMSCFD by April 2024, additional production wells drilling, and the installation of wellhead platforms are well on track. Moreover, in March 2023, G2/61 (Bongkot) Project completed its transition to the Production Sharing Contract (PSC) regime, maintaining an average production of 825 MMSCFD. Also, PTTEP was awarded exploration and production rights and signed PSCs for G1/65 and G3/65 exploration blocks in the Gulf of Thailand, where the subsurface studies are currently in progress for further exploration well drilling in 2024-2025. On the overseas projects, Algeria Hassi Bir Rekaiz has successfully increased its average crude oil production from 13,000 BPD to 17,000 BPD since August 2023. Additionally, new oil and gas discoveries have been made in three fields from exploration wells in Malaysia SK405B and Malaysia SK438 Projects, and the exploration Block SK325, be opened for bidding in the Malaysia Bid Round 2022, was awarded to PTTEP.

For more information, visit PTTEP website: [pttep.com/en/Investorrelations/Regulatorfilings/Annualfiling.aspx](http://pttep.com/en/Investorrelations/Regulatorfilings/Annualfiling.aspx)

### 1.3 Investments in Other Upstream Businesses

#### 1.3.1 PTT Energy Resources Company Limited (PTTER)

PTTER, a wholly owned subsidiary of PTT, was established in October 2007. PTTER provided management services to PTT's coal business. As of 31 December 2023, PTTER had the registered capital of THB 34,483 million (3,448,300,000 common shares that have the par value of THB 10 each). Its paid-up capital was THB 33,703 million.

##### 1) Business Operations

PTTER sold all its 25.00% stake in East Mediterranean Gas S.A.E. (EMG) to Snam S.p.A. (Snam) (a listed company in Italy) or its wholly owned subsidiary, at the price of approximately USD 50 million. The sale was completed on 2 December 2021.

However, as PTT completed its withdrawal from the coal-business investment in February 2023, PTTER has no longer operated a core business. On 14 December 2023, PTTER's extraordinary annual general meeting of shareholders No. 2/2566 issued a resolution to dissolve and liquidate PTTER. The termination of PTTER was registered with the Department of Business Development, the Ministry of Commerce, on 28 December 2023. Currently, the process of liquidation is ongoing, and the liquidation is expected to be completed within 2026.

**2) Management**

-

**3) Finance**

The operating results of PTTER between 2021 and 2023 are as follows:

Unit : THB million

Financial statements	2021	2022	2023
Revenue from sales and services	-	-	-
Other revenues	1,460	189	390
Total expenses (including taxes)	136	70	67
Net profit (loss)	1,324	119	323

Unit : THB million

Financial statements	2021	2022	2023
Total assets	3,134	3,324	1,860
Total liabilities	67	34	7
Shareholders' equity	3,067	3,290	1,853

**1.3.2 PTT Green Energy Company Limited (PTTGE)**

PTT Green Energy Company Limited (PTTGE) was registered as a wholly owned subsidiary of PTT on 14 September 2007, with an initial capital of THB 833 million. Currently, PTTGE's registered capital has risen to THB 12,403 million. The primary objective was to invest in palm plantation and crude palm oil production. However, the assets under PTTGE are not appropriate for palm plantations of international standard. The performance as a result failed to meet business targets and expenses to maintain the assets were high compared to business standard which was not cost-effective to continue the operations. As a result, in 2014, the PTT Board of Directors decided at Board Meeting No. 5/2557 to liquidate the projects under PTTGE. The liquidation has been completed in 2019.

**1) Business Operations**

Currently, PTTGE has two subsidiaries: PTT Green Energy Pte. Ltd. (a Singaporean registered company) and PTT Green Energy (Thailand) Co., Ltd. (a Thai registered company).

**2) Management**

As of 31 December 2023, PTTGE had four directors on its Board of Directors. All of them were PTT executives.



### 3) Finance

The operating results of PTTGE between 2021 and 2023 are as follows:

Unit : USD million

Financial statements	2021	2022	2023*
Total revenue	2	-	0.7
Total expenses (including taxes)	1	1	0.8
Net profit (loss)	1	(1)	(0.1)

Unit : USD million

Financial statements	2021	2022	2023*
Total assets	18	17	17
Total liabilities	-	-	-
Shareholders' equity	18	17	17

\* 2023 data are unaudited.

## **2. Downstream Businesses Invested through PTT Group**

### **2.1 International Trading**

#### **2.1.1 PTT International Trading Pte. Ltd. (PTTT)**

PTTT was registered in Singapore on 1 December 2000. This wholly owned subsidiary of PTT has the registered and paid-up capital of SGD 6.1 million. It has the objective to undertake full function on international trading transactions through commodity storage, blending, management, and distribution including chartering service and price risk management for crude oil, condensate, liquefied natural gas, petroleum products, petrochemicals, products related to energy, and other commodities to generate revenue, create added value, represent a platform for transaction expansion in the Eastern Hemisphere, and contribute to Thailand's energy security.

PTTT has 1 subsidiary which is PTT MEA Ltd. (PTT MEA), located in Abu Dhabi of the United Arab Emirates. PTT MEA was established on 21 February 2021 to operate crude oil forward trade invest in the ICE Futures Abu Dhabi (IFAD) and expand trading networks in the Middle East. Moreover, PTTT also has a representative office in Shanghai, China, which is PTT International Trading Shanghai Representative Office to coordinated for trading activities and market data in China and nearby regions.

#### **1) Trading and Services**

PTTT engages in full function on international trading ranges from storage, blending, management, and distribution through the sales and purchase of commodities, chartering service and price risk management through derivatives. PTTT also focuses on Asia market and intercontinental market associated with other subsidiaries of the International Trading Business Unit and PTT Group.

#### **2) Management**

PTTT's Board of Directors consists of 6 directors. Of them, 5 of whom were appointed by PTT executives and another one was the representative from the Ministry of Finance.

### 3) Finance

The operating results of PTTT and its subsidiary between 2021 and 2023 are as follows:

Unit : USD million

Financial statements	2021	2022	2023*
Revenue from sales and services	15,316	24,468	26,693
Total revenue	15,320	24,469	26,695
Total expenses (including taxes)	15,302	24,388	26,595
Net profit (loss)	18	81	100

Unit : USD million

Financial statements	2021	2022	2023*
Total assets	1,614	2,297	2,758
Total liabilities	1,451	2,054	2,422
Shareholders' equity	163	243	336

\* 2023 data are unaudited.

#### 2.1.2 PTT International Trading London Ltd. (PTTT LDN)

PTTT LDN, a wholly owned subsidiary of PTT, was established on 24 October 2016 in London, England, with the registered capital of USD 26.5 million and the paid-up capital of USD 10.5 million. The objective of the company is to operate international trading, focus on expanding the trading network in the Western corridor together with the aspiration to pursue opportunities and create value added of new transactions from West to East. Its transactions embrace trading of crude oil and petroleum products together with chartering service and price risk management.

In addition, PTTT LDN's other key role is to pursue trading and price movement data in the Western World, which gives PTT worldwide product data around the clock; its location in the best of the world's derivatives market in the UK also contributes to even more efficient trading and price risk management.

##### 1) Trading and Services

PTTT LDN has conducted trading activities outside Thailand. Its businesses involve the purchases and sales of commodities, providing of chartering service, and price-risk management services via derivatives. Treating Europe and Africa as its major markets, PTTT LDN has also conducted intercontinental trading activities with other subsidiaries in the International Trading Business Unit and PTT Group.

##### 2) Management

PTTT LDN's Board of Directors consists of 5 directors. Of them, 4 of whom were PTT executives and another one was the representative from the Ministry of Finance.

### 3) Finance

The operating results of PTTT LDN between 2021 and 2023 are as follows:

Unit : USD million

Financial statements	2021	2022	2023*
Revenue from sales and services	2,046	3,103	3,026
Total revenue	2,053	3,104	3,027
Total expenses (including taxes)	2,044	3,062	3,012
Net profit (loss)	9	42	15

Unit : USD million

Financial statements	2021	2022	2023*
Total assets	357	392	870
Total liabilities	311	305	771
Shareholders' equity	46	87	99

\* 2023 data are unaudited.

#### 2.1.3 PTT International Trading USA Inc. (PTTT USA)

PTTT USA registered as a company on 2 April 2020, in Houston, USA, which a wholly owned subsidiary of PTT. PTTT USA has a registered capital of USD15 million; paid-up USD 5 million. The company's objective is to engage in international trading, focus on expanding trading network embracing the Americas (North America, Central America, and Latin America), including pursuing opportunities to create value added and enlarge trading transactions in the Americas and intercontinental. PTTT USA also procures feedstock for PTT Group's refineries and/or petrochemical plants, which reduce dependence on the Middle East, where politics is highly risky. Its transactions consist of trading in crude oil, petroleum products, petrochemicals, chartering service, and price risk management.

Moreover, PTTT USA's key role is to pursue data on product trading and price movement in the Americas and the world's foremost derivative market in the US, contributing to PTT's efficiency of trading and hedging, thanks to around-the-clock product data availability.

##### 1) Trading and Services

PTTT USA engages in full-fledged international trading by purchasing and selling commodities and providing chartering and hedging services through derivatives. PTTT USA focuses on the primary markets in North America and South America, including intercontinental trading associated with other subsidiaries under PTT's International Trading Business Unit and PTT Group.

##### 2) Management

PTTT USA's Board of Directors has 5 directors, 4 of whom were PTT executives while the other was a representative of the Ministry of Finance.

### 3) Finance

PTTT USA's operating results between 2021 and 2023 are as follows:

Unit: USD million

Financial statements	2021	2022	2023*
Revenue from sales and services	234	1,660	1,065
Total revenue	234	1,661	1,067
Total expenses (including taxes)	232	1,638	1,048
Net profit (loss)	2	23	19

Unit: USD million

Financial statements	2021	2022	2023*
Total assets	8	64	57
Total liabilities	1	34	11
Shareholders' equity	7	30	46

\* 2023 data are unaudited.

#### 2.2 Petrochemical, Refining, Oil and Retail business

##### 2.2.1 PTT Global Chemical Public Company Limited (GC)

GC is involved in integrated petrochemicals and refining with total production capacity of 14.34 million tons per year for petrochemical and chemical products and total refining capacity of about 280,000 barrels per day (BPD) for crude oil and condensate. GC is PTT Group's petrochemical flagship. PTT held 45.18% of shares in GC as of 31 December 2023.

GC has 5 core business groups, as follows:

- 1) Upstream petrochemical products
- 2) Intermediate petrochemical products
- 3) Polymers & Chemicals
- 4) Bioplastics & Circularity
- 5) Special chemical products

In addition to the aforementioned 5 major business groups, GC offers various services namely product marketing & distribution service, logistics services, port services, utilities, technical support, engineering services, and plant-maintenance services, as well as conduct many other businesses. As of 31 December 2023, GC's capacities were as follows:

Installed Capacity  
(tons per year except when stated otherwise)

<b>Business Group</b>	
1) Upstream petrochemical products	
Refinery <sup>(1)</sup> .....	280,000
Aromatics plants.....	2,419,000
Olefins plants.....	3,829,000
2) Intermediate petrochemical products <sup>(2)</sup>	
Ethylene Oxide.....	423,000
Phenol.....	954,000
Other intermediate petrochemical products...	1,408,000
3) Polymers & Chemicals <sup>(2)</sup>	
Polymer .....	2,855,000
Chemicals .....	198,000
4) Bioplastics & Circularity <sup>(2)</sup>	
	824,000
5) Special chemical products <sup>(2)</sup>	
	1,434,000

Notes:

(1) Raw materials entering the crude distillation unit (CDU) are measured in barrels per day, including about 145,000 barrels per day for crude distillation and 135,000 barrels per day for condensate distillation.

(2) As for intermediate petrochemical products, polymer products & chemicals, bioplastics & circularity, and special chemical products, capacities are calculated from companies in which GC holds at least 25% stake.

Production capacity and utilization rates of GC refinery, olefins plants and aromatics plants in recent years are as follows:

	Production capacity	2021 <sup>1</sup>	2022 <sup>2</sup>	2023 <sup>3</sup>
		Utilization rate (%)	Utilization rate (%)	Utilization rate (%)
Refinery	280 thousand barrels per day	95	89	104
Olefins plant	3,829 thousand tons per year	91	80	80
Aromatics plant	2,419 thousand tons per year	99	88	83

<sup>1</sup> In 2021, Olefins 1 production unit has planned maintenance in 4Q2021.

<sup>2</sup> In 2022, Aromatics 1 and Olefins 3 production unit have planned maintenance in 2Q2022, Olefins 2 and refinery production unit have planned maintenance in 4Q2022.

<sup>3</sup> In 2023, Olefins 2 production unit has planned maintenance in 1Q2023, Aromatics 2 production unit has planned maintenance in 3Q2022, and Olefins 1 production unit has planned maintenance in 4Q2023.

## 1) Procurement

For upstream petrochemical products, the procurement of raw materials for refined products focus on low-cost crude oil from Thailand and overseas to achieve economic cost benefit in the production process. Regarding aromatics, condensate has been procured mainly from Thailand-based sources. GC has also sought low-sulfur condensate from new overseas sources so as to give alternatives to its aromatic's plants. The procurement of raw materials for olefins production focuses on enhancing competitiveness through raw-material diversity. Key raw materials are ethane, propane, LPG and NGL that are made of natural gas. It is also possible to use light naphtha and LPG that are by products from GC's own refinery and aromatic plants. GC has procured the aforementioned raw materials via PTT under long-term agreements as market prices.

For intermediate petrochemical products, polymer products, and chemical products, GC has used aromatics- and olefins-based products from its operations as raw materials for production, upgrade, and value-adding.

For bioplastics & circularity products, GC has mainly procured raw materials from local suppliers to support Thailand's agricultural sector and related industries. For special chemical products, GC has procured raw materials from manufacturers through both short-term and long-term sales and purchases agreements.

## 2) Distribution

Regarding upstream petrochemical products, GC has sold refined products mainly to the domestic market under long-term agreements with PTT Oil and Retail Business Public Company Limited (OR) as its major customer. It has also placed an emphasis on selling its oil to markets offering a good price such as CLMV (Cambodia, Laos, Myanmar and Vietnam). GC's aromatics, meanwhile, is not only used for its production of intermediate petrochemical products but is also sold under short-term and long-terms agreements to domestic customers. While GC's olefins is mainly used for its production of downstream petrochemicals, GC has also sold olefins to other companies in GC Group as well as domestic customers.

Regarding intermediate petrochemical products, GC has sold them mainly to domestic customers. Distribution has been done with a focus on major customers and agents, which help distribute the products to small customers. While the remaining volume of products is exported.

Regarding polymer products, GC has produced and distributed them under its trademarks. It has engaged in the production and distribution of various key polymer products via subsidiaries and joint ventures. GC has appointed agents to distribute its products and provide a comprehensive range of relevant services to customers in all regions of the world.

Regarding bioplastics & circularity products, GC has sold bioplastics to specific customers only. They are major manufacturers with production and customer bases in various regions. Circularity products, meanwhile, have been sold mainly in the domestic market.

Regarding special chemical products, GC mainly distributes directly to customers and dealers, and operate through subsidiaries and joint ventures.

## 3) Management

GC's Board of Directors, as of 31 December 2023, had 15 members. Of them, 4 were PTT executives. PTT has assigned its executives to serve in GC management, including in the posts of President and Chief Executive Officer.

#### 4) Finance

GC's comparative performance results between 2021 and 2023 are as follows:

Unit: THB million

Consolidated financial statements	2021	2022	2023
Revenue from sales and services	468,953	683,954	621,631
Total revenue	492,126	668,873	632,346
Total expenses (including taxes)	446,576	677,625	631,347
Net profit (loss) *	45,550	(8,752)	999
Net profit (loss) of the major shareholder	44,982	(7,636)	865

Unit: THB million

Consolidated financial statements	2021	2022	2023
Total assets	754,115	719,965	719,005
Total liabilities	426,512	421,138	422,824
Shareholders' equity	327,603	298,827	296,181

\* Profit (loss) of the major shareholders after deducting the portion of non-controlling interests. The profit (loss) of the non-controlling interests totaled THB 568 million in 2021, THB (1,116) million in 2022, and 134 in 2023.

#### 5) Projects

##### 5.1) Advanced-engineering Plastics Project

GC has set up a joint venture, Kuraray GC Advanced Materials Company Limited, for the production and distribution of advanced-engineering plastics such as High Heat Resistant Polyamide-9T (PA9T), with the production capacity of 13,000 tons per year, and Hydrogenated Styrenic Block Copolymer (HSBC), with the capacity of 16,000 tons per year. Its commercial operation began in the first quarter of 2023.

##### 5.2) Olefins 2 modification project

GC has obtained the approval to implement the Olefins 2 Modification Project, with the use of propane as an additional feedstock, to increase feedstock flexibility as well as to enhance the company's competitiveness in the long run. The commercial operation of the project began in the third quarter of 2023.

##### 5.3) Other projects

Matrix Polymers Thai Company Limited (MPT), whose 99.998% of shares are in the hand of Revolve Group Limited (RGL), a joint venture of GC (holding 49% of shares) and Martin Coles (holding 51% of shares), is a manufacturer of Colored Compounded Powder. This product is a raw material of products relying on Rotational Molding such as large water tanks, plastic playground equipment, and kayaks. MPT has the production capacity of 12,000 tons per year. It enhances RGL's production capacity in Asia and accommodates growth in Asia Pacific and started commercial operation in the second quarter of 2023.

For additional details, visit the company's website, at: [pttgcgroup.com/en/investor-relations/document/annual-filings](http://pttgcgroup.com/en/investor-relations/document/annual-filings)

## 2.2.2 Thai Oil Public Company Limited (TOP)

TOP is Thailand's largest business operator in refinery and petroleum distribution. Its refinery also ranks among the most efficient in Asia-Pacific. The company's main business is petroleum oil refining. Presently, its production capacity is 275,000 barrels per day, or 22.1% of the country's overall refinery nameplate capacity. Domestic distribution accounts for 85% of the total capacity. The company has also expanded its investment into aromatics-production business with the production capacity of 838,000 tons per year. Moreover, it has engaged in the businesses of Linear Alkyl Benzene (LAB), olefins, power generation, renewable energy, and solvent. As of 31 December 2023, PTT holds 45.03% of shares in the company.

The following is TOP's production capacity and utilization rate of its refinery and aromatics plant for the periods indicated:

	Production capacity	2021	2022 <sup>1</sup>	2023
		Utilization rate (%)	Utilization rate (%)	Utilization rate (%)
Refinery	275,000 barrels per day	100	107	112
Aromatics plant	838,000 tons per year	87	71	73

<sup>1</sup> In 2022, a major maintenance shutdown was carried out at Thai Lube Base Public Company Limited's production unit from early October to mid-November 2022.

### 1) Procurement

TOP's production uses crude oil obtained from both domestic and international sources. Most of the imported crude oil is from the Middle East, transported by sea freight. Domestic crude oil, meanwhile, is transported by rail and ships. The selection of crude oil is based on prices and expected returns. PTT is responsible for procuring crude oil for TOP under a crude supply agreement with a price structure that is based on market prices.

### 2) Distribution

In 2023, TOP distributed 86% of its products in the domestic market and exported the remaining 14%. OR, the main distributor of PTT Group's refined products, is responsible for purchasing TOP's oil products under a product offtake agreement at market prices.

2021	2022	2023
Proportion of domestic/international sale (%)	Proportion of domestic/international sale (%)	Proportion of domestic/international sale (%)
80/20	85/15	86/14

### 3) Management

As of 31 December 2023, TOP's Board of Directors had 14 members. Of them, 5 were PTT executives. PTT assigned its executives to serve in TOP management, including in the posts of its President and Chief Executive Officer..



#### 4) Finance

TOP's performance results between 2021 and 2023 are as follows:

Unit: THB million

Consolidated financial statements	2021	2022	2023
Revenue from sales and services	335,827	505,703	459,402
Total revenue *	348,308	547,273	470,879
Total expenses **	335,305	514,167	451,294
Net profit (loss) ***	13,003	33,106	19,585
Net profit (loss) of the major shareholder	12,578	32,668	19,443

Unit: THB million

Consolidated financial statements	2021	2022	2023
Total assets	362,144	444,581	419,993
Total liabilities	239,050	285,924	251,681
Shareholders' equity	123,094	158,657	168,312

\* Includes share of profit from investments in joint ventures and associates: THB 1,675 million in 2021, THB (513) million in 2022, and 84 in 2023.

\*\* Includes income tax items (income tax credit) of THB 2,034 million in 2021, THB 8,918 million in 2022, 4,672 million in 2023, as well as the financial costs of THB 3,595 million in 2021, THB 3,860 million in 2022, and 4,089 in 2023.

\*\*\* Profits attributable to major shareholders after deducting that of minority shareholders; the profit (loss) shares of non-controlling interests amounted to THB 425 million in 2021, THB 438 million in 2022, and 142 in 2023.

#### 5) Projects

##### 5.1) Clean Fuel Project (CFP)

Thai Oil Group has invested in CFP to raise its refinery capacity from 275,000 barrels per day to 400,000 barrels per day. Designed to enhance flexibility in receiving more types of crude oil, achieve economies of scale, and improve product properties for added value and greater environmental friendliness. Through the project, Thai Oil Group's competitiveness will increase. It will be able to fulfil demand from not just domestic market but also the Southeast Asia. Its products will be precursor materials for petrochemicals in the future too.

CFP investment CAPEX was initially around USD 4,825 million, with estimated interests of USD 151 million during construction. Thai Oil Group's decision to sell off Energy Recovery Unit (ERU) later reduced the CFP investment cost by approximately USD 757 million. Big outbreaks of COVID-19 between 2020 and 2022, however, had affected projects across the world via machine-parts production, transportation, and construction sectors. CFP too has faced construction delays because of the outbreaks. The Company, in collaboration with constructors and consultants, has addressed the problems and adjusted implementation approach to minimize adverse impacts. For example, the project's construction plan has been changed to expedite the delivery of work. The number of subcontractors has also increased to accommodate the scope of work and new timeframe under strict COVID-19 control measures, while work structure has also been adjusted to enhance efficiency. Due to complex work processes and measures involved, CFP investment budget has gone up by approximately USD 550 million with estimated interests soaring by around USD 422 million. The construction period for CFP has also been extended by two years.

The Company is determined to urgently complete the CFP project in accordance with its strategy to foster its long-term growth and profit. Currently, the CFP has already been 95% complete. The Company plans to perform a test run on the new Hydrodesulfurization's (HDS-4) machinery under the project in the first quarter of 2024, sooner than its initial schedule. This unit will support the production of Euro-5 standard oils. Regarding other parts of CFP, work has now been expedited with their test runs expected in the future.

## **5.2) Olefins Business Co-Investment project**

TOP has invested in PT Chandra Asri Petrochemical Tbk (CAP), which is Indonesia's largest producer of integrated chemical products, with years of experience and expertise in the petrochemical sector. TOP investment is made through a new subsidiary set up in the Republic of Indonesia, "PT TOP Investment Indonesia (TII)". On 29 July 2021, TII entered into agreements with the original major shareholders to acquire 15% of CAP's shares, at the total price of no more than USD 914 million, or about THB 30,222 million. TII, moreover, has planned to acquire 0.38% more of CAP's shares if CAP approves the investment in the development and construction of CAP2 petrochemical plant within five years since the share-subscription transaction based on right offering was completed under conditions that the purchase of additional shares shall cost no more than USD 270 million or about THB 8,928 million. However, if investment approval is not granted within five years, the purchase of additional shares shall cost no more than USD 3.9 million or about THB 129 million with both parties agreeing to specify investment methods in such event later but under conditions that the methods must receive approval from both CAP shareholders and relevant authorities in Indonesia. The additional share purchase is designed to ensure that TII shall hold 15.38% of CAP's shares. This project is consistent with TOP's long-term strategy of diversifying investments towards the growing petrochemical market. Business expansion into the petrochemical sector is executed through extension of its existing hydrocarbon business's downstream supply chain.

*For additional details, visit the company's website, at: [investor.thaioilgroup.com/form\\_561\\_one\\_report.html](http://investor.thaioilgroup.com/form_561_one_report.html)*

### **2.2.3 IRPC Public Company Limited (IRPC)**

IRPC Public Company Limited (IRPC) is involved in an integrated petrochemical business. Its refinery has the production capacity of 215,000 barrels per day, accounting for 17.29% of the country's total refinery capacity. As of 31 December 2023, PTT held 45.05 % of the company's shares.

IRPC's refinery is capable of producing various petroleum products, including naphtha and liquefied petroleum gas (LPG). The company is able to produce 320,000 tons of lubricant oils per year and 600,000 tons of asphalt per year. Also, IRPC is a producer of petrochemical products such as olefins and aromatics, with the production capacity of 1,221,000 and 367,000 tons per year, respectively. These upstream petrochemical products are feedstocks in the production of different plastic pellets, including HDPE and PP, with the production capacity of 915,000 tons per year, as well as styrenics (ABS, SAN, PS and EPS), with the production capacity of 352,000 tons per year. These products are sold to operators in plastics industry to use as raw materials in the production of numerous plastic wares from both domestic and overseas customers. Moreover, IRPC has facilities to support its operation, including deep-sea port, oil terminal and power plant, which gives the company an edge in management and the economy of scale such as transporting cost of raw materials.

The following is IRPC's production capacity and utilization rate of its refinery, olefins plant, and aromatics and styrenics plant for the periods indicated:

	Production capacity	2021 <sup>1</sup>	2022 <sup>2</sup>	2023 <sup>3</sup>
		Utilization rate (%)	Utilization rate (%)	Utilization rate (%)
Refinery	215,000 barrels per day	89	81	89
Olefins plant	1,611,000 tons per year	95	86	73
Aromatics and styrenics plants	1,194,000 tons per year	99	86	74

<sup>1</sup> In 2021, a main production unit - RDCC plant – was shut down for scheduled maintenance for 45 days.

<sup>2</sup> In 2022, main production units – ADU1 & 2 plants – were shut down for scheduled maintenance for 37 days.

<sup>3</sup> In 2023, there was no shut down for scheduled maintenance

### 1) Procurement

In 2023, the company's major raw material, crude oil, accounts for 81% of its feedstock. Most of the crude oil used in the production process is imported from Middle East by sea freight. The company has a policy of acquiring the feedstocks from sources that generate maximum returns. PTT is responsible for procuring most of the crude oil under the crude oil supply agreement, with the price structure based on the market prices.

### 2) Distribution

In 2023, IRPC sold 65% of its products in the domestic market and exported 35% as calculated from the net petroleum-product sales revenue. For petrochemical products, IRPC sold 65% of its products in the domestic market and exported the remaining 35% as calculated from the net petrochemical-product sales revenue. The distribution of petrochemical products was executed through distributors and direct sales. For exports, sales were done via trade representatives based overseas.

### 3) Management

IRPC's Board of Directors had 14 members as of 31 December 2023. Of them, 4 were PTT executives. PTT has assigned its executives to serve in IRPC management, including in the posts of its President and Chief Executive Officer..

### 4) Finance

The operating results of IRPC between 2021 and 2023 are as follows:

Unit: THB million

Consolidated financial statements	2021	2022	2023
Revenue from sales and services	255,115	324,800	319,047
Total revenue	255,393	326,622	320,154
Total expenses (including taxes) *	240,860	330,986	323,077
Net profit (loss) **	14,533	(4,364)	(2,923)
Net profit (loss) of the major shareholder	14,505	(4,360)	(2,912)

Unit: THB million

Consolidated financial statements	2021	2022	2023
Total assets	190,492	198,187	192,661
Total liabilities	102,780	118,509	116,539
Shareholders' equity	87,712	79,678	76,122

\*Includes income taxes: THB 2,351 million in 2021, THB 1,142 million in 2022, and THB 772 million in 2023.

\*\* Net profit (loss) of the major shareholder after deducting those of minority shareholders; the profit (loss) shares of non-controlling interests amounted to THB 28 million in 2021, THB (4) million in 2022, and THB (11) million in 2023.

## 5) Projects

### 5.1) Ultra Clean Fuel (UCF) project

The UCF Project is the project that increase refinery plant's efficiency and upgrade diesel quality to Euro-5 standard, given that Ministry of Energy has issued the policy to require the distribution of Euro-5 diesel in Thailand from 1 January 2024 onward. Under the Euro-5 standard, the permitted sulfur level will decline to 10 parts per million (PPM) from 50 PPM (under Euro-4 standard). The project will increase the company's competitiveness in light of the growing demand for low sulfur diesel in domestic market as well as ASEAN Economic Community (AEC). The UCF project promises to strengthen the company that has diesel its main product. Being environmentally friendly, this project also resonates with the company's Eco Factory policy. At present, all equipment and machinery installation have been completed, and it is in the process of checking the completeness of the project. Its commercial operation is expected to start in the first quarter of 2024. Upon the completion of the project, IRPC will have the capacity to convert all its high-sulfur diesel into low-sulfur diesel based on Euro-5 standards.

For additional details, visit the company's website: [irpc.co.th/en/annualreport\\_post/annual\\_report/](http://irpc.co.th/en/annualreport_post/annual_report/)

### 2.2.4 PTT Oil and Retail Business Public Company Limited (OR)

OR, a flagship company in PTT Group, has operated its businesses based on "Empowering All toward Inclusive Growth" concept. Its four missions are to strengthen integrated energy businesses with Seamless Mobility; to create alternatives for All Lifestyles; to successfully expand businesses in Global Market; and to solve social and environmental problems with OR Innovation. The goal is to achieve Triple Bottom Line growth, which accords importance to not just business performance but also Society, People and the Planet.

OR has three core businesses: Mobility Business, Lifestyle Business, and Global Business.

#### 1) Nature of Business by business group

**Mobility Business:** OR has operated an integrated energy business for seamless mobility, consistent with the future trend of energy use. The scope of business has already expanded beyond oil ecosystem to energy solution ecosystem. OR has conducted petroleum- products marketing through retail and commercial market sectors. Regarding the retail market, OR has sold petroleum products and lubricants mainly to motorists and other retail customers through its service stations under the brand PTT Station. In the commercial market, OR has sold petroleum products and other products to commercial customers, including industrial factories, airlines and gas filling plants. Also, OR has sold lubricants and operated FIT Auto service centers. Moreover, OR has set up EV charging stations both inside and outside stations under a plan to ensure there will be such facilities for all of Thailand's major routes in the future.

**Lifestyle Business:** OR has engaged in businesses that present alternatives and respond to all lifestyles, expanding beyond F&B ecosystem to one-stop solution ecosystem. These include: (1) Food and beverage, such as coffee business under the brand Café Amazon that sells coffee, other beverages, bakeries and snacks, as well as fried chicken business under the brand Texas Chicken, of which OR is the only licensee in Thailand. Also, the company has diversified its products by investing in high-potential SMEs, such as “Ohkajhu” healthy-food restaurant chain, “Pacamara” specialty coffee, “Kamu Tea” tea shop, and “Kouen Premium Buffet” and “Ono Sushi” Japanese-food restaurant chains. The company has jointly established Drink Enterprise Company Limited to step into ready- to-drink beverage sector. Moreover, it has invested in Dusit Foods Company Limited to strengthen its Lifestyle Business, diversify its food-business portfolio, and promote opportunities for mutual growth in both domestic and international markets; (2) Other businesses, including convenience stores that sell foods, drinks and various basic necessities under the brand “Jiffy”, which owns by OR, and “7- Eleven, which OR has signed an exclusive collaboration agreement with CP ALL. Moreover, OR offers the service of space management by providing rental space and other services to various Thai and foreign brands. In addition, OR has invested in Otteri Wash & Dry laundromat brand in its bid to respond to new-generation consumers’ behaviors.

**Global Business:** OR has expanded its business for success and well known in the global market. The overseas expansion is executed through the existing Mobility business involving petroleum products, such as diesel, gasoline, aviation fuel, fuel oil, lubricants and other petroleum products. Also, the overseas expansion is executed through the Lifestyle business involving coffee shops under the brand “Café Amazon” and “Jiffy” convenience store. At present, OR has operated businesses in foreign countries, including the Philippines, Cambodia, Laos, China, Myanmar and Vietnam.

## 2) Procurement

Procurement of petroleum products is mainly executed through procurement or offtake contracts with refineries owned by the PTT Group as well as others. Certain petroleum products are imported, to provide additional products besides the purchases from Thailand-based refineries, to ensure a variety of sources. The purchased petroleum products are transported through transmission pipelines, ship, trucks and rail to OR’s storage network.

Liquefied petroleum gas is procured mainly by PTT, with OR purchasing directly from PTT’s gas separation plants. Condensate and methanol are procured for a particular group of customers. Ethanol, biodiesel (B100), and fuel additives are purchased from selected distributors as raw materials for gasohol / diesel production for further distribution to customers.

Base oils for lubricants are procured from Thai Lube Base Public Company Limited, IRPC and other domestic and overseas distributors. Additives for lubricants are acquired from domestic and overseas distributors.

Coffee beans for Café Amazon shops are procured from local producers in Thailand, including farmers, the Royal Project Foundation, Sarn Palung Social Enterprise Company Limited, community enterprises and cooperatives. Such procurement aims to encourage local communities and farmers to grow coffee. For Café Amazon business based overseas, coffee beans are procured from local sources in respective countries that are also major coffee producers. In other foreign countries, roasted coffee beans are sent from Thailand. Other related raw materials for Café Amazon, such as condensed milk, evaporated milk, powdered drink mixes, cups and drinking straws, are procured from local producers with potential and leading producers in their respective industries.

For other food and beverage shops under the brand “Texas Chicken”, raw materials are mainly procured from wholesalers, but some types of supplies are sourced from several small vendors.

Regarding 7-Eleven convenience stores, CP ALL is responsible for procuring goods, as it owns all goods available at 7-Eleven outlets located within the OR network. For Jiffy convenience stores, OR generally does not sign long-term agreements with suppliers because it has other sourcing alternatives for most products.

### 3) Distribution

Distribution channels cover all regions of Thailand and areas in the Philippines, Cambodia, Laos, Japan, Oman, Singapore, Myanmar, Malaysia and China. These include oil stations, Liquefied Petroleum Gas stations, cooking gas shops, FIT Auto service centers, Café Amazon outlets, other food and beverage shops, and convenience stores.

### 4) Projects

**Mobility business:** Its major plan is to expand network of oil stations under “PTT Station” brand by choosing high-potential locations for the new stations. Also, there is a plan to improve existing service stations as well as oil products’ quality, in order to raise competitiveness and customer confidence. Moreover, OR has pursued an expansion plan for commercial market based on storage terminals and distribution centers. In addition, OR has embraced clean energy with an investment plan to expand EV station network both inside and outside PTT service stations, and also to promote various types of clean energy and solutions for efficient energy consumption.

**Lifestyle business:** A major plan calls for a continued expansion of the network of retail outlets to meet the growing demand in the market. There is a plan to open new Café Amazon and Texas Chicken outlets, as well as expanding the existing network of convenience stores, other shops, and the space management business. The company also seeks opportunities for joint ventures (JV) or mergers and acquisitions (M&A) to meet the rapidly changing customer needs. In addition to the food and beverage business, OR has also set its sight on other growing sectors, including tourism and health & wellness.

**Global business:** The company has a plan to expand the network of oil stations and retail shops overseas. Also, it seeks to expand its business-growth foundation by presenting new products, services, and business models. Moreover, OR will explore business opportunities and co-invest alongside strong partners in new markets that have good potential.

**OR Innovation:** The company has entered into joint investments with potential partners. For example, it co-founded Orbit Digital (ORBIT) for the purposes of developing technology and innovations, and upgrading digital business. Moreover, it has set up ORZON Ventures Fund in collaboration with 500TukTuks for investments in early-stage startups. It has invested in digital platforms in order to pursuit of Inclusive Growth Platforms for OR’s Mobility and Lifestyle businesses such as Food and Beverage, Tourism, Health and Wellness. For instance, its investment in Freshket delivers food-supply-chain services in support of SMEs’ enhanced capabilities and opportunities. It has also invested in Traveloka platform to serve tourism and lifestyles services. Moreover, there is GoWabi platform investment to connect health and beauty services.

### 5) Management

OR’s Board of Directors had 15 members as of 31 December 2023. Of them, 3 were PTT executives. PTT has assigned its executives to serve in OR management.

## 6) Finance

The performance results of OR between 2021 and 2023 are as follows:

Unit: THB million

Consolidated financial statements	2021	2022	2023
Revenue from sales and services	511,799	789,785	769,224
Total revenue	516,422	795,020	775,986
Total expenses (including taxes)	504,952	784,647	764,890
Net profit (loss)	11,470	10,373	11,096
Net profit (loss) of the major shareholder	11,474	10,370	11,094

Unit: THB million

Consolidated financial statements	2021	2022	2023
Total assets	207,659	225,504	220,236
Total liabilities	107,787	121,743	110,728
Shareholders' equity	99,872	103,761	109,508

For additional details, visit the company's website: [investor.pttor.com/en/document/annual-reports](http://investor.pttor.com/en/document/annual-reports)

### 2.2.5 PTT Tank Terminal Company Limited (PTT TANK)

PTT TANK was established on 6 March 2009 with the registered and paid-up capital of THB 3,887.50 million (at THB 100 per share). Its objective is to operate the business of providing services of storing and transporting liquid chemical products, oil and gas for PTT and its affiliates. As of 31 December 2023, PTT owned 100% of the company's shares.

On 30 June 2009, PTT TANK was handed over 2 contracts that PTT signed with the Industrial Estate Authority of Thailand (IEAT) namely an agreement on permission for the use of a 57.8-rai land plot for construction of a liquid storage warehouse at the Map Ta Phut Industrial Estate 1 extension zone, and an agreement on joint development of the Map Ta Phut Industrial Port.

PTT TANK provides dock service and receiving-storing-distributing products for PTT and companies in the PTT group. Commercial services began on 21 April 2011, with 2 terminals for the maximum cargo size of 60,000 Deadweight Tonnage (DWT). Maximum cargo volume is 2,000,000 tons per year. The throughput rate is about 900,000 tons per year (with 45% utilization rate) and there are 10 storage tanks for liquid products available. Currently, there are products including sulfuric acid, propylene, methyl methacrylate, acrylonitrile, ammonia, LPG, solvent and nitrogen.

#### 1) Management

PTT TANK Board of Directors has 4 members as of 31 December 2023. Of them, 3 are PTT executives. PTT has assigned its representatives to serve in PTT TANK management, including in the post of its President.

## 2) Finance

PTT TANK's performance results between 2021 and 2023 are as follows:

Unit: THB million

Financial statements	2021	2022	2023*
Revenue from sales and services	934	967	989
Total revenue	1,010	1,220	1,338
Total expenses (including taxes)	739	805	822
Net profit (loss)	271	415	516

Unit: THB million

Financial statements	2021	2022	2023*
Total assets	6,793	7,106	7,498
Total liabilities	423	409	420
Shareholders' equity	6,370	6,697	7,078

\* 2023 financial statements are unaudited.

## 3) Projects

### 3.1 Map Ta Phut Industrial Port Phase 3 (Section 1)

On 1 October 2019, PTT TANK and Gulf Energy Development (GED) established a new joint venture company under the name of Gulf MTP LNG Terminal Company Limited (GMTP) with the initial registered capital of THB 3,500 million. PTT TANK and GED respectively hold 30% and 70% of shares in GMTP. The company's objective is to conduct business related to the LNG value chain and logistics to support other future investments consistent with PTT Group's strategy. On 1 October 2019, GMTP entered into a Public Private Partnership (PPP) contract with Industrial Estate Authority of Thailand (IEAT) for the development of Map Ta Phut Seaport Phase 3 (Section 1) with joint investments including: 1) Design and construction of the infrastructure with an investment of THB 12,900 million, and 2) Design, construction and operation of LNG superstructure on a reclaimed area covering about 200 rai and having the capacity for LNG cargoes at least 5 million tons per year (for the first section of gas port), and an extension that can deal with up to 10.8 million tons per year. This part requires an investment of about THB 28,000 million. The project's total investment is THB 40,900 million. The commercial operation is expected to start in 2028. The project is in the stage of reclamation for infrastructure construction. Project progress as of 31 December 2023 was at 71.56%.

### 3.2 Laem Chabang Port Phase 3, Terminal F

Laem Chabang port phase 3, Terminal F is a project that the Port Authority of Thailand (PAT) allows the private sector to take part in the development of Terminal F1 and Terminal F2, under a Public Private Partnership (PPP) agreement with a 35-year concession. PTT TANK established a new joint venture with Gulf Energy Development Public Company Limited (GED) and CHEC OVERSEA INFRASTRUCTURE HOLDING PTE. LTD (CHEC OVERSEA) under the name of GPC International Terminal Company Limited (GPC) with the registered capital of THB 4,000 million. PTT Tank, CHEC OVERSEA, and GED will hold 30%, 30%, and 40% of this joint investment's shares respectively. The investment objectives are to operate a seaport and to provide services covering mooring, docking, loading, unloading of goods for container vessels as well as to conduct warehouse business with



the capacity to handle containers of at least 4,000,000 TEU/year (TEU is equivalent to 20 Foot Unit of container) to meet the expected demand increase for Laem Chabang Port's services and to enable logistics businesses that use up-to-date technology. Not only that this joint venture is in line with PTT's strategy and vision on Logistics & Infrastructure business, but it also supports infrastructure growth in Thailand. On 25 November 2021, GPC entered into a 35-year Public-Private Partnership (PPP) contract with the Port Authority of Thailand (PAT) for the above project with the investment cost of THB 30,871 million. Terminal F1 is expected to start construction in 2025 and commercial operation in 2027, and Terminal F2 will then start its construction in 2029 with an expected commercial operation in 2031.

Currently, the project is in the process of being reclaimed by PAT before handing over the area to GPC in 2025.

### **3. New business and infrastructure group**

#### **3.1 Global Power Synergy Public Company Limited (GPSC)**

GPSC was registered from the consolidation of related partnership entities at the Department of Business Development, Ministry of Commerce, on 10 January 2013. The company was later transformed into a public company limited and listed on the Stock Exchange of Thailand (SET) with the first trading date on 18 May 2015. The objective is to support future business growth under a prime mission to pursue power businesses expansion both in Thailand and abroad and become a power flagship for PTT Group as a synergy force. Additionally, GPSC focuses on the investment in renewable energy power plants and integrated energy storage systems, both domestically and internationally. As of 31 December 2023, GPSC's registered capital stood at THB 28,197.29 million. PTT held 47.27% of GPSC's issued and paid-up shares. On 21 December 2023, PTT's Board of Directors approved the shareholder restructuring of Global Renewable Power Company Limited (GRP) which invest in solar project in Thailand and Taiwan by approving PTTGM, PTT's subsidiary, to sell ordinary shares of GRP (50% owned subsidiary of PTTGM) to Global Renewable Synergy Company Limited (GRSC), a wholly owned subsidiary of GPSC. After shareholder restructuring, GPSC will hold 100.00% of GRP's shares.

As of the year-end 2023, GPSC's total equity capacities were 9,315 MW of power generation, 2,858 tons per hour (T/h) of steam, 7,026 cubic metres per hour (Cu.m/h) of industrial water, 15,400 refrigerated tons of chilled water, and 314 megawatts-hour (MWh) per year of energy storage unit.

#### **1) Fuel Procurement**

GPSC's power and steam production uses natural gas as its main feed. PTT is the sole supplier of gas to GPSC under the long-term gas sale and purchase agreements that are valid from 15 to 25 years.

#### **2) Distribution**

GPSC has two main target groups, categorized based on product-usage characteristics.

- 1) Distribution to the Electricity Generating Authority of Thailand (EGAT), the Provincial Electricity Authority (PEA), and the Metropolitan Electricity Authority (MEA): GPSC and its subsidiaries have signed contracted with these customers. With EGAT, GPSC has also had standby-reserve purchase agreements paving way for it to have power reserves, thus strengthening the security of its power production system and power plants.
- 2) Direct Distribution to industrial customers: GPSC sells power to industrial customers via its role as public-utilities producer. Its products cover power, steam, chilled water and industrial water. Most of GPSC's customers are in petrochemical industry. Also, GPSC sells nitrogen to PTT Group's companies as parts of integrated services.

### 3) Management

As of 31 December 2023, GPSC's Board of Directors comprised 13 directors, including 7 from PTT executives. Under the shareholding structure, PTT also appointed a number of executives to hold executive positions in GPSC, including the President and Chief Executive Officer.

### 4) Finance

The financial profile of GPSC for 2021 - 2023 is as follows:

Unit: THB million

Consolidated financial statements	2021**	2022	2023
Sales and services revenue *	74,137	123,083	89,860
Total revenue	74,874	123,685	90,303
Total expenses (including taxes)	67,034	122,228	85,494
Net profit (loss)	7,840	1,457	4,809
Net profit (loss) of the major shareholder	7,319	891	3,694

Unit: THB million

Consolidated Financial statements	2021**	2022	2023
Total assets	270,796	288,810	281,703
Total liabilities	153,048	173,710	164,178
Shareholders' equity	117,748	115,100	117,525

\* Excluding revenue from financial lease

\*\* The statement of financial position of 2021 was recategorized

### 5) Project progress and projects under construction

In 2023, GPSC completed the construction of several projects to pave way for their commercial operation, as well as finished business restructuring as follows:

- SPP Replacement Glow Energy Phase 2: the construction was completed on 19 January 2023 with the power capacity of approximately 200 MW and steam capacity of approximately 300 tons per hour.

The under-investment or under construction projects are as follows:

- Glow SPP2 Replacement Project: Upon completion, it will have the capacity to produce about 98 megawatts of power and about 230 tons of steam per hour. Construction is expected to be completed and commercial operation to start in 2024.
- Energy Recovery Unit (ERU) Project: ERU is a part of TOP's Clean Fuel Project (CFP) which has capacity to generate 250 MW of power and 175 tons per hour of steam. ERU will retrieve oil residue, which is a byproduct of CFP's distillation units, to use as main fuel in generating power and steam which are sold directly to CFP. The project is scheduled of start its commercial operation in 2025.

- Avaada Energy Private Limited (AEPL) in India: Global Renewable Synergy Company Limited (GRSC) (a subsidiary of GPSC) hold 42.93% of shares in AEPL, a big operator of renewable energy business in India. Currently, Avaada's current committed capacity is 9,525 MW (GPSC's equity portion is 4,089 MW), of which about 3,990 MW are from operating plants and approximately 5,535 MW from under development plants. Moreover, AEPL aims to boost its production capacity to 11,000 MW by 2026.
- Offshore Wind Power Plant Project in Taiwan (Changfang and Xidao: CFXD): Global Renewable Synergy Taiwan (GRSC TW) has secured 25.00% stake in CI Changfang Limited and CI Xidao Limited, which engage in the offshore wind power plants Taiwan. The project has total production capacity of 595 MW, in which GPSC's equity portion is 149 MW. The first wind turbine has started dispatch electricity in November 2022 and the project is expected to go entirely commercial by the second quarter of 2024.
- Project to raise Nava Nakorn Electricity Generating Company Limited's capacity by 30 megawatts of power and about 5.3 tons of steam per hour: GPSC holds 30% of the company's shares. The commercial operations are expected to begin in December 2024.

For additional details, visit the company's website: [gpscgroup.com/en/investor-relations/downloads/one-reports](https://gpscgroup.com/en/investor-relations/downloads/one-reports)

### **3.2 District Cooling System and Power Plant Company Limited (DCAP)**

DCAP is a joint venture of PTT, the Electricity Generating Authority of Thailand (EGAT), and the Metropolitan Electricity Authority (MEA) which hold 35.00%, 35.00%, and 30.00% of shares respectively. The company was established on 2 April 2003 with the registered capital of THB 1,670 million. The objective of the company is to engage in the production and sale of power and chilled water for the Airports of Thailand Plc. (AOT) and other customers in Suvarnabhumi Airport. Details are as follows:

The District Cooling System and Power Plant project for Suvarnabhumi Airport was designed to supplement value to natural gas by using natural gas to generate electricity. The surplus heat generating steam which using for generate additional electricity; the surplus steam then produces chilled water for air-conditioning systems. This scheme represents highly cost-effective energy consumption and lowering air pollution.

DCAP's utilities units are as follows:

- A combined-cycle cogeneration power plant with a total capacity of about 95 MW
- A Steam Absorption Chiller (SAC) unit with a total chilled water capacity of about 13,100 Refrigerant ton (RT)
- An electric chiller with a total chilled water capacity of about 11,600 RTs
- An electric chiller for the Satellite Airport Terminal-1 (SAT-1) with a capacity of about 12,500 RT

Installation of 8 inch, 2 km long gas transmission pipeline branching off PTT's transmission pipeline system at King Kaeo – Lat Krabang Road into the airport. The pipeline is capable of transporting natural gas up to 25 MMSCFD.

#### **1) Procurement**

DCAP fuels its power and chilled water production with natural gas supplied by PTT under a gas supply agreement containing a minimum of about 7 MMSCFD for 25 years.

## 2) Distribution

DCAP's product distribution consists of:

- Electricity sold to AOT Plc. (AOT) under a power purchase agreement (PPA) of 50 MW. The surplus electricity sold to the EGAT under a non-firm PPA of up to 65 MW.
- Chilled water for air-conditioning and steam systems of the following customers:
  - AOT's passenger terminals, Airport Operation Building (AOB), Airport Information Management System (AIMS) building under a purchase agreement for 21,500 RT
  - Satellite Terminal 1 (SAT-1) under a purchase agreement for 9,000 RT
  - Catering building of Thai Airways International Plc. under a purchase agreement for 6,600 RT of chilled water and 8.6 tons/hour of steam
  - Suvarnabhumi Airport Hotel Company Limited under a purchase agreement for 1,500 RT of chilled water and about 2 tons/hour of steam
  - Electric train station at the Suvarnabhumi Airport under a purchase agreement for 700 RT

## 3) Management

As of 31 December 2023, DCAP's Board of Directors consisted of 7 members. 2 of whom were PTT executives

## 4) Finance

DCAP's operating results between 2021 and 2023 are as follows:

Unit: THB million

Financial statements	2021	2022	2023*
Total revenue	3,112	4,410	4,077
Total expenses	2,653	4,231	3,587
Net profit (loss)	368	128	419

Unit: THB million

Financial statements	2021	2022	2023*
Total assets	3,903	3,296	3,452
Total liabilities	1,275	1,267	1,203
Shareholders' equity	2,628	2,029	2,249

\* 2023 financial statements are unaudited.

### 3.3 Energy Complex Company Limited (EnCo)

EnCo was established on 11 August 2004 as a joint venture of PTT and PTTEP, which hold 50% of its shares each. With the registered capital of THB 1,800 million, EnCo has the founding objective to accommodate the growing demand for office space among PTT, PTTEP, and other companies in PTT Group as well as the Ministry of Energy's intention to bring its agencies under one same roof. Back then, several units of the ministry were located in different locations. EnCo has taken up the mission of constructing and managing Energy Complex Project with the aim to install it as the country's energy center and a model of green

mixed-used complex. Construction of the Energy Complex was completed in late 2009. Over time, its business has expanded. Currently, EnCo has operated three core businesses namely Property Management Business, Facility Management Business and Property Development Business.

## **1) Services**

1.1) Property Management Business (PM Business): EnCo has operated PM Business at properties it has owned. EnCo has developed Energy Complex on a land plot on Vibhavadi-Rangsit Road with the aim to lease space to PTT Group's subsidiaries and the Ministry of Energy. This property has been designed to respond to tenants' demand as well as service users' lifestyles, paving the way for them to experience an office building that can be much more than the provider of office space. Energy Complex is positioned as the facilities with sustainable world-class service standards, enabled by modern technology and its concept of "SMART Lifestyle Building". Also, PM Business developed a property project in the Eastern Economic Corridor of Innovation (EECi) in Wang Chan district, Rayong province. Known as THE EnCony Residential Hotel project, it features apartment buildings, serviced-apartment buildings, and hotel buildings in response to the needs of people who work in EECi based on "Well-being Asset". In addition, PM Business began developing EnCo Terminal (EnTer) as the building for growing tech firms and innovations both inside and outside PTT Group. Determined to integrate technology that fulfills tenants' / service users' lives, EnTer targets technology, innovation, and emerging sectors including customers from the Don Mueang Airport. EnTer is developed based on "Innovation Building" concept.

1.2) Facility Management Business (FM Business): EnCo has provided facility management services to customers both inside and outside PTT Group. Also available are total service solutions and various new optional services, which are designed to complement facilities and create new business opportunities. With "customer satisfaction as a priority and a focus on fulfilling their needs", FM Business has applied efficient and modern technology – some of which developed through its collaborations with strong partners – to foster loyalty to its services / products; to use its experience for upgrading and expanding related businesses; and differentiating its services / products.

1.3) Property Development Business (PD Business): In addition to developing its own properties, EnCo has provided construction management services as well as related services to other companies. PD Business has embraced customer-centric approach in the delivery of services, which cover the whole process from design to construction. It has already expanded its services beyond PTT Group. Not only that PD Business has delivered its products / services on time, but it has also fulfilled all requirements set by customers. Its philosophy is to deliver its services with "excellent and sustainable technology".

## **2) Management**

As of 31 December 2023, EnCo's Board of Directors comprised 8 members. 4 of whom were PTT's executives. PTT also appointed its executives as the Managing Director.

### 3) Finance

EnCo's operating results between 2021 and 2023 are as follows:

Unit: THB million

Financial statements	2021	2022	2023
Revenue from sales and services	1,999	2,289	2,426
Total expenses (including taxes)	1,373	1,670	1,855
Net profit (loss)	626	619	571

Unit: THB million

Financial statements	2021	2022	2023
Total assets	7,388	8,723	8,346
Total liabilities	3,174	4,033	3,232
Shareholders' equity	4,215	4,689	5,114

#### 3.4 PTT Energy Solutions Company Limited (PTTES)

PTT and subsidiaries established PTT Energy Solutions Company Limited (PTTES) on 10 June 2011, with a registered capital of THB 150 million to provide consultancy services on technical engineering and operation to PTT Group and external customers. PTTES is 40.00% held by PTT and the remaining 60.00% held by TOP, GC, and IRPC equally.

However, PTTES had operated at a loss for years due to the energy industry's trend towards low-carbon society by curbing greenhouse-gas emissions and pursuing of clean energy which were key reasons why PTTES failed to achieve its operational targets. On 29 August 2022, the PTTES' extraordinary annual general meeting of shareholders No. 1/2565 approved the dissolution of PTTES. The termination of its business was registered with the Department of Business Development on 29 December 2022. Currently, PTTES is in the process of liquidation, which is expected to be completed in 2025.

##### 1) Services

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##### 2) Management

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##### 3) Finance

The operating results of PTTES between 2021 and 2023 are as follows:

Unit: THB million

Financial statements	2021	2022	2023*
Revenue from sales and services	350	308	0
Total revenue	355	312	0
Total expenses (including taxes)	395	371	4
Net profit (loss)	(40)	(59)	(4)

Unit: THB million

Financial statements	2021	2022	2023*
Total assets	293	117	101
Total liabilities	109	11	1
Shareholders' equity	184	106	102

\* 2023 financial statements are unaudited.

### 3.5 PTT Digital Solutions Company Limited (PTT DIGITAL)

PTT and subsidiaries established PTT DIGITAL on 7 July 2006 with the registered capital of THB 150 million. The objectives of the company are to foster collaborations and enhance value added to PTT Group's operations through integrated management and investments in information and communications technologies. PTT Digital's shareholders consist of 4 entities which are PTT, PTTEP, TOP that held equally at 20.00% and GC that held the remaining 40.00%.

#### 1) Services

PTT DIGITAL provides integrated digital services to customers both inside and outside PTT Group. Its services cover consultancy, design, development, implementation, maintenance as well as after-sales support in response to business needs. Having capabilities and technological expertise in various fields, PTT Digital presents a team of experienced specialists and attentive services to promote professionalism, systematic services, and technological integration while maintaining cybersecurity. Moreover, the company has won international certifications such as ISO/IEC 27001:2005 (regarding data center) and Level 3 of CMMI (Capability Maturity Model Integration), a standard involving work process development.

#### 2) Management

As of 31 December 2023, PTT DIGITAL's Board of Directors comprised 7 members. 3 of whom were PTT's executives. PTT also appointed its executive as managing members and Managing Director.

#### 3) Finance

The operating results of PTT DIGITAL between 2021 and 2023 are as follows:

Unit: THB million

Financial statements	2021	2022	2023
Revenue from sales and services	5,408	6,613	8,049
Total revenue	5,415	6,627	8,067
Total expenses (taxes included)	4,907	6,068	7,456
Net profit (loss)	508	559	611

Unit: THB million

Financial statements	2021	2022	2023
Total assets	5,646	6,656	7,629
Total liabilities	2,703	3,281	3,800
Shareholders' equity	2,943	3,375	3,829

#### 4. Other business groups

##### 4.1 PTT Treasury Center Company Limited (PTT TCC)

PTT established PTT TCC on 11 May 2018, with a registered capital of THB 20 million. The company, wholly owned by PTT, serves as the treasury center for PTT and its subsidiaries. PTT TCC was authorized to operate as a treasury center on 31 July 2018.

##### 1) Services

The company operates as the treasury center for PTT and its subsidiaries, with the duty of procuring money in foreign currencies and Thai baht, both in long and short terms, for lending to PTT and/or its subsidiaries. The company also has the duty of debt management, liquidity management and financial management in the best interests of PTT and its subsidiaries.

##### 2) Management

PTT TCC Board of Directors has 4 members, as of 31 December 2023. Of them, 3 were PTT executives and 1 was a representative from the Ministry of Finance. PTT has assigned its executives to serve in PTT TCC's management, including in the post of President.

##### 3) Finance

The operating results of PTT TCC between 2021 and 2023 are as follows:

Unit: THB million

Financial statements	2021	2022	2023
Interest income	3,684	4,913	6,444
Total revenue	3,708	4,938	6,474
Total expenses	3,507	4,618	6,159
Net profit (loss)	201	320	315

Unit: THB million

Financial statements	2021	2022	2023
Total assets	185,785	136,746	134,649
Total liabilities	185,377	136,009	133,609
Shareholders' equity	408	737	1,040

##### 4.2 PTT Global Management Company Limited (PTTGM)

PTTGM acts as a holding company to support investment in PTT's businesses both domestically and internationally. PTT has held 100% in registered and paid-up shares of PTTGM. As of 31 December 2023, PTTGM had the registered capital of THB 122,719 million and the paid-up capital of THB 114,803 million.



### 1) Business Operations

Previously, PTTGM had investments in 2 main businesses namely coal business and new business based on the New S-Curve strategy. However, on 15 February 2023, PTT has withdrawn its investments in coal business to another company in Indonesia, ending all investments in the coal business of PTT. As a result, at present PTTGM acts as a holding company to investment in companies in which PTT wants to invest or operate new businesses following PTT's vision and strategic direction, such as EV value chain Business, Logistics and Infrastructure business, Life Science business (includes Pharmaceuticals, Medical Devices, and Nutrition), AI, Robotics and Digitalization, etc. Most of these businesses are in initial stages. Therefore, it has not yet generated much significant contribution to PTTGM's operating results.

### 2) Management

PTTGM's Board of Directors, as of 31 December 2023, had 3 members. 2 of them were PTT executives and 1 was a representative of the Ministry of Finance.

### 3) Finance

The overall operating results of PTTGM between 2021 and 2023 are as follows:

Unit : THB million

Financial statements	2021	2022	2023
Revenue from sales and services	16,984	49,229	29,294
Total revenues	17,798	51,637	35,078
Total expenses (including taxes)	14,285	40,918	29,292
Net profit (loss)	3,513	10,719	5,786

Unit : THB million

Financial statements	2021	2022	2023
Total assets	62,227	171,530	163,558
Total liabilities	27,504	58,113	46,910
Shareholders' equity	34,723	113,417	116,648

