



# POWERING LIFE WITH FUTURE ENERGY AND BEYOND

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# POWERING LIFE WITH FUTURE ENERGY AND BEYOND

## VISION

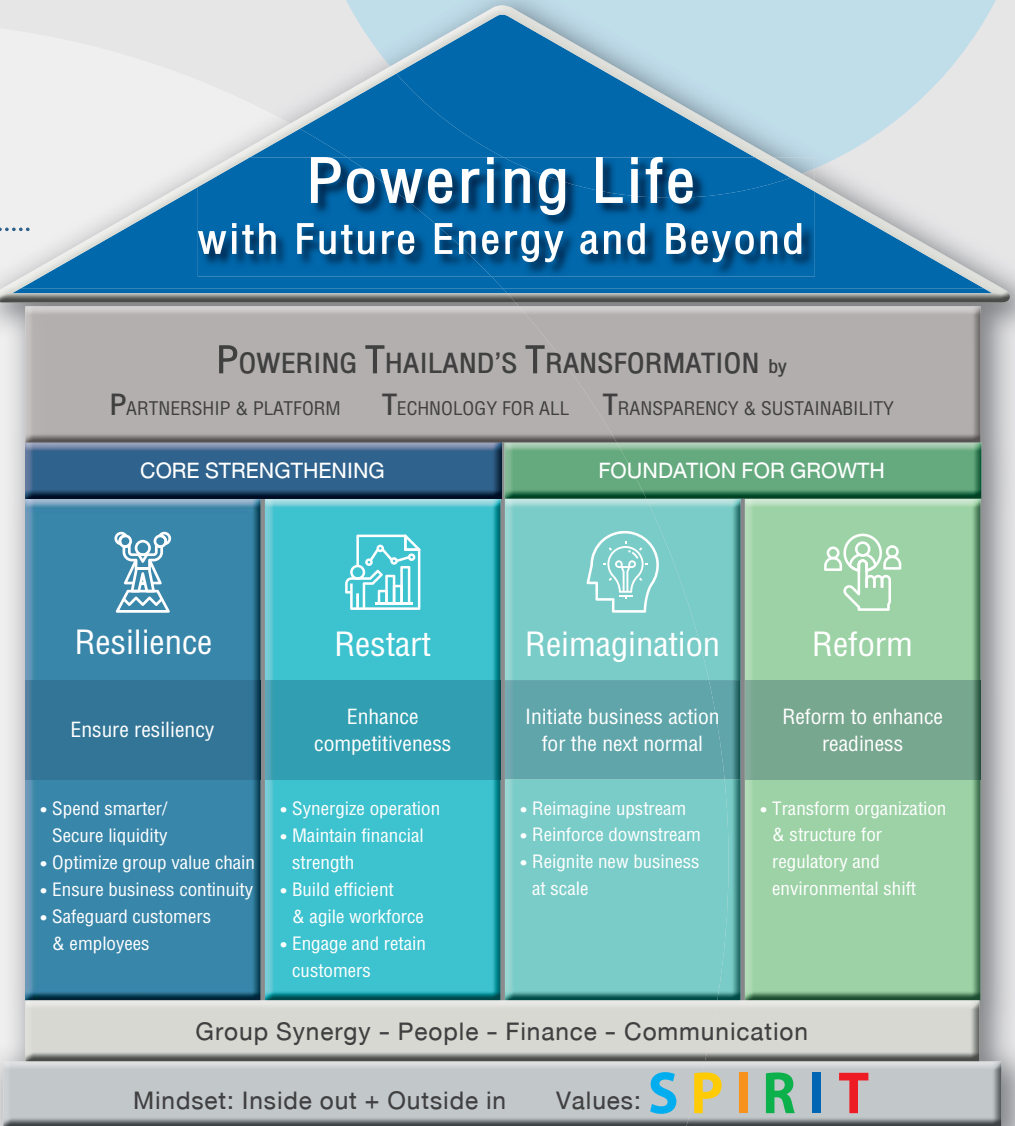
### MISSION

To conduct integrated energy and petrochemical business as the nation's energy company whose mission to equally respond to all stakeholders through the following aspects

## STRATEGIC FRAMEWORK

Aspiration

Strategic  
Direction



## PTT VALUES

**S P I R I T**

Synergy    Performance Excellence    Innovation    Responsibility for Society    Integrity & Ethics    Trust & Respect



## PTT Information



### Name

PTT Public Company Limited

### Abbreviation

PTT

### Registered Number

0107544000108

### Type of Business

The Company's operated businesses consist of the natural gas, gas transmission, international trading, technology and engineering businesses; the rest are invested through subsidiaries joint arrangements and associates, and PTT Group, namely exploration and production, liquefied natural gas (LNG), petrochemical and refining, oil and retail, power and utility, coal and service businesses.

### Registered Capital

THB 28,562,996,250 comprising 28,562,996,250 ordinary shares whose value is THB 1 per share (as of December 31, 2020)

### Issued and Fully Paid-up

THB 28,562,996,250 comprising 28,562,996,250 ordinary shares whose value is THB 1 per share (as of December 31, 2020)

### Head Office

555 Vibhavadi Rangsit Road, Chatuchak,  
Bangkok 10900, Thailand  
Telephone: 66 (0) 2537-2000  
Fax: 66 (0) 2537-3498-9  
Website: [www.pttplc.com](http://www.pttplc.com)

### Corporate Communications

Telephone: 66 (0) 2537-2150-1  
Fax: 66 (0) 2537-2171  
E-mail: [pttcorporatecommu@pttplc.com](mailto:pttcorporatecommu@pttplc.com)

### Investor Relations

Telephone: 66 (0) 2537-3518-9  
Fax: 66 (0) 2537-3948  
E-mail: [ptt-ir@pttplc.com](mailto:ptt-ir@pttplc.com)

### Office of the President

Telephone: 66 (0) 2537-3885  
Fax: 66 (0) 2537-3883, 66 (0) 2537-3887  
E-mail: [corporatesecretary@pttplc.com](mailto:corporatesecretary@pttplc.com)

### References

- **Securities Registrar:**  
Thailand Securities Depository Company Limited  
93, 14<sup>th</sup> Floor, The Stock Exchange of Thailand Building,  
Ratchadaphisek Road, Dindaeng,  
Bangkok 10400, Thailand  
Telephone: 66 (0) 2009-9999
- **Auditor:**  
EY Company Limited  
193/136-137, 33<sup>rd</sup> Floor, Lake Rajada Office Complex,  
Ratchadaphisek Road, Klongtoey,  
Bangkok 10110, Thailand  
Telephone: 66 (0) 2264-9090  
Fax: 66 (0) 2264-0789
- **THB Debentures Registrar:**  
Siam Commercial Bank Public Company Limited  
Registration 1, Markets Operations Division,  
15<sup>th</sup> Floor, North Wing, G Tower Grand Rama IX,  
9 Rama IX Road, Huai Khwang,  
Bangkok 10310, Thailand  
Telephone: 66 (0) 2128-2324-9  
Fax: 66 (0) 2128-4625  
Bank of Ayudhya Public Company Limited  
Security Services Operations Department,  
AA Floor, 1222 Rama III Road, Bang Phongphang,  
Yan Nawa, Bangkok 10120, Thailand  
Telephone: 66 (0) 2296-2000 ext. 50604  
Fax: 66 (0) 2683-1302
- **Legal Consultant for Debenture Issuance and Sales Offering**  
Weerawong, Chinnavat & Partners Limited  
540 Mercury Tower, 22<sup>nd</sup> Floor, Ploenchit Road,  
Lumpini, Pathumwan, Bangkok 10330, Thailand  
Telephone: 66 (0) 2264-8000  
Fax: 66 (0) 2657-2222  
Allen & Overy (Thailand) Company Limited  
23<sup>rd</sup> Floor, Sindhorn Tower III, 130-132 Wireless Road,  
Lumpini, Pathumwan, Bangkok 10330, Thailand  
Telephone: 66 (0) 2263-7600  
Fax: 66 (0) 2263-7699

## Financial Highlights

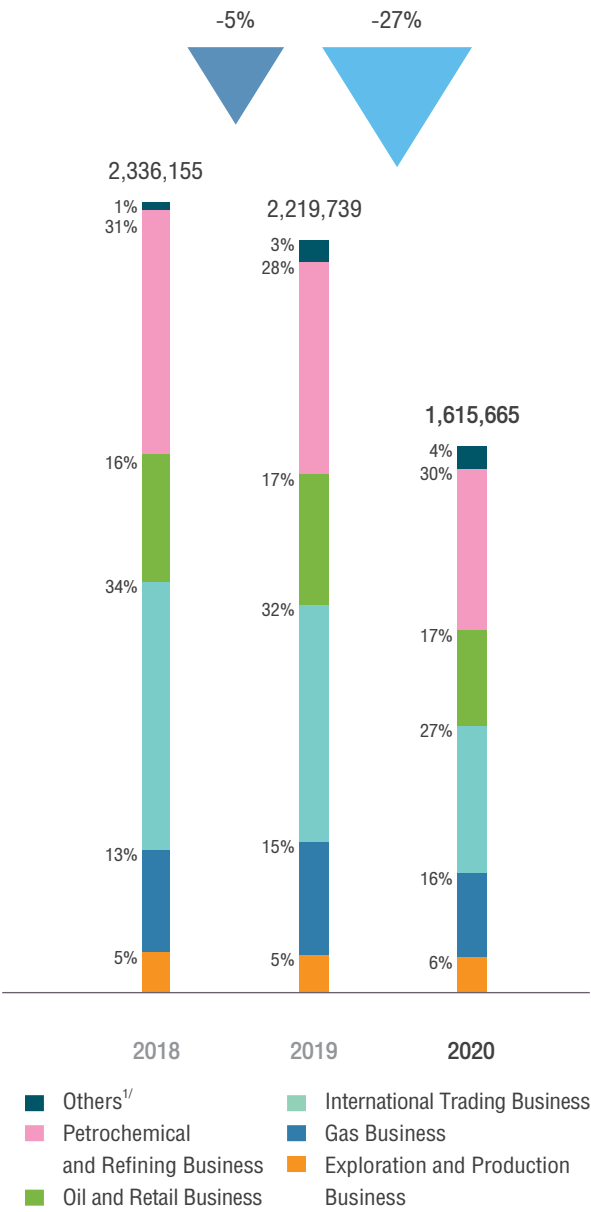


		2018 (Restated)	2019 (Restated)	2020
<b>Statement of Income</b> (THB million)				
Sales and Service Revenue		2,336,155	2,219,739	1,615,665
Earnings before Interest, Taxes, Depreciation and Amortization (EBITDA)		351,396	288,972	225,672
Net Income (Loss)		119,647	92,951	37,766
<b>Statement of Financial Position</b> (THB million)				
Total Assets		2,353,682	2,486,965	2,544,183
Total Liabilities		1,036,117	1,185,925	1,258,338
Non-controlling Interests		443,240	422,436	403,805
Total Equity Attributable to Owners of the company		874,325	878,604	882,040
<b>Shares or Information about Common Shares</b>				
Issued and Paid up Share Capital	(Million Shares)	28,563	28,563	28,563
Book Value per Share	(THB)	30.61	30.76	30.88
Earnings per Share	(THB)	4.15	3.20	1.32
Dividend per Share	(THB)	2.00	2.00	1.00
Dividend Payout Ratio	(%)	48.2	62.5	75.8
Share Price at the End of the Period	(THB)	46.00	44.00	42.50
Average Share Price for Full Year	(THB)	51.31	46.50	37.50

Financial Highlights

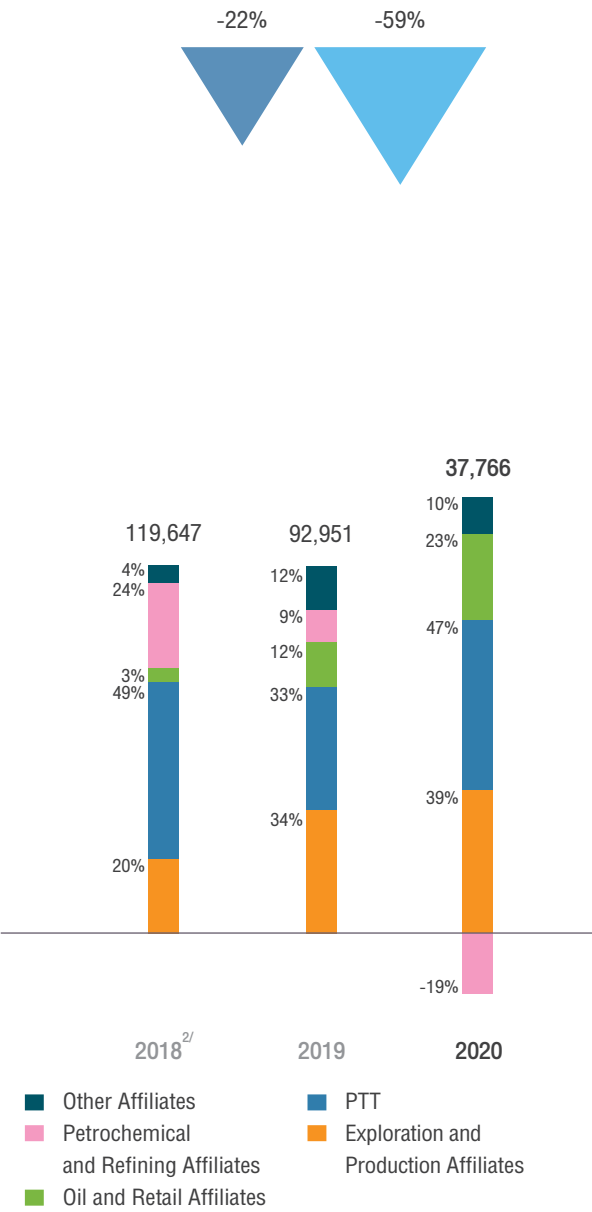
Sales and Service Revenue  
Unit: THB million

THB 1,615,665 million



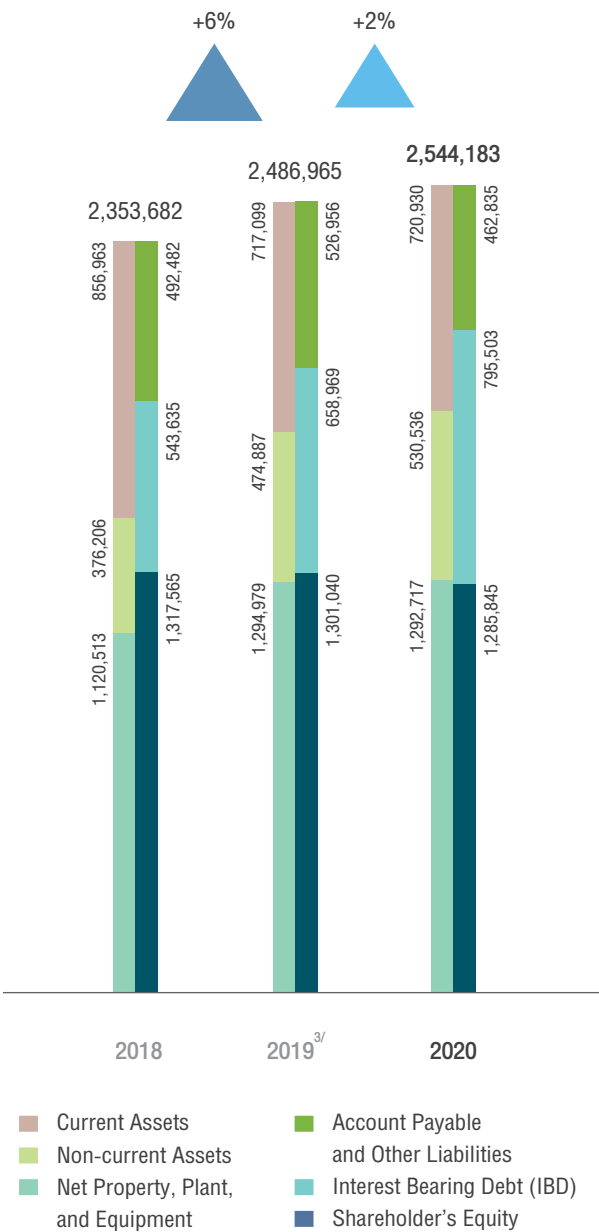
Net Income  
Unit: THB million

THB 37,766 million










Statement of Financial Position  
Unit: THB million

THB 2,544,183 million



Financial Ratios

Net Profit to Total Sales Revenue (%)		2.47
Return on Equity (%)		4.29
Return on Total Assets (%)		1.59
Debt to Equity (Times)		0.62
Net Debt <sup>4/</sup> to Equity (Times)		0.29
Net Debt <sup>4/</sup> to EBITDA (Times)		1.68
Interest Coverage (Times)		9.74

Remarks:  
1/ Others including business such as power business and coal business  
2/ PTT transferred oil business to PTT Oil and Retail Business Company Limited (OR) since July 1, 2018  
3/ Restated according to the adoption of Thailand Financial Reporting Standards related to financial instruments and leases (No. 16)  
4/ Net Debt = Interest Bearing Debt - Cash and Cash Equivalents



# Milestone Achievement

## Summary of operation achievement according to PTT 4R strategy in 2020

- **Pilot test of the reloading system of the Regional LNG Hub in Map Ta Phut, Rayong province** on January 2020, afterwards, the Energy Regulatory Commission (ERC) endorsed PTT's operation plan under the ERC Sandbox project on June 2020. In addition, Nong Fab LNG Receiving Terminal has been constructed by PTTLNG at Baan Nong Fab, Rayong province in order to prepare for PTT's commercial service provision as a trading center for Regional LNG Hub, and support LNG imports of 19 million tons in total by 2022.

## RESILIENCE & RESTART

The key operations are summarized as follows:



- **Invested in the construction of a LNG terminal** at Map Ta Phut Phase III (MTP Phase III) and a **container terminal** at Laem Chabang Phase III (LCB Phase III) to increase the transportation capacity of various goods through the jetty and can be connected to domestic rail transport.

- **PTT supplied natural gas and LNG to meet the country's demand** by signing a long-term gas sales agreement (Global DCQ) with EGAT, covering gas delivery to five of EGAT's power plants, namely Bangpakong, North Bangkok, South Bangkok, Wang Noi, and Chana power plants under a period of 10 years (July 1, 2020 - July 31, 2030). The agreement included chartering of seven vessels to carry spot LNG between March and July 2020.



- **PTT Group representatives signed an MOU under the Project ONE Agreement** that focused on strengthening group competitiveness and sustainable growth through the asset-backed trading strategy of pooling each company's caliber and leveraging diverse assets beginning from Crude Supply Chain Transformation of supply and crude oil trading, including derivative trading and international chartering for crude oil within PTT Group.





# REIMAGINATION & REFORM

The key operations are summarized as follows:



- **Launched the Intelligent Operation Center (IOC)** at Wang Chan Valley, Wang Chan district, Rayong province, in preparation for infrastructure and public utilities readiness to be able to accommodate various agencies that will be visiting the area according to the guideline for promoting Eastern Economic Corridor of Innovation: EECi.
- **Collaborated with business partners to operate the charging station business** under the concept of Partnership and Platform that focuses on building partnerships and developing PTT's business model to be a platform rather than a producer or a distributor of products. By launching a commercial charging station service in Prime Locations, at the present, there are two ready-to-service charging stations installed, at BITEC, and True Digital Park, Sukhumvit 101, Bangkok, to support the growth of the domestic electric vehicle market.



- **PTT signed an agreement to develop a cancer medicine factory with the Government Pharmaceutical Organization (GPO)**, which's expected to be in operation in 2027. This factory will leverage engineering and project management skills including collaboration with GPO on applying knowledge and experience in product development and marketing so that Thailand's factory may command efficient management, reduce production costs, and enable Thai people to quality drugs access according to international-standard at affordable prices. **Besides, Innobic (Asia) Co., Ltd. was established to operate 4 Life Science businesses on pharmaceutical business, nutrition business, medical equipment business, and medical technology business.**



- **Joint ventured with Global Renewable Power Company Limited (GRP) to expand overseas investment in renewable energy power plants** by focusing on producing electricity from solar and wind energy.
- **Cooperated with business partners to establish PTT RAISE Company Limited (PTT RAISE)** to develop and to promote the use of Robotics & AI technology in the industrial sector of the country, to be widespread and consistent with the New S-Curve industry.



# Awards and Recognition

PTT focuses on operating sustainable business in all sectors, striving to create balance in 3 dimensions.



## ENVIRONMENTAL

Environmental, meaning environmental management focusing on striking a balance between business growth and efficient consumption of resources.



## SOCIAL

Social, meaning social management underlined by the expertise, innovation and collaboration among PTT Group in creating prototype communities of local wisdom that will radiate nationwide in support of a sustainably better quality of life for the people and communities.



## GOVERNANCE

Governance, meaning good corporate governance management.

In 2020, PTT garnered 51 domestic and international awards, prestigious rankings, and certification from a total of 20 entities.



## ENVIRONMENTAL

### A plaque and a certificate presented at the 2020 “Roi Duang Jai: Ruam Jai Lod Loke Ron”

(The Annual Greenhouse Gas Reduction Award Ceremony). PTT garnered 11 awards from three key projects:

- 1. Low Carbon and Sustainable Business Index (LCSI)
- 2. Low Emission Support Scheme (LESS) of the Natural Gas Vehicle function
- 3. Carbon Footprint Label for seven products of Rayong GSP and two products of Khanom GSP.

- **Presented:** September 16, 2020
- **Presenter:** Thailand Greenhouse Gas Management Organization (Public Organization)



### Green Leadership Awards “Asia Responsible Enterprise Awards 2020”

The award cited PTT as an outstanding Asian entity whose policy takes into account community impacts and focuses on developing green innovations resulting from the application of expertise and skills in energy, engineering and innovation to community engagement and development specifically through an ongoing project to produce and distribute biogas derived from community pig farms since 2013.

- **Presented:** September 23, 2020
- **Presenter:** Enterprise Asia (Non-Governmental Organization)

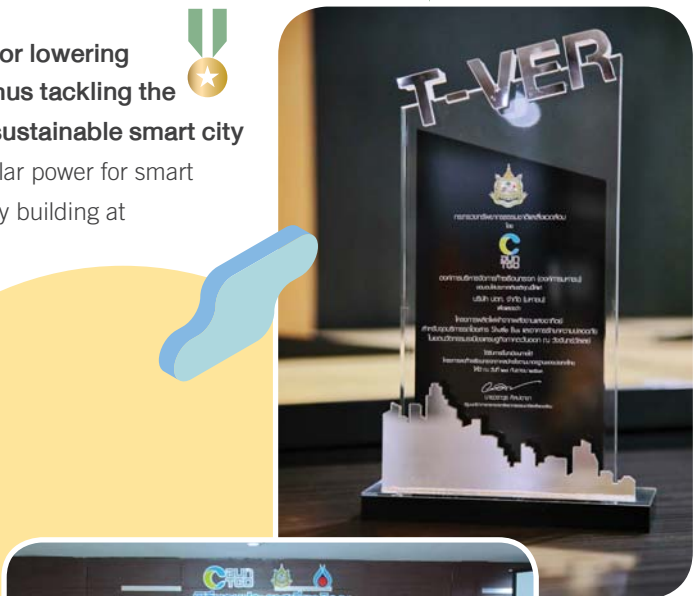


ENVIRONMENTAL

Wang Chan Valley garnered a T-VER certificate of honor for lowering greenhouse gas emissions, thus tackling the requirement for becoming a sustainable smart city

The winning project produces solar power for smart shuttle bus stops and the security building at Wang Chan Valley Smart City.

- **Presented:**  
October 21, 2020
- **Presenter:**  
Thailand Greenhouse Gas Management Organization (Public Organization)



Member of  
**Dow Jones Sustainability Indices**  
Powered by the S&P Global CSA



Member of Dow Jones Sustainability Indices (DJSI) for the ninth consecutive year in the World Index group and Emerging Market Index group, with a top score (Industry Leader) in the Oil & Gas Upstream and Integrated (OGX) group

This prestigious ranking indicated efficient organizational management on a par with leading companies of the same industry worldwide, which values society and the environment while fostering long-term confidence among investors and stakeholders.

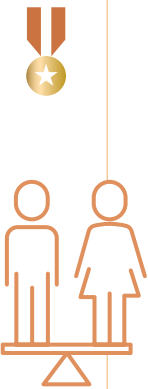
- **Announced:**  
November 13, 2020
- **Presenter:**  
Dow Jones Sustainability Indices (DJSI)



SOCIAL

“Promoting Equality and Eliminating Gender Discrimination” certificate

- **Presented:**  
March 2, 2020
- **Presenter:**  
Department of Women’s Affairs and Family Development, Ministry of Social Development and Human Security



“Wathanakhunathorn Award” for service honoring Thai culture

PTT was cited as an entity that provided consistent support to and promotion of religious and arts affairs as well as Thai culture in collaboration with the Ministry of Culture.

- **Presented:**  
October 3, 2020
- **Presenter:**  
Ministry of Culture



Rayong GSP won the Eco Factory<sup>SV</sup> and four CSR-DIW awards:

1. Eco Social Value Factory award (Gold Plus Award level)
  2. Honour People Award for eco-factory management
  3. Honour Team Awards
  4. CSR-DIW Continuous Award.
- **Presented:**  
November 17, 2020
  - **Presenter:**  
Department of Industrial Works, Ministry of Industry





**The NACC Integrity Awards  
(second consecutive year  
and ninth award)**

Awarded to organizations that was entity committed to do business with a good governance policy and managed with integrity, transparency, and auditability while committed to stewardship of society, communities and the environment.

- **Presented:**  
March 19, 2020
- **Presenter:**  
Office of the National  
Anti-Corruption Commission (NACC)



**PTT was honored with  
eight State Enterprise Awards  
(SOE Awards), in 2020**

1. Outstanding State Enterprise Board of Directors Award.
2. Outstanding Social and Environmental Responsibility Award.
3. Outstanding Creativity and innovation Award in the category of Creativity.
4. Outstanding Development Cooperation in the category of Improving the Organizational Management Awards. (Honorable Mention)

- **Presented:**  
November 16, 2020
- **Presenter:**  
State Enterprise Policy Office



**Thailand Top Company Awards 2020**

This energy industry award was launched by the Business+ magazine in conjunction with the University of the Thai Chamber of Commerce in recognition of entities at the pinnacle of respective industrial groups that command good governance, are socially responsible, and refine their strategies to keep up with the digital age for enhancing competitiveness of the organization.

- **Presented:**  
March 10, 2020
- **Presenter:**  
Business+ Magazine in Conjunction with the University of the Thai Chamber of Commerce



**Runner-up Single Fund Award  
for PTT's Provident Fund among  
the State Enterprises Fund size  
between THB 15,000 - 20,000 million.**

The award was announced at the 8<sup>th</sup> contest among outstanding provident fund operators for 2019.

- **Presented:**  
February 21, 2020
- **Presenter:**  
Ministry of Finance



**PTT won five prizes at The 10<sup>th</sup>  
Asian Excellence Awards, organized  
by Corporate Governance Asia**

**Individuals**

1. Asia's Best CEO (Investor Relations):  
Former President & CEO (as of May 2020)  
Chansin Treenuchagron President & CEO,  
PTT Public Company Limited
2. Asia's Best CFO (Investor Relations):  
Pannalin Mahawongtikul. CFO,  
PTT Public Company Limited

**Organization**

1. Asia's Best CSR
2. Best Environmental Responsibility
3. Best Investor Relations Company (Thailand).

- **Announced:**  
October 20, 2020 (Digital Ceremony)
- **Presenter:**  
The Corporate Governance Asia magazine honors leaders and entities that establish sustainable business growth with proper regard and responsibility for communities, society, and the environment and with commitment to upgrading corporate governance, thus garnering the confidence of investors and all stakeholders.



**PTT won four prizes at the 1<sup>st</sup>  
Thailand's Reputation Awards:**

1. Best Innovation Reputation
2. Best Human Resources Development Reputation
3. Best Corporate Governance Reputation
4. Best Corporate Leadership Reputation.

- **Presented:**  
October 28, 2020
- **Presenter:**  
Faculty of Communication Arts,  
Chulalongkorn University





PTT received Excellent CG Scoring or scoring of 5 for the 12<sup>th</sup> consecutive year and is one of the Top Quartile of listed companies with market values of not less than THB 10,000 million under the Corporate Governance Report of Thai List Companies: CGR (2020)

- **Presented:**  
November 19, 2020
- **Presenter:**  
Thai Institute of Directors (Thai IOD) and The Stock Exchange of Thailand (SET)



PTT received 4 prizes from Thailand Corporate Excellence Awards and SMEs Excellence Awards 2020:

1. Leadership Excellence (bestowed by HRH Princess Maha Chakri Sirindhorn)
2. Sustainable Development Excellence
3. Marketing Excellence
4. Human Resource Management Excellence.

- **Presented:**  
November 26, 2020
- **Presenter:**  
Thailand Management Association (TMA) in conjunction with Sasin Graduate Institute of Business Management of Chulalongkorn University

PTT won the best popular stock Awards and Popular Stock Award 2019 (Resources Category).

These awards were based on a poll among investors.

- **Presented:**  
December 1, 2020
- **Presenter:**  
The Khao Hoon Thurakit newspaper in conjunction with Asset Pro Management Co., Ltd., and the University of the Thai Chamber of Commerce



Awards for the issuance and offering of Baht bonds and US dollar bonds:

1. Best Retail Bond
  2. Best Corporate Bond.
- **Presenter:**  
The Asset Country Awards



PTT received SET Awards 2020:

1. Best Investor Relations Awards among listed companies whose market capitalization values exceed THB 100,000 million (second consecutive year)
2. PTT is honored to be listed in Thailand Sustainability Investment (THSI) for the fourth consecutive year.

- **Presented:**  
December 14, 2020
- **Presenter:**  
The Stock Exchange of Thailand (SET)



Best ESG Green Financing in Southeast Asia: Thailand Award for the issuance and offering of Baht bonds and US dollar bonds

- **Announced:**  
December 9, 2020
- **Presenter:**  
Alpha Southeast Asia



PTT received three prizes from the 2019 ASEAN CG Scorecard Awards:

1. ASEAN Top 20 Publicly Listed Companies
2. ASEAN Asset Class Publicly Listed Companies
3. Top 3 Publicly Listed Companies (Thailand).

- **Ranked:**  
December 9, 2020
- **Presenter:**  
ASEAN Capital Markets Forum (ACMF) and the Asian Development Bank (ADB)



## Message from the Board of Directors

The year 2020 saw the entire world reeling from the effects of the COVID-19 pandemic, leading to global economic recession and transition of society, businesses, and consumers' behavior to the New Normal while shrinking the global economy from 2.9% growth last year to minus 3.5% this year – the biggest recession ever since 1961 when the World Bank began recording economic data. The Thai economic growth meanwhile receded to minus 6.1% versus 2.4% growth last year. As for the average Dubai oil price, it skidded from USD 63.5 per barrel last year to USD 42.2 per barrel this year, as did the price spreads of petroleum products and petrochemicals.

Faced with such dire challenges, PTT has remained committed to being a steadfast engine of economic growth to upgrade national competitiveness, improve society as well as the quality of life, nurture innovation and apply technology in all sectors, and drive people's lifestyles, society, communities, and the surroundings to get through all this change. This is known at PTT as Powering Thailand's Transformation. To elaborate, we run businesses with Partnership and Platform, deployment of technology arising from integrated knowhow, competency, innovation, and digital – Technology for All – in all aspects of work; and Transparency and Sustainability, with due regard for ESG balance (Environmental, Social and Governance). Our 4Rs (Resilience, Restart, Reimagination and Reform) strategy strengthens us from inside out while we pursue growth, particularly during these challenging times, when PTT must comply with strict measures to ably preserve its businesses while driving the corporation and our country toward a sustainable future.



### Strengthen from the Inside, Create New Business Models, Evolve Management Innovation, and Drive the Thai Economy toward Sustainable Growth

Armed with the “Excel in Performance” concept, PTT implements its strategies for strengthening from the inside. We call this Resilience (driving the corporation through the short-term crisis posed by COVID-19). Our Restart strategy restores businesses, employees, customers, and suppliers back to business as usual in the shortest possible time while





preserving competitiveness. To this end, we founded the PTT Group Vital Center to lend flexibility to business and employee safety, assess corporate health, slash unnecessary expenses, prioritize investment projects, and maintain liquidity. PTT has successfully managed PTT Group's overall situation. To elaborate, we have seen PTT Group employees' work uninterrupted worldwide, PTT Group preserve cash and liquidity by securing short-term loans worth THB 87 billion and long-term loans worth THB 166.6 billion while raising efficiency and trimming expenses by some THB 39 billion and improved PTT Group's supply chain by adding THB 2.4 billion in value, easing impacts on customers by extending credit terms for account receivables by up to THB 1.66 billion, and lowering fines for late payment to enable businesses to proceed.

To lay down a long-term growth platform, PTT exercised its four-point Reimagination strategy. First, Reimagine Upstream: Wholesale integration of the LNG business model in pursuit of world-class leadership; this year saw a PTT pilot experiment in LNG loading and offloading at the Map Ta Phut port and terminal to prepare ourselves to become a Regional LNG Hub and PTT secure spot LNG at an all-time low price of USD 1.78 per million Btu – which saved customers some THB 2.6 billion. Second, Reinforce Downstream: Forge PTT Group synergy in creating maximum long-term value addition. Cases in point are Project ONE, where we procured and traded crude oil and derivatives and engaged in international chartering together, and then the Hydrocarbon Value Chain Collaboration Tower (HVCT) Project, where we leveraged digital technology in compiling and identifying more niche opportunities for PTT Group's profitability in value chain management. Third, Reignite New Business at Scale: Accelerate business development and growth (New S-Curve) to offset the growth ratio of the hydrocarbon business group. Several instances are illustrated here. First, investment joint venturing in Global Renewable Power Co., Ltd. (GRP), to grow overseas investment in renewable-energy power plants. Next, founding of Swap

and Go Co., Ltd., to invest in the EV battery business and commercial unveiling of EV charging stations. Next, founding of Innobic (Asia) Co., Ltd., to invest in life science businesses, namely the pharmaceutical business (where we co-developed a cancer drug plant with the Government Pharmaceutical Organization), nutrition business, and medical device business – the team in cooperation with the Department of Medical Services invented gauze for commercial sale, made from biocellulose consisting mainly of micro-organism-based pure cellulose. Finally, the Reform strategy: Initiate restructuring or a new business model that aligns with future directions to stay poised for any situations by applying digital technology to various processes for high efficiency and competitiveness in current and novel businesses.

### Reshape Business to Drive Environmental Preservation

Armed with the “Conserve the World” resolution, PTT values efficient natural resource consumption while looking after environmental elements affected by our business and focusing investment on clean energy businesses and new non-energy businesses. To this end, we have defined a 10-year (2021 - 2030) investment direction where our investment budget in renewable energy and energy technology accounts for 12% of the entire capital budget. Our goal is to lower greenhouse gas emissions by over 27% in 10 years by promoting process efficiency as well as energy conservation projects; pushing through renewable energy consumption in processes; and developing financial tools in support of renewable-energy business investment or those businesses that lower greenhouse gas emissions. We remain committed to running projects on reforestation and forest stewardship to relentlessly sequester greenhouse gases; our projects have seen extension to cooperation with the Thailand Greenhouse Gas Management Organization (Public Organization) for more tangible results.

### Radiate Power and Knowledge to Society to Overcome the Crisis Together

Thanks to our “Embrace Society”, PTT Group extended support and assistance to those facing COVID-19 hardship in various aspects. For the medical and public health aspect, we jointly supplied medical devices and over 0.75 million liters of alcohol; jointly developed, produced, and procured apparatus to contain viruses and minimize physical contacts; and supported R&D on the COVID-19 test kit, providing help to the public, major hospitals, tambon health promotion (primary care) hospitals, and government agencies altogether numbering some 5,000 locations. For the energy aspect, we provided NGV discounts for buses to trim people's travel expenses. As for the stimulation of the economy and development of expertise and skills for society as a whole, we proceeded with the Restart Thailand Project by hiring some 25,000 new university graduates and the unemployed through projects designed to jump-start the domestic economy's value addition to the national workforce. And as for tourism activity support, we launched the Refresh & Energize for the New Normal program and promoted domestic tourism for our employees as well as organization of functional seminars by encouraging travel to various provinces to drum up tourism and support retail business operators directly bearing the brunt of COVID-19.

PTT fervently aspires to fuel the economic drives of communities, society, and the nation. To this end, we focus on education, market-forming, and shaping of new business models along with communities and society under the Smart Farming concept designed to evolve an infrastructural system for agricultural output processes into futuristic ones through leveraging the caliber and proficiency in energy and technological innovation derived from PTT Group businesses. Cases in point are solar power generation, biogas systems, water management innovation, deployment of drones for agricultural purposes, and smart schools made from premium plastic compounds. The focus is on developing farmers' caliber, analysis of area potential and suitable farming components for quality products, systematization of smart plantation, and market and purchasing source management to ensure farmers' steady income. In addition,

we have developed the EECi area – a key project of EEC – to accommodate future industries by launching the Intelligence Operation Center (IOC) to centralize comprehensive and efficient management of infrastructural and public utilities systems, promote cordial relations among operators in the area, and ease connection with other sources of learning. What is more, we have put in place an exhibit to transfer modern technology to the industrial sector and communities as well as instituting a high-speed digital infrastructure to ease collaboration with domestic and international experts in a bid to upgrade national development into Thailand 4.0.

Thanks to our commitment amid the crisis and business plight, this year we posted THB 1.6 trillion in total revenue and THB 37,766 billion in net profit, or 2% of the total revenue, of which PTT's businesses accounted for 47% and PTT Group, 53%. Further, strategic implementation under the sustainability scope and businesses marked by transparency and auditability together contributed to PTT's ninth consecutive year of DJSI (Dow Jones Sustainability Indices) membership, Transparency Organization Award from NACC (National Anti-Corruption Commission) for the second year in a row, and four Outstanding State Enterprise Awards (SOE Awards) in several categories, not to mention 51 other awards from 20 institutions.

On behalf of the PTT Board of Directors and management, we would like to express our heartfelt appreciation to all stakeholders for their excellent trust and support through the years. We are hopeful to remain Thailand's national company that is committed to powering life with future energy and beyond in line with PTT's vision.

# Economic, Petroleum and Petrochemical Review and Outlook



## 1. 2020 in Review

### 1.1 World Economy

For the first time in a decade, the world economy contracted in 2020. The COVID-19 pandemic ushered in the great lockdown across the globe in Q2/2020 (except for China, whose economy rebounded after its lockdown in Q1/2020). The world economy gradually picked up in the second half of the year after countries with declining infection rates began to reopen their economies, amid considerable global fiscal support of as high as 14% of world GDP and central banks' ultra-expansionary monetary policy. The International Monetary Fund (IMF) in January 2021 estimated the global economic contraction for 2020 at minus 3.5% versus 2019 growth of 2.8%. (Figure 1)

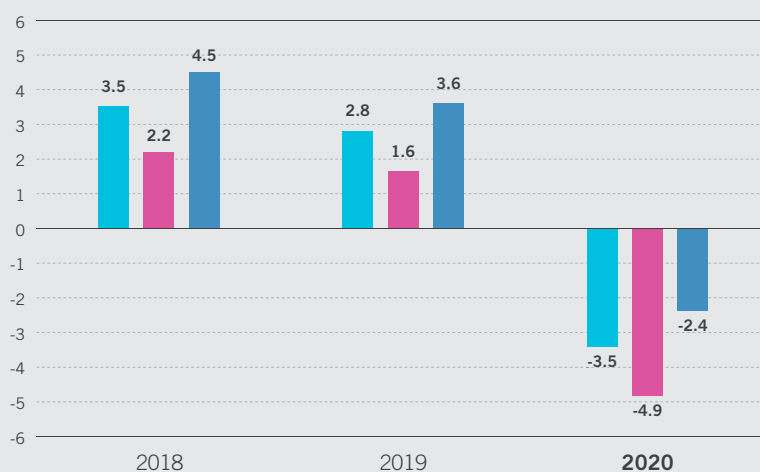
Figure 1

Global Economic Growth 2018 - 2020

Unit: % yoy

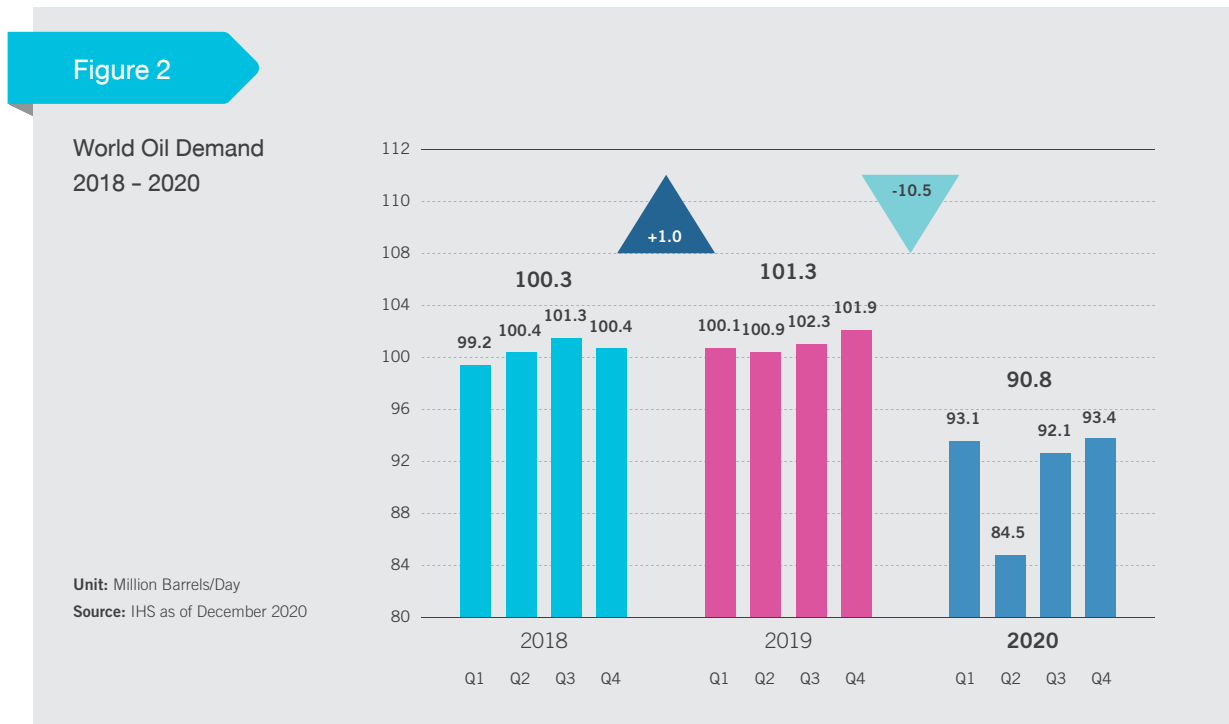
Source: IMF as of January 2021

■ World  
■ Advanced Economies  
■ Emerging Market and Developing Economies



## 1.2 Global Petroleum and Petrochemical Industries

World oil demand in 2020 plunged by 10.5 million barrels per day as a consequence of the spread of COVID-19 and ensuing measures to restrict mobility and economic activities. IHS Markit in December 2020 estimated world oil demand in 2020 at 90.8 million barrels per day. (Figure 2)



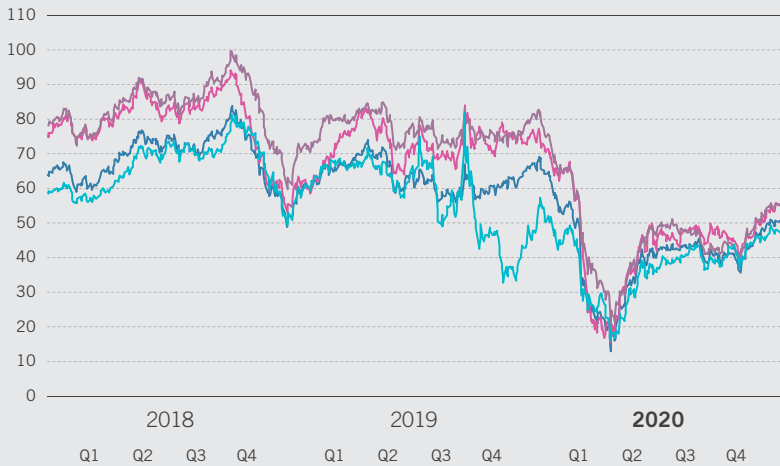
A slump in oil demand – together with OPEC+ battle for market share, as Saudi Arabia (in dissatisfaction with Russia's refusal to lower oil output) raised its crude oil production in April 2020 to 11.7 million barrels per day from 9.7 million barrels per day – resulted in the Dubai crude oil price nosediving to as low as USD 13.6 per barrel in April 2020 from an average of USD 64.3 per barrel in January 2020. The price then rebounded after OPEC+ agreed to reduce oil output by 9.7 million barrels per day during May - July 2020 (based on their output levels in October 2018 of 43.9 million barrels per day) and by 7.7 million barrels per day during August - December 2020, along with the gradual reopening of various economies. However, downward pressure on crude oil price remained amid high oil inventories. For the whole year 2020, the Dubai crude oil price averaged USD 42.2 per barrel versus 2019 average of USD 63.5 per barrel. (Figure 3)

Figure 3

Dubai and Petroleum  
Products Prices  
2018-2020

Unit: USD/Barrel  
Source: Reuters

	2018	2019	2020
Dubai	69.4	63.5	42.2
Gasoline 95 Octane	79.9	72.5	46.6
Diesel	84.1	77.2	48.4
Fuel Oil 3.5%S	66.8	58.7	39.2



As for the prices of refined petroleum products in 2020, gasoline 95 averaged USD 46.6 per barrel, a decrease from 2019 amid lower crude oil price and weaker demand caused by city lockdowns. However, supply remained at a high level from refineries in China and high inventories in Europe. All these led to a fall in gasoline crack spreads in 2020. Diesel price in 2020 averaged USD 48.4 per barrel, a decrease from 2019 amid lower crude oil price and weaker demand caused by city lockdowns. Meanwhile, supply rose after refineries especially in China and India opted to adjust their yields, moving production into diesel and away from jet fuel to keep jet fuel inventories from exploding. All these led to a fall in diesel crack spreads in 2020. High sulfur fuel oil 3.5%S (HSFO 3.5%S) price in 2020 averaged USD 39.2 per barrel, a decrease from 2019 amid lower crude oil price and weaker bunker demand, despite a surge in demand for power generation in the Middle East during a searing summer. All these led to a rise in HSFO 3.5%S crack spreads in 2020.

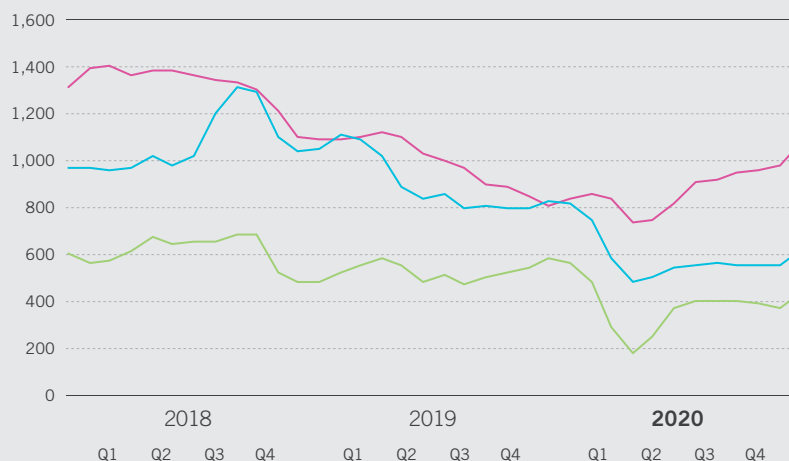
The Singapore cracking margin against Dubai crude in 2020 averaged USD 0.4 per barrel versus USD 3.7 per barrel in 2019.

The total price of petrochemical products in 2020 decreased from 2019, according to lower crude oil and naphtha prices as well as weaker demand caused by the COVID-19 pandemic. Petrochemical prices hit the bottom in Q2/2020 before bouncing back after new COVID-19 infections started to fall in many countries – with relatively rapid price recovery seen for high density polyethylene (HDPE), thanks to demand from downstream industries such as food packaging and hand-wash solution bottles. Paraxylene (PX) price, on the other hand, recovered only slightly amid the demand for its downstream industries such as textile which are slowly recovering, as well as much lower demand from major importer China following new large domestic capacity additions. All these resulted in HDPE price averaging USD 879 per ton and PX price averaging USD 577 per ton in 2020. (Figure 4)

Figure 4

Prices of Petrochemical Products in Asia Market  
2018 - 2020Unit: USD/Ton  
Sources: ICIS, Platts

	2018	2019	2020
High Density Polyethylene	1,330	991	879
Paraxylene	1,067	901	577
Naphtha	603	512	362



### 1.3 Thai Economy

The Thai economy contracted sharply in 2020 due mainly to a sharp decline in international tourist arrivals from 39.9 million in 2019 to merely 6.7 million in Q1/2020 before the country closed its borders to all international tourists from April 2020 onwards to curb COVID-19. Merchandise exports, as well as private consumption and investment, all shrank particularly in Q2/2020 – when several countries across the globe, including Thailand, went into lockdown – before gradually picking up toward the end of the year, as measures to prevent and control COVID-19 were relaxed. Whereas, public sector, especially government plans to borrow as much as THB 1 trillion, remained the only growth engine in 2020. The Office of the National Economic and Social Development Council (NESDC) in February 2021 reported the economy contracted 6.1% in 2020 versus 2019 growth of 2.3%. As for the slightly weaker Thai baht in 2020, stronger demand for safe assets and a stronger US dollar resulted in exchange rates between the baht and US dollar averaging THB 31.3 per USD in 2020. (Figure 5)

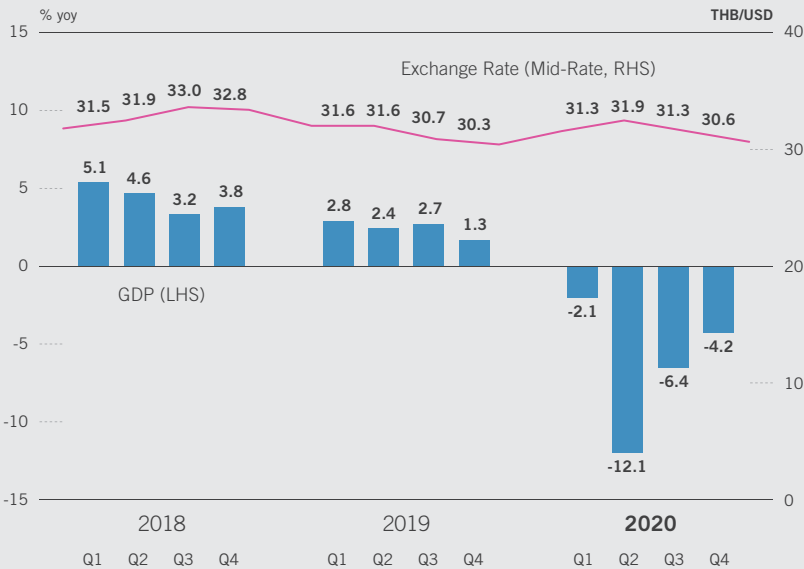


Figure 5

Thai Economic  
Growth 2018 - 2020

Source: Office of the National  
Economic and Social Development  
Council (NESDC)/ Bank of Thailand  
(BOT)

	2018	2019	2020
GDP (% yoy)	4.2	2.3	-6.1
Exchange Rate	32.3	31.0	31.3
(Mid-Rate, THB/USD)			



1.4 Thailand Petroleum Industry

Consumption of commercial primary energy in Thailand (excluding renewable energy) in 2020 averaged 2 million barrels of oil equivalent per day (MBOED), down 6.9% from 2019 (Figure 6). Specifically, oil consumption decreased 11.8%, while natural gas consumption decreased 6.3%.

Consumption of refined petroleum products in Thailand in 2020 decreased 11.7% (Figure 7), with consumption of gasoline decreased 0.7%, diesel decreased 2.7%, and LPG decreased 11.0%. Consumption of these three products plummeted in Q2/2020 before gradually picking up as lockdown measures were eased. Jet fuel consumption in 2020 decreased 61.6% amid a ban on international flights since April 2020. Whereas, fuel oil consumption decreased 11% in line with economies of trading partners.



Figure 6

Thailand's Commercial  
Primary Energy  
Consumption 2018 - 2020

Unit: MBOED

Source: Energy Policy and Planning  
Office

Hydro/ Imported Power  
Coal/ Lignite  
Oil  
Natural Gas

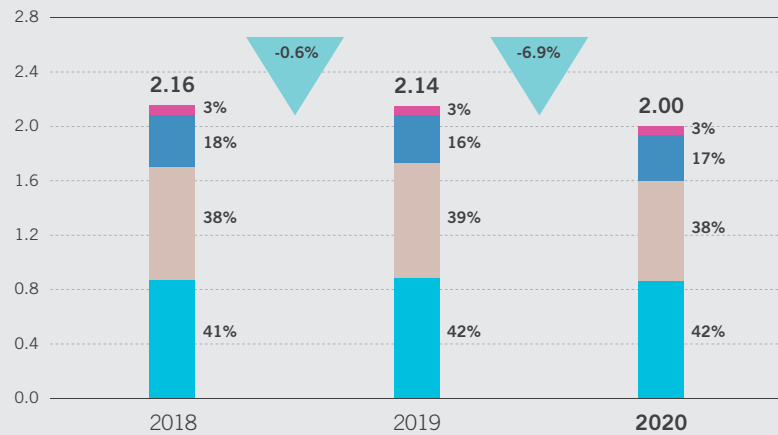
Remark: Excluding renewables  
energy

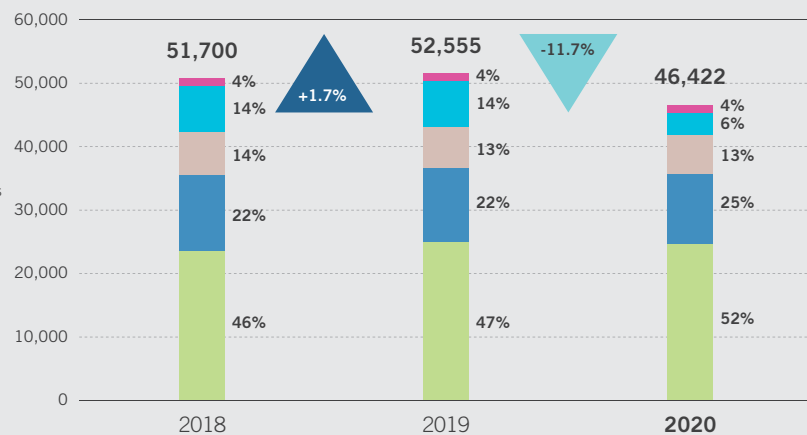
Figure 7

Thailand's Refined  
Petroleum Product  
Consumption  
2018 - 2020

Unit: Million liters

Source: Department of Energy Business

Fuel Oil  
Jet/ IK  
LPG\*  
Gasoline  
Diesel

Remark: \* Excluding LPG used as  
Feedstock in Petrochemical Industries

As for Thailand petroleum balance in 2020 (Figure 8), petroleum procurement totalled 1,851.40 thousand barrels per day (KBD), down 8.04% from 2019. Procurement of oil and natural gas accounted for 59% and 41%, respectively. Out of the total, 87% of crude oil and 33% of natural gas were imported. Domestic consumption totalled 1,628.47 KBD, decreased 10.49% from 2019, with 53% of which being refined oil products and 47% natural gas. Whereas, exports of petroleum products registered at 211.95 KBD, increased 9.6% from 2019.

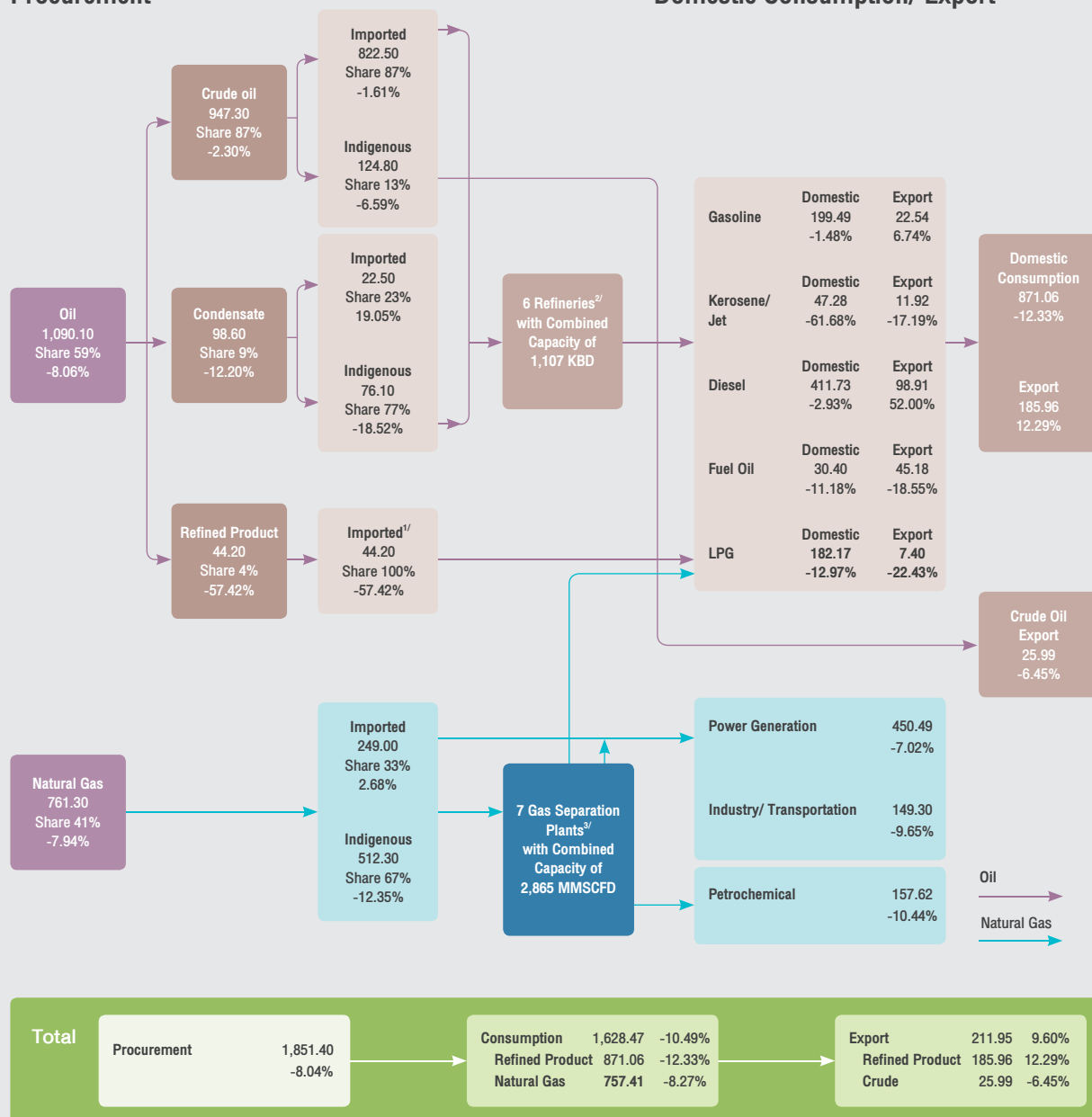
Figure 8

Thailand Petroleum  
Balance 2020

Unit: KBD

## Procurement

## Domestic Consumption/ Export



Source: Energy Policy and Planning Office, Department of Energy Business, Department of Mineral Fuels, and PTT

Remarks:

<sup>1/</sup> Including LPG<sup>2/</sup> Capacity includes those of BCP, ESSO, IRPC, PTTGC, SPRC, THAI OIL and excludes PTTGC's condensate splitters & Fang refinery.<sup>3/</sup> Capacity includes those of PTT/GSP 1 - 6, PTT/ESP and PTTEP Siam/Phalang Phet. The Petroleum Procurement and Domestic Consumption/ Export exclude bitumen.

## 2. 2021 Outlook

### 2.1 Global Economic Outlook

Global economic growth rebound is projected in 2021 – with wider distribution of vaccines and improved therapies, testing, and tracing, as well as additional policy support in economies such as the US and Japan expected to help lift activity later in the year. Though surging COVID-19 infections in late 2020 and partially renewed lockdowns will soften activity in Q1/2021. Prospects do vary greatly across countries, with oil exporters and tourism-based economies to face particularly difficult prospects considering subdued oil price outlook and the expected slow normalization of cross-border travel. The IMF in January 2021 forecasted the global economic growth for 2021 at 5.5%.

### 2.2 Global Petroleum and Petrochemical Industry Outlook

World oil demand, according to IHS Markit in December 2020, is projected to increase 6 million barrels per day to 96.8 million barrels per day in keeping with post-COVID-19 recovery. An improvement to oil demand, as well as OPEC+ supply curb, is expected to support oil prices in 2021. However, downward pressure on oil prices remains from capacities outside OPEC+, whose production may resume if oil prices continue their upward trend. The Dubai crude oil price is expected to average USD 50 - 60 per barrel in 2021. Whereas, the Singapore cracking margin against Dubai crude oil is expected to average USD 1.5 - 2.5 per barrel.

Petrochemical prices in 2021 are expected to rise in keeping with higher crude and naphtha prices, as well as post-COVID-19 recovery. Though new capacity additions and high inventories, particularly for PX, may exert downward pressure on prices. HDPE price is expected to average USD 970 - 990 per ton in 2021 and PX price USD 700 - 720 per ton.

### 2.3 Thailand Economic Outlook

Thailand economic conditions are expected to improve in 2021 from a very low base in 2020, as well as broader recovery in global trade which should help support merchandise exports. Whereas, expansionary monetary and fiscal policies remain an important growth driver. However, the growth rate will be low – as COVID-19 resurgence and partially reinstated restrictions pose near-term drag, and it remains uncertain as to “when”, “how”, and “how much” the country can safely reopen its borders for foreign tourists amid slow vaccine rollout. The NESDC in February 2021 projected the Thai economy to grow 3% in 2021. As for the value of the Thai baht, analysts foresee an appreciation in 2021 amid current account surplus and weaker US dollar as worries about the global economic recovery subside, with exchange rates between the Thai baht and US dollar averaging THB 29.9 per USD in 2021.

### 2.4 Thailand Petroleum Industry Outlook

Consumption of commercial primary energy in Thailand, particularly oil which shrank dramatically in 2020, is expected to increase in 2021 in keeping with improving economic conditions and rising consumption of refined oil products. However, a close watch should be kept on how soon the ban on international flights could be lifted following vaccine rollout.



# 1. Structure and Business Operations of PTT

## 1.1 Business Policy and Overview

### Background

Petroleum Authority of Thailand (PTT) was established on December 29, 1978, under the Petroleum Authority of Thailand Act of 1978, PTT engaged in the core business of petroleum and petroleum-related businesses. Under the intensified market competition, the government envisioned the need to enhance the role of the private sector in energy industry, on August 21, 2001, the Cabinet decided to endorse a plan to corporatize the Petroleum Authority of Thailand and on September 25, 2001, the Cabinet endorsed the privatization of the enterprise into a public company limited under the State Enterprise Capital Act of 1999. PTT Plc. thus came into existence from its share capitalization, with the government maintaining its shareholding at no less than 51% while PTT retained its status as the national oil company. After a major bureaucratic reform, PTT came under the supervision of the Ministry of Energy.



On October 1, 2001, the Petroleum Authority of Thailand transformed into PTT Plc. under the State Enterprise Capital Act with an initial registered capital of THB 20 billion (2 billion shares valued at THB 10 per share) wholly owned by the Ministry of Finance.<sup>1/</sup> PTT was listed on SET on December 6, 2001, to offer the shares to the public and institutional investors, and having the Ministry of Finance as the major shareholder. PTT maintains the status as a state enterprise under the supervision of the Ministry of Energy to this day. On April 24, 2018, PTT changed its share value from THB 10 to THB 1 per share, causing today's common shares to grow to 28,562.9 million shares and its registered capital to THB 28,562.9 million. From this registration date, PTT got the entire businesses, rights, liabilities, contingencies, assets, and employees transferred from the Petroleum Authority of Thailand in order to the continuity and efficiency of business operation. Under the State Enterprise Capital Act, a royal decree on the authority, rights, and privileges of PTT Plc. of 2001 was promulgated to ensure continued authority, rights, and privileges of PTT as those of the Petroleum Authority of Thailand Act of 1978, to end with PTT's termination as a state enterprise under budgetary law. In addition, a royal decree was promulgated on the timing for abolishing of the Petroleum Authority of Thailand Act of 2001 so that this law can be abolished. On February 16, 2007, therefore a royal decree designating the authority, rights, and privileges of PTT Plc. (No. 2) of 2007 was promulgated in the Royal Gazette, essentially limiting or ridding some of the authority, rights, and privileges of PTT derived from Petroleum Authority of Thailand laws and defining PTT's authority, rights, and privileges under the Petroleum Authority of Thailand to those of a committee regulating the company – including the exploration and announcement of petroleum pipeline transmission zones and the system configuration of such transmission to south, north, or over anyone's land, etc.

With the enforcement of the Energy Business Act of 2007 from December 11, 2007, PTT (as an energy business) came under the regulation of the Energy Regulatory Committee (ERC) by receiving natural gas business licenses, consisting of a license for natural gas transmission through gas pipeline systems, natural gas supply and marketing, natural gas retail sale through distribution systems network, and the power business which consisted of power generation for its own consumption at the Rayong and Khanom gas separation plants (GSPs) and at natural gas control stations.

### 1.1.1 Vision, Strategies and Business Directions of PTT Group

PTT's commitment is to achieve economic growth, elevating national competitiveness, improving society and people's quality of life, forging innovation and technological application in all sectors, and to be the driving force for people, societies, communities, and the environment to overcome change and duly forge ahead. This vision is known as "Powering Life with Future Energy and Beyond". Our mission is to equally respond to all stakeholders—the country, society and communities, shareholders, customers, business partners, and employees. Additionally, we promote our SPIRIT corporate values: Synergy, Performance Excellence, Innovation, Responsibility for Society, Integrity & Ethics, and Trust & Respect in order to achieve our goals.

<sup>1/</sup> Under the State Enterprise Capital Act of 1999, PTT was exempt from the provisions of the Public Company Limited Act on its status and company formation

Our aspiration is “PTT by PTT” which is the guidance for all businesses operation. Partnership and Platform: we aim to engage in more than mere production and sale of goods by developing the platform business model through forming the partnership and collaborating with proficient international partners while establishing cooperation with state enterprises as well as Thai private entities and SMEs. Technology for All: we integrate technology, expertise, innovation, and digital into our operation in all aspects. Transparency and Sustainability: we engage to perform transparently to sustain our businesses, with regard for Environmental, Social, Governance aspects, including the lowering of greenhouse gas emissions through the likes of reforestation to sequester such gas and support of investment in clean energy. For the coal business, PTT has no policy to allocate any additional investment or to extend financial assistance on this matter; PTT determines to divest from all coal businesses by 2021.

In addition, to manage COVID-19 impacts and the oil price war, PTT has mapped out its 4Rs operating strategies for short-term management and pursuing growth opportunities in the long-term New Normal:

**1. Resilience:** To enhance our adaptability in order to operate business continually, PTT Group has formed the PTT Group Vital Center to closely and jointly handle those incidents, embracing all aspects of risk management, including strategizing, management of tasks across the supply chain, supplier relationship management together with liquidity and financial risk management. PTT Group also executed its “Decrease-Discard-Defer” measures to reduce expenditure, revise and prioritize investment.

**2. Restart:** We must restart business back to scale by building up employees’, customers’, and suppliers’ normalcy as soon as possible with fully assisting and supporting; for instance, we support the public policies under the Restart Thailand Project by preparing to hire labor for business expansion and construction. Additionally, we ensure the PTT Group’s business competitiveness under the circumstances.

**3. Reimagination:** We are revisiting our business model to accommodate change to Next Normal for upstream, midstream, and downstream businesses as well as New S-Curve businesses, namely:

1) Reimagine Upstream: Focus on the natural gas exploration and production domestically and internationally, together with the pursuit of regional growth through schemes like LNG Value Chain and Regional Gas to Power, as well as the seeking of the overseas investment opportunity.

- Invest in natural gas E&P and LNG businesses domestically and internationally; invest in LNG liquefaction and related projects.
- Relentlessly enhance the business competitiveness by preparing the personnel readiness and structure to support the LNG business operation with the aim to meet national and regional needs.
- Support Thailand to be the Regional LNG Hub by evolving infrastructure supporting full-fledged commercial operation.

2) Reinforce Downstream: Restructure for PTT Group synergy to maximize long-term value addition.

- Increase competitiveness through operational excellence and productivity improvement in petrochemical and refining businesses, including the application of digital technology to administrate the product management along the hydrocarbon value chain for creating synergy value within PTT Group.
- Focus on the expansion of international trading and drive cooperation among PTT Group to create value from asset-backed trading.
- Maintain the leadership in oil retail market by focusing on expanding service station networks and innovation to cater to consumers’ lifestyles, together with the investment expansion in non-oil businesses both domestically and internationally.

3) Reignite New Business at Scale: Invest and develop businesses related to renewable energy and New Energy, together with the new business expansion in ‘Life Science’; including the pharmaceutical, nutrition, and medical devices businesses. The objective is to replace the growth of the hydrocarbon value chain portion, as well as the support of renewable energy projects for the sustainability of people and country.

**4. Reform:** Restructure the organization and direction for new businesses, with business transformation to ensure that PTT can efficiently handle various future circumstances.

## 1.1.2 Milestones of the Past Three Years

### 2018

#### February

February 20: PTT's Board approved **the acquisition of IRPC's 1.95 billion common shares** from the Government Savings Bank at THB 1 per share, equivalent to 9.54% of IRPC's paid-up capital, at the price of THB 7.10 per share, totaling THB 13,845 million through SET. As a result, PTT held a total of 48.05% shares in IRPC.

February 20: PTT's Board **approved the establishment of PTT Treasury Center Co., Ltd. (PTT TCC)**, a wholly owned subsidiary of PTT, with a registered capital of THB 20 million to conduct the business in the area of International Headquarters (IHQ) and Treasury Center (TC) for the purpose of financial and treasury management of PTT Group.

#### April

April 12: The 2018 AGM of PTT decided to change the registered value of PTT shares from THB 10 per share to **THB 1 per share** and approve amendment to the memorandum of association item 4 to align with this change, effective on SET from April 24, 2018, onward.

April 25: PTT's Board approved the establishment of a new company in Singapore to operate coffee business under the brand **Café Amazon** in order to turn it into a global brand. A company was established in September 2018 with a registered capital of up to SGD 6.5 million, consisting of common shares valued at SGD 1 per share which wholly owned by OR, a PTT subsidiary.

#### May

May 2: The Committee on Energy Policy Administration (CEPA) endorsed a proposal to adjust **NGV retail prices for public vehicles** from THB 10.00 per kg to THB 10.62 per kg to be reflect the higher heating value from 35,947 to 38,500 BTU per kg. This change was in order to the NGV quality management to enable public vehicles to save on refueling and cover more distances, effective from May 16, 2018, to May 15, 2019. In addition, the retail prices for public vehicles were to gradually rise following the retail prices for private vehicles to echo its cost.

#### June

June 18: PTT and **OR**, its subsidiary, signed a business transfer agreement whereby PTT effected a process of transferring assets and liabilities as well as its shares in related businesses to OR since July 1, 2018.

June 27: The Cabinet had an approval for District Cooling and Power Plant Co., Ltd. (DCAP), a PTT's 35% owned associated company, to construct **chilled-water plant for the air-conditioning system** of the SAT-1 terminal and a project to construct 115-kV transmission lines to the GIS of the DCAP 2 power station for distribute the electricity to the chilled-water plant.

## July

July 26: ERC endorsed a proposal to levy **the commodity charges (Tc) for the Gas Transmission System** for Offshore Rayong (Area 1), Offshore Khanom (Area 2), and Onshore Transmission Pipeline (Area 3) at THB 1.1668 per MMBTU, and for Onshore Chana (Area 4) at THB 0.1569 per MMBTU, Onshore Namphong (Area 5) at THB 0.0000 per MMBTU. These rates were identical to those of the previous year, effective from July 1, 2018, until further changes. Determination of such charge was based on the rules of the manual on natural gas price computation and commodity charges of December 2007 as well as Article 70 of the Energy Business Act of 2017.

## September

September 28: PTT's Board approved **interim dividend payment** for 1H2018 at THB 0.80 per share, totaling THB 22,850 million or 32.9% of consolidated financial statements' net profit of such period. Payment was to take place on October 26, 2018.

## November

From September to November, PTML (PTTGM subsidiary) **purchased shares in Sakari Resources (SAR) from minor shareholders** as approved by PTT's Board. With the completion of this purchase, PTML's shares in SAR rose from 95.49% to 95.82%.

November 16: PTT's Board approved the PTT and its affiliate(s) to jointly set up a joint venture with Bangkok Industrial Gas Co., Ltd. (BIG), under the name "Map Ta Phut Air Products Co., Ltd. (MAP)". The establishment was completed on January 14, 2019. PTT and affiliate(s) held 51% and BIG held 49% shares in MAP to accommodate **production and sale of industrial gases** with the total capacity of 450,000 tons per year, and expect to COD within 2021. The total investment was worth about THB 1.5 billion.



## 2019

### March

March 25: PTT's Board approved **PTTGM's** establishment of Global Management Holding Co., Ltd., and Siam Management Holding Co., Ltd., with a registered capital of up to THB 36 million and THB 18 million respectively, with directly and indirectly 100% owned by PTTGM. The objectives of these company establishment are to support PTT's future investment including but not limited to investment in New S-Curve businesses.

### April

April 11: PTT's 2019 AGM **approved dividend payment** for its performance in 2018 at THB 2 per share, or 48.2% of consolidated financial statements' net profit. PTT paid out interim dividends for 1H2018 at THB 0.80 a share, leaving THB 1.20 a share for 2H2018, which was paid out on April 30, 2019

April 19: CEPA decided to raise the **NGV price for public vehicles** by THB 1 per kg. every 4 months, beginning on May 16, 2019, then September 16, 2019, and finally January 16, 2020, until the rise becomes THB 3 per kg.

April 30: PTT Green Energy Co., Ltd. (PTTGE SG) (a wholly owned subsidiary of PTT in the Republic of Singapore) to dispose its entire investment of 77.56% of the total issued shares in Chancellor Oil Pte. Ltd. (a company incorporated in the Republic of Singapore, **operating palm oil business and producing palm oil** through PT First Borneo Plantations ("PT FBP")), as well as to sell and novate all loans of PTTGE SG given to Premier Palmoil Energy Pte. Ltd. (Premier) as a buyer. This divestment aligned with PTT Group's restructuring policy, thus eliminating PTT's investment in palm oil business. On November 14, 2019, PTT completely dissolved Sabran Brothers Pte. Ltd. (previously wholly owned by PTTGE SG) to align with PTT Group's restructuring policy; the action had no impact on PTT's businesses.

### August

August 19: Sakari Resources Ltd. (**SAR**), the 95.82% owned by PTTGM (a wholly owned subsidiary of PTT) invested in all common shares in PT Sentika Mitra Persada (SMP) and PT Multiara Kapuas (MK), whose registered capital was IDR 57.804 billion and 21.883 billion respectively, both of these companies held licenses for the coal business in Indonesia. The investment worth a total of about USD 11.7 million. Such investment was to maintain coal reserves for the SAR group in the face of depleting coal reserves currently and to increase the potential to improve coal quality at current mines to meet the needs of the group's customers.

### September

September 27: PTT's Board approved **interim dividend payment** for 1H2019 at THB 0.90 a share, or 47% of consolidated financial statements' net profit, which was paid out on October 25, 2019.

## October

October 1: PTT Tank Terminal Company Limited (PTT Tank), a wholly owned subsidiary of PTT, and **Gulf Energy Development** Public Company Limited (GULF) had registered to establish a new joint venture company under the name of **Gulf MTP LNG Terminal** Company Limited with the initial registered capital of THB 3,500 million. PTT Tank and GULF hold 30% and 70% stakeholding, respectively, in Gulf MTP LNG Terminal Company Limited following the resolution of PTT's Board of Directors at the meeting on June 20, 2019. The company's objective is to conduct LNG Value Chain related business and logistic to support other future investments that consistent with PTT's strategy, as well as creating business alliances to increase business opportunities both domestically and internationally. On October 1, 2019, Gulf MTP LNG Terminal Company Limited entered into a Public Private Partnership (PPP) contract with Industrial Estate Authority of Thailand for **Development of Map Ta Phut Seaport Phase III (Section 1)** with the joint investment including land reclamation with the investment cost of approximately THB12.9 billion, and the right of construction of LNG terminal phase 1 with the capacity of not less than 5 MTA for the approximately amount of THB 28 billion. Therefore, the total investment of the project shall be approximately THB 40.9 billion.

## November

November 14: PTT's Board approved the establishment of a joint-venture company with Mitsui with a registered capital of up to THB 200 million, where PTT's equity was up to 50% stakeholding, to engage in the **robotics & AI service enable business**.

## 2020

### January

January 16: PTT's Board passed a resolution to establish **PTT International Trading USA Inc. (PTTT USA)**, a wholly owned subsidiary of PTT, in the U.S.A with an initial registered capital of USD 5,000. The objective of the PTTT USA's establishment is to operate the international trading business, strengthen the national energy security as well as expand PTT trading network globally. In this regards, PTTT USA has completed its registration on April 2, 2020.

January 16: PTT's Board approved the five-year (Year 2020 - 2024) investment plan of PTT and its wholly owned subsidiaries in an aggregate amount of THB 180,814 million. The investment plans focus on core business mainly in Gas business group such as expansion of Liquefied Natural Gas (LNG) receiving terminal capacity and the expansion in oil and retail businesses domestically and internationally. Additionally, PTT has set provisional capital expenditure for the next 5 years amounting to THB 203,583 million to enhance value added and synergy among PTT Group from core businesses' expertise as well as new investments in energy businesses in accordance with national development plan, technology disruption, consumer behaviors and clean energy trends.

## February

February 25: PTT conducted a test on LNG transmission using a new model called “ISO-Container”, a gas transportation mode by truck and marine vessel to China. The test is cooperation with Liaoning Yuzhuo Energy to study the feasibility of exporting LNG from Laem Chabang Deepsea Port in Chon Buri to China to promote Thailand to become a regional LNG hub.

February 27: PTT announced the **deregistration of Sakari Royal Limited**, a subsidiary of Sakari Resources Limited (SAR). SAR is a subsidiary of PTT Global Management Limited (PTTGM) and PTTGM is a wholly-owned subsidiary of PTT. Sakari Royal Limited was established for investment in coal mining development project in Cambodia. However, after the exploration of the coal development project, the project was not feasible to further invest. To align with PTT's strategy in closing down non-operating companies, the deregistration of Sakari Royal Limited did not affect to PTT's business operation

February 27: PTT entered into an **LNG sale and purchase agreement with five companies**: Thai Special Gas Co., Ltd., LNG Link Co., Ltd., Cryo Thai Co., Ltd., Scan Inter Plc., and The Gas Carrier Co., Ltd. Transport will rely on semi-trailers or ISO-container vehicles to receive LNG from the receiving terminal at Map Ta Phut, Rayong, and transport it to gas customers in the domestic industrial sector. It would also increase opportunities to expand LNG users to ASEAN as a part of driving Thailand to become a regional LNG hub in line with the National Energy Reformation Plan.

February 28: PTT **established PTT Raise Co., Ltd. (PTT RAISE)** to provide robotics & AI solutions service. The company is a joint venture of PTT and Mitsui & Co., Ltd. in which PTT had 50% interest via PTTGM.

## March

March 3: PTT **registered Alpha com Co., Ltd.**, a subsidiary of Siam Management Holding Co., Ltd. (SMH), a subsidiary of PTTGM (a PTT subsidiary). The company was established to support various investments of PTT and PTT Group in new businesses under the New S-Curve strategy, with an initial registered capital of THB 3 million. Alpha Com thus became a PTT subsidiary after the registration was completed.

March 6: PTT and Banpu Plc. signed an MOU for business cooperation on the study of natural gas and LNG businesses opportunities. The cooperation will bring out the expertise or strength of each party to run a business with a study timeframe of 1-2 years. The first Steering Committee meeting was convened on March 17 to define a joint operation direction.

March 19: CEPA **reviewed the LPG price** that the Ex-Refinery LPG prices has revised down from THB 17.1795 per kg. to THB 14.3758 per kg. Therefore, the **retail price of a standard 15 kg. LPG cylinder reduced from THB 363 per cylinder to THB 318 per cylinder, decreasing by THB 45 per cylinder for 3 months during March 24, 2020 to June 23, 2020** in order to alleviate public suffering from the economic situation and impact of COVID-19. Consequently, on June 17, 2020 and September 17, 2020, **CEPA** decided to extend the reduction of LPG price for another 3 months. Therefore, the wholesale price is capped at THB 14.3758 per kg. **until the end of December 2020**. However, the price adjustment has not any impact on PTT's performance due to LPG domestic selling prices of GSP be referenced to import parity. If the selling prices is higher or lower than GSP cost; PTT's GSP margin has been limited to USD ±1 per ton more or less than GSP's cost. The difference of USD 1 per ton from GSP's cost will be subsidized from or consigned to LPG fund.

March 25: CEPA has decided to reduce the retail price of the natural gas vehicle (NGV) to alleviate public suffering from the economic situation and impact from COVID-19. Therefore, **NGV prices for public transportation reduced at THB 3 per kg.; from THB 13.62 per kg. to THB 10.62 per kg.**, for 3 months during April 1, 2020 to June 30, 2020. Later, on June 18, 2020, PTT's Board approved to extend the reduction of NGV prices for public transportation to remain at THB 10.62 per kg for another one month during July 1 - 31, 2020 and propose to the government to consider alternative ways of support, such as requesting public service subsidies. However, PTT's Board approved the **extension of NGV price reduction for public transportation at THB 13.62 per kg up to December 31, 2020** or whenever the price is lower than THB 13.62.

March 30: **PTT's Board has approved a resolution for the interim dividend payment for the 2H2019 performance instead of the annual dividend payment at the rate of THB 1.10 per share, which was paid on April 24, 2020.** Besides, PTT paid interim dividend for the first half of 2019 (1H2019) performance at the rate of THB 0.90 per share. Therefore, the total dividend payment for 2019 performance is THB 2.00 per share, and no annual dividend payment for 2019 performance is to be further proposed by the Board.

## May

May 12: **PTT in cooperation with EGAT signed an MOU on a feasibility study on the investment and development of infrastructure to support LNG import, or LNG receiving facilities in the South.** The study was in order to support the government policy and strategy on the power development plan (PDP2018), of which consisted of the Khanom Power Plant of Electricity Generating Public Company Limited with a capacity of 930 MW, Surat Thani Power Plant Units 1 - 2 with a combined capacity of 1,400 MW (to supply electricity to the grid (COD) in 2027 and 2029) and New Power Plant (COD in 2035) with a capacity of 700 MW. The joint feasibility study on LNG receiving facilities aimed to support the import of LNG and ensure energy security in the future.

May 15: **PTT signed a commercial partnership agreement with Sharge for EV charger service** outside service stations. The debut of the service was at True Digital Park (July 10), followed by the second service outlet at BITEC Bangna (July 30).

May 28: **PTT's Board reviewed and approved the revision of an investment plan for 2020 of PTT and its wholly owned subsidiaries from THB 69.31 billion to THB 53.90 billion.** The revision of investment plan are mainly in PTT and its wholly owned subsidiaries, which primarily reduced the projects that have not been started. However, the investment in projects under construction such as the 5<sup>th</sup> transmission pipeline, RA#6 – Ratchaburi pipeline, the 2<sup>nd</sup> Liquefied Natural Gas (LNG) receiving terminal, etc. are still proceeding as planned. The revision is for the year 2020 investment plan only according to the "Decrease-Discard-Defer" policy to mitigate the impact of COVID-19 pandemic and the oil price war.

## June

June 19: **PTT signed a Gas Sales Agreement (Global DCQ) with EGAT to strengthen national energy security. The agreement covered the distribution of natural gas to five EGAT plants**, namely Bangpakong Power Plant, North Bangkok Power Plant, South Bangkok Power Plant, Wang Noi Power Plant, and Chana Power Plant, **with a 10-year term** starting from July 1, 2020 to the end of July 2030, in order to ensure energy security.

June 24: PTT's Board approved the **extension of LPG price discount for low-income people**, shops, street vendors, and food stalls that are eligible for the state welfare card at THB 100 per person per month **for 3 more months, until September 2020**.

## July

PTT completed **fund raising from the issuance of debentures in an approximated total amount of THB 57 billion**. These debentures issuance are under the 2020 PTT MTN Program worth THB 64 billion which approved by SEC together with the Global Medium Term Note Program to be issued in the US currency worth up to USD 2 billion, details as follows:

- July 2, PTT **issued the unsubordinated and unsecured debentures No. 1/2020 in an amount of THB 20 billion** at a fixed interest rate of 1.21% - 3.74% per annum **with a tenor of 2 - 25 years** to the institutional investors and/or high net worth investors.'
- July 16, PTT Treasury Center Company Limited (PTT TCC), a wholly-owned subsidiary of PTT, **issued USD Senior Unsecured Notes to offshore investors in an amount of USD 700 million for the tenor of 50 years** at the fixed interest rate of 3.70% per annum with unconditional and irrevocable guaranteed by PTT.
- July 24, PTT **issued the unsubordinated and unsecured green debenture No. 1/2020 in an amount of THB 2 billion with a tenor of 3 years**, and at a fixed interest rate of 2.25% per annum. PTT also issued the unsubordinated and unsecured debenture No. 2/2020 in an amount of THB 13 billion with a tenor of 7 years at a fixed interest rate of 2.85% per annum to the general public.

## August

August 11: Alpha Com Co., Ltd. ("Alpha Com") was a subsidiary of PTT approved the **establishment of Swap and Go Co., Ltd. ("Swap and Go")** with the registered capital not exceeding THB 30 million (An initial registered capital not exceeding THB 1 million). The objective of the company establishment is to invest in Battery business for Electric Motor vehicles in according to PTT's investment strategies in New S-Curve.

August 20: PTT's Board approved the **shareholding restructure in power business**. The restructure consists of the PTT purchase in TOP's entire shareholding in GPSC's common shares, and the Entire Business Transfer of Thaioil Power Company Limited ("TP") (TP is a subsidiary of PTT and TOP with the stakholding of 26.0% and 74.0%, respectively) from PTT to TOP.

## September

September 17: PTT's Board **approved the interim dividend payment for 1H2020** performance to shareholders **at the rate of THB 0.18 per share**, or 50% of the net profit of consolidated financial statements. The total dividend paid was THB 5.142 billion. The record date for eligible shareholders was October 1, 2020 and the payment date was October 16, 2020.

## October

October 6: PTT Group initiated a pilot project on the **installation of a 100-KW floating solar generation system** in Rayong, located along the coast, therefore a suitable site. The floating solar panels were made of special-grade polymers that were safe for the environment and marine lives but could reduce barnacles. GPSC, PTT Group's power flagship, commissioned CHHP, a GPSC subsidiary, to design and install the system. The electricity generated in the initial phase will be used by office buildings and will be a model for further R&D of new energy business models.

October 12: PTT signed an MOU for collaboration with the Port Authority of Thailand in studying the efficiency enhancement of container transport in the Laem Chabang Port and the EEC zone, which is the national logistics strategic point. In addition, the project was expected to reduce road impacts from heavy traffic as well as reducing carbon emission along the Map Ta Phut - Laem Chabang route.

October 27: PTT Group signed an MOU on Project One to boost competitiveness and sustainable growth. Project One employed an asset-backed trading model by synergizing the expertise and diverse assets of each company. This would create added value for PTT Group, leading to sustainable business growth and strengthening of Thailand's energy security and national competitiveness.

## November

November 3: HRH Princess Maha Chakri Sirindhorn graciously presided over the inauguration of the Intelligence Operation Center (IOC), located on the Eastern Economic Corridor of Innovation area, Wangchan Valley, Rayong.

November 18: PTT's Board **approved the purchase of** about 4.655 million **shares in GRP**, a wholly owned subsidiary of GPSC, which accounted for **50% of the total shares**, by PTT Global Management (PTTGM), a PTT subsidiary. The deal was worth THB 693 million and was another step in promoting greater cooperation under the stakeholder-centric Powering Thailand's Transformation initiative and forming an operational network among PTT Group. This is **in line with PTT Group's strategy in being the leader in the renewable energy or clean energy business**. It also **supported PTT Group's goal in reaching the renewable power generation capacity of 8,000 MW by 2030**. In addition, the cooperation will synergize the forces of experienced and skilled personnel in renewable energy from PTT and GPSC, which will increase efficiency and enhance the competitiveness, which would ultimately lead to sustainable development of energy.

## December

December 15: PTT **signed a Gas Product Sale and Purchase Agreement with SCG Chemical Co., Ltd. for petrochemical feedstock** to maximize the benefit of natural resources, increase business opportunities, competitive edge, and strengthen business partnership of the two organizations.

December 16: **PTT and Thailand Greenhouse Gas Management Organization (Public Organization) jointly signed an MOU on the cooperation to reduce GHG emissions and sequestration.** The cooperation aimed to enhance the effectiveness of cooperation to certify the carbon credit of Thailand through the integration of expertise and knowledge of these two organizations and technical exchange on innovation and technology to drive actions in accordance with the policy on climate change, both domestically and internationally.

December 17: PTT's Board approved the five-year (year 2021-2025) investment plan of PTT and its wholly owned subsidiaries in an aggregate amount of THB 179,072 million. PTT's investment plan still focus in core businesses mainly in Gas business group i.e. the Gas Separation Plant (GSP) unit 7 to replace GSP unit 1, the 5<sup>th</sup> pipeline, the Liquefied Natural Gas (LNG) receiving terminal 2 (Nong Fab), and Map Ta Phut Industrial Port Development Phase 3. Additionally, **PTT has set provisional capital expenditure for the next 5 years amounting to THB 331,524 million** to create value added and synergy among PTT Group from core businesses' expertise i.e. the Southern LNG terminal project and gas pipeline project which are subjected to the Power Development Plan 2018, the investment in LNG value chain both in Thailand and overseas, the Gas to Power project, and the investment in the potential growth businesses which are aligned with the change of new normal and New Ecosystem Business Model in accordance with government policy and global trends i.e. Electricity Value Chain project, the investment in Life science (Pharmaceutical, Nutrition, and Medical device). Furthermore, the provisional capital expenditure include investment in renewable energy and clean energy to achieve PTT group's renewable energy power plant target of 8,000 MW by 2030 according to our strategic plan to be a leader in renewable energy business.

December 17: PTT's Board passed a resolution to **dissolve 3 subsidiaries in coal business** which are subsidiaries of SAR (SAR is a subsidiary of PTTGM and PTTGM is a wholly-owned subsidiary of PTT) including Reyka Wahana Digd Jaya Pte. Ltd., Sakari Energy Pte. Ltd., and PT. Tri Tunggal Lestari Bersama. This is aligned with PTT's strategy in closing down the dormant companies, which are expected to be completed within 2021.

December 22: PTT established Innobic LL Holding Co., Ltd. (wholly owned by Innobic (Asia), a PTT subsidiary). The objective is to be one of PTT's arm length for **investment in international pharmaceutical business** to align with PTT's new business strategy and to enhance PTT's capabilities in life science business with a registered capital approximated THB 2 billion.

Besides, the Milestones of the past three years of each PTT group's flagship company that listed in SET was disclosed in the website, the details are as follows:

1. PTT Exploration and Production Public Company Limited (PTTEP):  
[pttep.com/en/Investorrelations/Regulatorfilings/Annualfiling.aspx](http://pttep.com/en/Investorrelations/Regulatorfilings/Annualfiling.aspx)
2. PTT Global Chemical Public Company Limited (GC): [investor.pttgcgroup.com/ar.html](http://investor.pttgcgroup.com/ar.html)
3. PTT Oil and Retail Business Public Company Limited (OR): [investor.pttor.com/en/home](http://investor.pttor.com/en/home)
4. Global Power Synergy Public Company Limited (GPSC): [investor.gpscgroup.com/ar.html](http://investor.gpscgroup.com/ar.html)
5. Thaioil Public Company Limited (TOP): [investor.thaioilgroup.com/ar.html](http://investor.thaioilgroup.com/ar.html)
6. IRPC Public Company Limited (IRPC): [irpc.co.th/en/about-us/library/annual-report/](http://irpc.co.th/en/about-us/library/annual-report/)

### 1.1.3 Use of Proceeds

As of December 31, 2020, the details of use of proceeds are as follows:

#### Domestic Bonds (Senior and Unsecured, Enforced Under Thai Laws)

The funds derived from the issuance of all baht bonds, PTTC215A, PTTC21NA, PTTC21NB, PTTC222A, PTTC227A, PTTC237A, PTTC239A, PTTC243A, PTTC247A, PTTC257A, PTTC277A, PTTC307A, PTTC357A, PTTC457A, and PTTC10DA were utilized according to the objectives stated in the indenture and offering documents.

#### Foreign Bonds (Senior and Unsecured, Enforced Under the State of New York Laws)

The funds derived from the issuance of all dollar bonds of PTT and PTT TCC (guaranteed by PTT), which are USD Bond 2005, USD Bond 2012, USD Bond 2019, and USD Bond 2020, were utilized according to the objectives stated in the indenture and offering documents.

### 1.1.4 PTT's Obligations According to Bond Issuance

#### Domestic Bonds and Foreign Bonds (Unsecured, Unsubordinated)

PTT has no financial obligation for each bond as stated in the indenture and offering documents. The put and call options of each bond have been disclosed under Section 1.5 (issuance of other securities) under 1.5.2 (debt securities).



## 1.2 Nature of Business

### 1.2.1 Revenue Structure

Product/ Service	Operated by	% Shareholding	2018 (Restated)		2019 (Audited)		2020 (Audited)	
			THB million	%	THB million	%	THB million	%
1. Gas products	PTT Plc.		360,419.76	15.22	339,829.09	15.03	277,111.90	16.80
	PTT Exploration and Production Plc. (PTTEP <sup>1/</sup> )	63.79	11,277.30	0.48	14,981.18	0.66	15,118.64	0.92
	PTT Natural Gas Distribution Co., Ltd. (PTT NGD)	58.00	12,238.71	0.52	10,594.01	0.47	7,363.09	0.45
	Global Power Synergy Plc (GPSC <sup>1/</sup> )	31.72	62.56	-	65.81	-	59.18	-
	PTT Oil and Retail Business Plc (OR)	100.00	21,645.76	0.91	40,706.59	1.80	30,217.20	1.83
	PTT International Trading London Ltd. (PTTT LDN)	100.00	-	-	-	-	4,985.10	0.30
Total revenue from gas products			405,644.09	17.13	406,176.68	17.96	334,855.11	20.30
2. Oil products	PTT Plc.		489,636.41	20.68	208,126.33	9.21	112,465.05	6.82
	PTTEP Plc. (PTTEP <sup>1/</sup> )	63.79	10,089.96	0.43	17,730.00	0.78	20,844.96	1.26
	PTT International Trading Pte. Ltd. (PTTT)	100.00	287,626.36	12.15	295,588.44	13.07	189,665.70	11.50
	PTT International Trading London Limited (PTTT LDN)	100.00	56,813.20	2.40	46,564.97	2.06	14,841.16	0.90
	PTT Global Chemical Plc. (GC <sup>1/</sup> )	45.41	32,993.95	1.39	26,439.16	1.17	21,773.24	1.32
	Thai Oil Plc. (TOP <sup>1/</sup> )	45.03	167,123.39	7.06	161,166.08	7.13	109,978.56	6.67
	IRPC Plc. (IRPC <sup>1/</sup> )	45.05	130,874.04	5.53	116,648.57	5.16	83,407.10	5.05
	PTT Oil and Retail Business Plc. (OR)	100.00	265,059.12	11.19	489,995.09	21.67	361,125.46	21.89
Total revenue from oil products			1,440,216.43	60.83	1,362,258.64	60.25	914,101.23	55.41
3. Petrochemicals products	PTT Plc.		36,788.07	1.55	16,857.93	0.75	10,294.75	0.62
	PTT Global Chemical Plc. (GC <sup>1/</sup> )	45.41	232,641.11	9.82	197,309.85	8.73	161,620.06	9.80
	Thai Oil Plc. (TOP <sup>1/</sup> )	45.03	30,368.45	1.28	23,010.77	1.02	18,242.08	1.11
	IRPC Plc. (IRPC <sup>1/</sup> )	45.05	68,614.71	2.90	57,088.60	2.52	45,617.16	2.77
	PTT International Trading Pte. Ltd. (PTTT)	100.00	54,941.35	2.32	53,466.69	2.36	31,196.80	1.89
	PTT Oil and Retail Business Plc. (OR)	100.00	391.05	0.02	516.97	0.02	399.18	0.02
Total revenue from petrochemical products			423,744.74	17.89	348,250.81	15.40	267,370.03	16.21
4. Mining products	PTT Global Management Co., Ltd. (PTTGM)	100.00	20,527.20	0.87	15,078.02	0.67	10,202.18	0.62
Total revenue from mining products			20,527.20	0.87	15,078.02	0.67	10,202.18	0.62
5. Public utilities	PTT Plc.		0.75	-	-	-	-	-
	Thai Oil Plc. (TOP <sup>1/</sup> )	45.03	4,834.71	0.20	4,968.71	0.22	4,573.32	0.28
	IRPC Plc. (IRPC <sup>1/</sup> )	45.05	3,179.71	0.13	3,427.80	0.15	3,390.96	0.20
	Global Power Synergy Plc. (GPSC <sup>1/</sup> )	31.72	13,348.58	0.56	51,679.34	2.29	54,572.97	3.31
	PTT Tank Terminal Co., Ltd. (PTT TANK)	100.00	49.51	-	45.51	-	51.78	-
Total revenue from utilities products			21,413.26	0.89	60,121.36	2.66	62,589.03	3.79
6. Non-oil Business	PTT Plc.		5,009.52	0.21	380.89	0.02	141.22	0.01
	PTT Oil and Retail Business Plc. (OR)	100.00	10,905.08	0.46	16,891.85	0.75	16,937.84	1.03
Total revenue from non-oil business			15,914.60	0.67	17,272.74	0.77	17,079.06	1.04

Product/ Service	Operated by	% Shareholding	2018 (Restated)		2019 (Audited)		2020 (Audited)	
			THB million	%	THB million	%	THB million	%
7. Revenue from services	PTT Plc.		11.50	-	19.19	-	231.21	0.01
	PTT Exploration and Production Plc. (PTTEP <sup>1/</sup> )	63.79	3,481.65	0.15	3,618.48	0.16	2,894.69	0.18
	PTT Global Chemical Plc. (GC <sup>1/</sup> )	45.41	1,682.54	0.07	2,797.47	0.13	2,676.07	0.16
	Thai Oil Plc. (TOP <sup>1/</sup> )	45.03	236.04	0.01	289.89	0.01	257.67	0.02
	IRPC Plc. (IRPC <sup>1/</sup> )	45.05	574.57	0.02	524.63	0.02	542.86	0.03
	PTT Oil and Retail Business Plc. (OR)	100.00	492.05	0.02	509.68	0.02	479.68	0.03
	PTT Digital Solutions Co., Ltd. (PTT DIGITAL)	20.00	189.47	0.01	111.24	0.01	110.84	0.01
	PTT Tank Terminal Co., Ltd. (PTT TANK)	100.00	643.85	0.03	676.92	0.03	669.92	0.04
	PTT Energy Solutions Co., Ltd. (PTTES)	40.00	28.68	-	16.76	-	9.99	-
	Energy Complex Co., Ltd. (EnCo)	50.00	261.68	0.01	273.53	0.01	271.94	0.02
	Business Services Alliance Co., Ltd. (BSA <sup>2/</sup> )	25.00	130.29	0.01	193.68	0.01	226.13	0.01
	Global Power Synergy Plc. (GPSC <sup>1/</sup> )	31.72	-	-	18.74	-	19.12	-
	PTTLNG Co., Ltd. (PTTLNG)	100.00	-	-	60.79	-	63.36	-
	PTT Natural Gas Distribution Co., Ltd. (PTT NGD)	58.00	-	-	48.22	-	37.28	-
Total revenue from services			7,732.32	0.33	9,159.22	0.40	8,490.76	0.51
8. Other products	PTT Plc.		93.43	-	757.15	0.03	-	-
	Business Services Alliance Co., Ltd. (BSA <sup>2/</sup> )	25.00	4.90	-	9.11	-	0.02	-
	Global Power Synergy Plc. (GPSC <sup>1/</sup> )	31.72	4.58	-	7.06	-	-	-
	PTT International Trading Pte. Ltd. (PTTT)	100.00	744.39	0.03	436.73	0.02	493.18	0.03
	IRPC Plc (IRPC <sup>1/</sup> )	45.05	114.98	-	201.89	0.01	482.09	0.03
	PTT Oil and Retail Business Plc. (OR)	100.00	-	-	9.26	-	-	-
	PTT Global Management Co., Ltd. (PTTGM)	100.00	-	-	-	-	0.64	-
	PTT International Trading London Ltd. (PTTT LDN)	100.00	-	-	-	-	1.33	-
Total revenue from other products			962.28	0.03	1,421.20	0.06	977.26	0.06
Total revenue from products and services			2,336,154.92	98.64	2,219,738.67	98.17	1,615,664.66	97.94
9. Others								
9.1 Other revenue			16,935.10	0.72	19,979.95	0.88	20,578.99	1.25
9.2 Gain from foreign exchange			6,353.51	0.28	15,312.83	0.68	9,269.53	0.56
Total other revenue			23,288.61	1.00	35,292.78	1.56	29,848.52	1.81
10. Share of profit from investment in joint ventures and associates			8,515.02	0.36	6,007.99	0.27	4,177.72	0.25
Grand total			2,367,958.55	100.00	2,261,039.44	100.00	1,649,690.90	100.00

## Remarks:

Revenue of PTT's and subsidiaries' represents net revenue derived from external parties

1/ During 2020, PTT changed its shareholders portion in PTTEP, GC, TOP, IRPC and GPSC

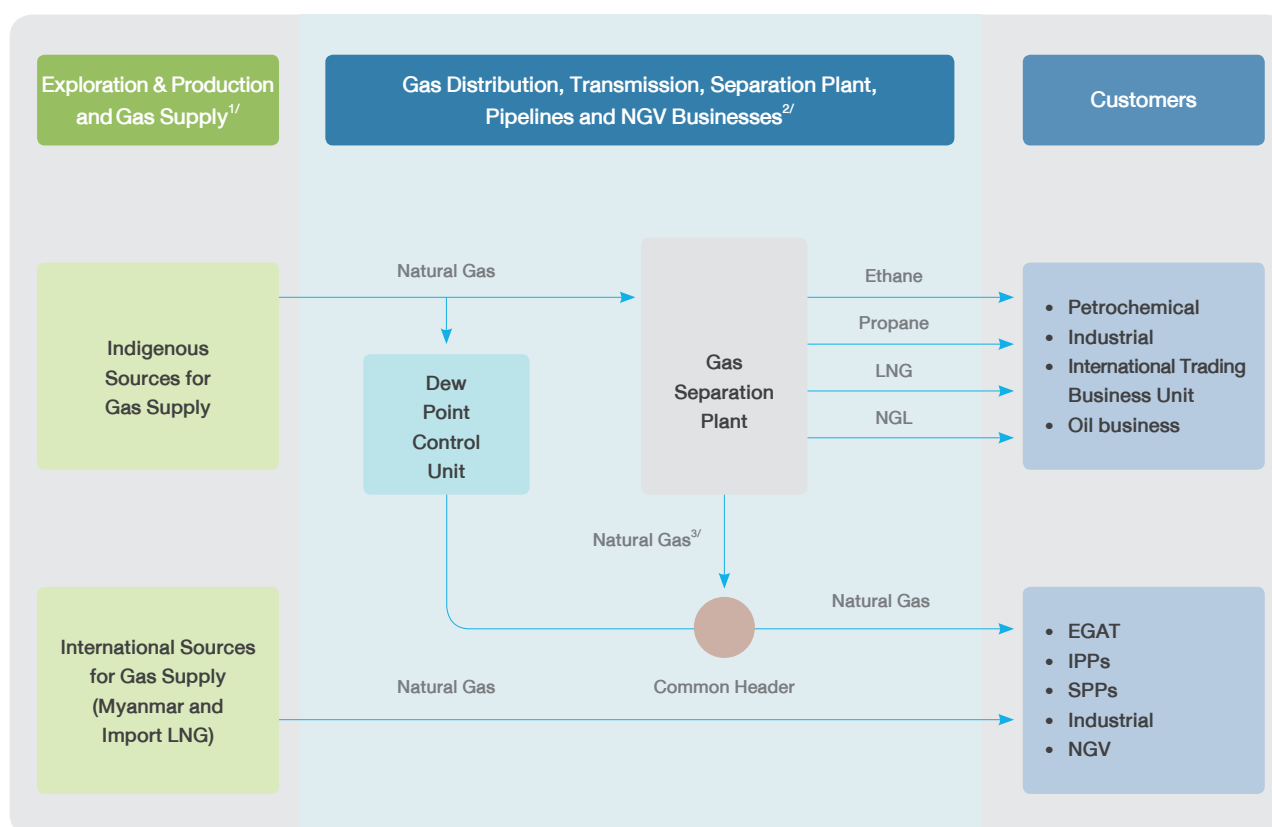
2/ PTT holds 100.00% of BSA's ordinary shares. Thus, PTT's ownership interest in BSA is 100%

## 1.2.2 Nature of Business/ Supply Procurement/ Distribution

### Upstream & Gas Business Group

Currently, PTT and affiliates under the Upstream Petroleum & Gas Business Group are the only fully-integrated gas companies in Thailand embracing exploration and production, gas procurement, LNG imports and regasification, gas transmission pipelines, gas separation, distribution, and engaging in gas-related businesses in domestic and international markets. PTT Group is Thailand's biggest operator in natural gas procurement, gas transportation through transmission and distribution pipelines, and gas separation.

Diagram of PTT Group's Upstream & Gas Business



Remarks:

- 1/ PTT operates exploration and production through PTTEP. PTT procures natural gas from both indigenous and international sources together with import LNG.
- 2/ Operated by PTT.
- 3/ Refers to a portion of natural gas which is left after other products have been separated. It mainly consists of methane.

## PTT-owned operation in Upstream Businesses

### Gas Business Unit

The Gas Business Unit engages in procurement, wholesaling, and retailing of natural gas, distribution of products from gas separation plant (GSP), and business investment that creates value added to natural gas through PTT's affiliates. The gas procurement includes domestic sourcing and international sourcing from a neighboring country together with LNG import to meet demand and sustain the constantly expanding domestic demand. As for gas wholesaling and retailing, PTT transports the natural gas through the transmission network to power producers consisting of the Electricity Generating Authority of Thailand (EGAT), Independent Power Producer (IPP), and Small Power Producer (SPP), industrial sectors and to transportation sector in order to promote natural gas as an alternative fuel for gasoline and diesel via PTT's Natural Gas for Vehicles (NGV) service stations. Concerning the gas separation plant, PTT invested in GSPs to create value add to natural gas from the Gulf of Thailand by separating valuable components to use as petrochemical feedstock for Thailand's petrochemical industry, which in turn supports other economic sectors, fostering Thailand's economic growth. PTT also distributes liquefied petroleum gas (LPG) which is used as cooking gas in household and fuel in industrial and transportation sectors.

Other related business consists of gas transmission pipeline i.e. asset management, gas logistics through transmission pipelines, which consists of offshore system connecting various gas fields in the Gulf of Thailand, the eastern onshore system for Gulf gas and LNG receiving terminals, and the western onshore system for Yadana, Yetagun, and Zawtika gas fields in Myanmar receiving natural gas at the Thailand-Myanmar border. Natural gas is transmitted

through the pipeline network and delivered to power producers, GSP, NGV, and industrial customers. PTT also invested in LNG receiving terminals through PTTLNG Co., Ltd. (PTTLNG), a wholly owned company, to cater LNG vessels, store, and convert LNG into its gaseous form to accommodate LNG imported by PTT's gas business unit. PTTLNG has enabled the third parties to notify their intentions to access or connect to the terminals since March 30, 2015.

Gas pricing structure for gas business unit (both wholesale and retail) is regulated by the Energy Regulatory Commission (ERC) under the Energy Business Act 2007. Nevertheless, PTT's gas business unit can be divided into four sub business units as follows:

- (1) Gas Supply and Marketing takes charge of gas procurement from indigenous and international sources, imported LNG and regasification and gas delivery to customers. The major customer is power producers.
- (2) Gas Separation Plant takes charge of operating and developing gas separating business. There are currently six units of gas separation plants.
- (3) Distribution Pipeline takes charge of operating and developing gas distribution pipeline from transmission pipelines and deliver natural gas to industrial customers.
- (4) Natural Gas for Vehicles takes charge of expansion of NGV service stations and promotion of gas consumption growth in the transportation sector as an alternative fuel, which is more environmental friendly in order to lower fuel burdens for consumers and ease severe air pollution.

For 2020, PTT has sales revenue of natural gas products amounting to THB 334,855 million, decreasing by THB 71,322 million or 17.6% from the previous year, where gas products sold for THB 406,177 million. (Details under PTT's and subsidiaries' revenue structure by product line under 1.2.1).

## Supply and Marketing

### Gas Procurement

PTT's gas procurement is under responsibility of the Gas Supply and Wholesale Business. About 70% of the gas comes from indigenous production while the rest comes from Myanmar and LNG imports.

Currently, PTT has 14 gas sales agreements (GSA) with producers. Eleven agreements are for natural gas from domestic sources, namely Pailin, Bongkot North, Bongkot South<sup>1/</sup>, Unocal 123<sup>2/</sup>, B8/32<sup>3/</sup>, Arthit, MTJDA Block A-18, MTJDA Block B-17, Nam Phong, Sinphuhorm<sup>4/</sup>, and Sirikit (Lan Krabue). Three agreements are for natural gas from Myanmar, namely Yadana, Yetagun, and Zawtika<sup>5/</sup>.

As PTTEP Energy Development Co., Ltd. (PTTEP ED), a PTTEP's subsidiary, won the exploration and production rights covering Exploration Block G1/61 (Erawan field) and G2/61 (Bongkot field), signed the production sharing contracts (PSCs) with the public sector in February 2019. Minimum production at the fields is 800 MMSCFD and 700 MMSCFD, respectively. PTT is currently negotiating for a GSA of G1/61, replacing the Unocal 123 (Old Erawan) GSA, which will expire in 2022, and another for G2/61, replacing the Bongkot North GSA and Bongkot South GSA, which will expire in 2022 - 2023.

Moreover, PTT imported LNG to secure gas supply and meet the increasing gas demand. PTT currently has four long-term LNG purchase agreements with a total supply capacity of 5.2 million tons per annum (MTA), namely Qatar Liquefied Gas Co., Ltd. (2 MTA), Shell Eastern Trading (Pte) Ltd. (1 MTA), BP Singapore Pte. Ltd. (1 MTA), and Petronas LNG Ltd. (1.2 MTA).

As for additional demand of LNG, PTT will procure them as spot LNG to cope with the dynamic markets and accommodate the gas business liberalization policy. If spot LNG prices has a downward trend, PTT will import spot LNG to replace some part of the Gulf gas in order to prolong domestic gas production and optimize national resources.

1/ Signed on July 30, 2009, with gas sales volume of 320 MMSCFD and the first gas started on June 16, 2012

2/ Gas sales agreement began on May 5, 2010, at an initial volume of 680 MMSCFD, ramping up to 1,010 MMSCFD on November 17, 2011, and to 1,240 MMSCFD on April 24, 2012; while dropped to 1,215 MMSCFD from October 1, 2017, onwards however the GSA and concession will expire on April 23, 2022

3/ Consist of Benchamas, Benchamas North, Maliwan, Jarmjuree, North Jarmjuree, Chaba, and Lanta, effective from October 1, 2019, with gas sales volume of 45 MMSCFD

4/ GSA expires on November 28, 2021

5/ GSA was signed on July 30, 2010, for gas sales volume of 240 MMSCFD, with the first delivery on August 5, 2014

Most of PTT's natural gas procurement comes from indigenous fields/ concessions. The procurement's volumes and proportion in each sources during 2018 - 2020 are as below.

Field/ Concession	2018		2019		2020	
	MMSCFD	%	MMSCFD	%	MMSCFD	%
<b>Domestic</b>						
- Pailin	405	8.6	408	8.5	325	7.4
- Bongkot (North/ South)	735	15.6	787	16.4	753	17.2
- Unocal 1, 2, 3	1,287	27.3	1,286	26.8	1,117	25.4
- B8/32	79	1.7	76	1.6	55	1.3
- Arthit	209	4.4	220	4.6	215	4.9
- MTJDA	464	9.9	462	9.7	351	8.0
- Nam Phong/ Sinphuhorm	86	1.9	91	1.9	101	2.3
- Sirikit	11	0.2	10	0.2	6	0.1
<b>Total indigenous</b>	<b>3,276</b>	<b>69.6</b>	<b>3,340</b>	<b>69.7</b>	<b>2,923</b>	<b>66.6</b>
<b>International</b>						
- Yadana	440	9.3	419	8.7	409	9.3
- Yetagun	141	3.0	99	2.1	52	1.2
- Zawtika	224	4.8	218	4.6	233	5.3
- LNG	627	13.3	716	14.9	772	17.6
<b>Total international</b>	<b>1,432</b>	<b>30.4</b>	<b>1,452</b>	<b>30.3</b>	<b>1,466</b>	<b>33.4</b>
<b>Total procurement</b>	<b>4,708</b>	<b>100.0</b>	<b>4,792</b>	<b>100.0</b>	<b>4,389</b>	<b>100.0</b>
Average gas price (THB/MMBTU)	214.6		228.7		205.5	

Remark:

Volumes calculated for heating value of 1,000 Btu/cubic feet

### Major Terms of GSAs

Terms of agreements between PTT and gas producers range from 25 - 30 years. Both contract parties agree on the delivery of natural gas at specified pressures at the wellhead or another agreed location, with quality and pressures stated in the agreements.

The gas producers are responsible for arranging a contractual delivery capacity (CDC) so that PTT can call for maximum volumes up to 105 - 125% of the daily contract quantity (DCQ) under a given agreement, whereas PTT must take delivery of the minimum DCQ. PTT is eligible to buy more gas than the CDC if the seller can produce and deliver it.

However, any contract year that PTT cannot take delivery of minimum volumes as stated (annual contract quantity, ACQ), PTT is obligated to pay for the untaken portion (Take-or-Pay), and PTT can take delivery of such prepaid natural gas in future contract years without expiration and an additional payment (make-up gas). In order to exercise the right to receive make-up gas, PTT must first take delivery of the entire ACQ. On the contrary, if PTT takes delivery in excess of the ACQ, these excess quantities can be applied against our annual minimum quantities for future years, up to a maximum of five years after the excess gas was purchased, provided that generally such credit carry forward shall be limited to 15% or 20% of the minimum off-take amount in the respective contract year.

To the extent that producers are unable to meet their delivery obligations under the gas purchase agreements (shortfall), PTT is eligible to pay for the actual volume taken and producers are generally required to supply the amount of shortfall in the succeeding period at a discount of 20 - 25% of the contracted price (depending on the agreement). At the end of the contract year, PTT can lower the ACQ by the shortfall volumes.

The gas purchase price stated in each GSA starts from an initial fixed base price and define floor and ceiling formulas to protect the gas buyer and gas producers. The gas purchase

price formula consists of the following factors: high-sulfur fuel oil ex-Singapore, foreign exchange rate, and various economic indices, including Thailand's wholesale price index and the U.S. producer price index for oil and gas field machinery and tools. The gas purchase price is adjusted every 12 months, 6 months, 3 months, or 1 month (depending on the agreement). The gas purchase price is passed through to power producers which are our main group of customers. This minimizes our exposure to fluctuation in gas price.

All GSAs contain force majeure provisions that excuse PTT and the producers from performance of our respective obligations in certain circumstances. These circumstances, or force majeure, are generally defined as any happening, event or pernicious results which are beyond the control of the party claiming relief acting in a reasonable and prudent manner. Certain of the gas purchase agreements include within the definition of force majeure the inability of PTT to accept delivery of natural gas by reason of the inability of any of the customers to take natural gas, if such inability is caused by an event which would have constituted force majeure in relation to PTT. However, PTT is not entitled to such force majeure relief unless we require each of our suppliers to bear its proportionate share of the volume of natural gas we are unable to take.

**A GSA will expire if the following cases has occurred:**

- (1) The period specified in the agreement ends or
- (2) The concession period ends  
(only for indigenous gas fields) or
- (3) The gas reserves in the field is depleted.

### Gas Distribution

PTT distributes gas mainly direct to the power producer customers, namely EGAT, IPP, and SPP, through transmission pipelines.

The gas delivery volumes to various groups of customers (including the GSP-consumed gas volumes) for 2018 - 2020 are as below.

Customer Group	2018		2019		2020	
	MMSCFD	%	MMSCFD	%	MMSCFD	%
1. EGAT	737	15.6	755	15.7	786	17.8
2. IPP	739	15.7	750	15.6	546	12.4
3. SPP	1,222	25.9	1,305	27.2	1,281	29.2
4. Industrial customers <sup>1/</sup>	998	21.2	971	20.3	872	19.9
5. GSP	1,015	21.6	1,015	21.2	909	20.7
<b>Total</b>	<b>4,711</b>	<b>100.0</b>	<b>4,796</b>	<b>100.0</b>	<b>4,394</b>	<b>100.0</b>

Source: PTT

Remarks:

Volumes calculated for heating value of 1,000 Btu/cubic feet and by the number of days in that calendar year.

1/ Including the gas sold to PTT NGD and gas consumed in the transport sector (NGV)

The gas price structure for power producers (EGAT, IPP and SPP) for natural gas is comprised of two major components, a gas charge and a transmission pipeline tariff.

#### (1) Gas Charge

The gas charge is equal to the weighted average price of natural gas cost that PTT pay to various natural gas producers, plus the supply and marketing margin.

Such marketing margin, embracing the expenses and risk for supply and marketing actions, varies upon types of customers. Nowadays, the marketing margin for EGAT and IPP equals 1.75% of the average gas cost, but not exceeding THB 2.1525 per MMBTU. For SPP, whose volume is lower than the first two groups, PTT computes the marketing margin at 9.33% of the average gas cost, but not exceeding THB 11.4759 per MMBTU.

#### (2) Pipeline Tariff

Pipeline gas tariff consist of two major components, the first is the demand charge, computed from the investment cost and a fixed operating charge, with the internal rate of return on equity at 18% for the transmission system under the first and second master plans and 12.5% for that under the third master plan (revision)<sup>(a)</sup>, the second is the commodity charge, computed from variable operating cost that occurred during the gas transmission services.

(a) Effective from April 1, 2009



In 2020 this pipeline tariff remained unchanged. The computation conformed to the criteria approved by the National Energy Policy Council (NEPC) since October 18, 2007; the Energy Policy and Planning Office (EPPO) and PTT proposed tariff formulas for ERC's endorsement. Pipeline tariff determination for each customer varies with customer's gas consumption zone, as detailed below.

#### Demand charges

Unit: THB/MMBTU

Zone	Transmission system	Demand charge
1	Offshore system (Rayong)	8.5899 <sup>(a)</sup>
2	Offshore system (Khanom)	14.2177 <sup>(a)</sup>
3	Onshore	12.0654 <sup>(a)</sup>
4	Onshore (Chana)	2.4855 <sup>(b)</sup>
5	Onshore (Nam Phong)	1.1299 <sup>(c)</sup>

#### Commodity charges

Unit: THB/MMBTU

Zone	Transmission system	Commodity charge
1	Offshore system (Rayong)	1.1668 <sup>(d)</sup>
2	Offshore system (Khanom)	
3	Onshore	
4	Onshore (Chana)	0.1569 <sup>(d)</sup>
5	Onshore (Nam Phong)	0.0000 <sup>(d)</sup>

#### Remarks:

(a) Effective from April 1, 2009

(b) Effective from June 2011

(c) Effective from July 2012

(d) Effective from July 2017

EGAT and IPP pay fixed amount of demand charges according to the contractual volumes, whether they buy more or less than the contractual volumes; SPP pay variable amount of demand charges according to the actual volumes that must not be less than the contractual volumes for the corresponding years. In addition, ERC allowed the periodic adjustment to review demand charges every five years or as seen fit by ERC or with reasons that cause significantly change in the tariff, so as to maintain the internal rate of return for equity as approved. The commodity charge can be adjusted annually based on adjustment index to reflect current circumstances with consideration for operating efficiency.

**GSP**

Besides the selling of natural gas direct to customers, PTT feeds a portion of the natural gas into its GSP to add optimal value to it, specifically extract key hydrocarbon components. The GSP products are ethane, propane, LPG (cooking gas), isopentane, and natural gas liquids (NGLs) and the processing by product is carbon dioxide gas, which finds application in various industries. The GSP products and their applications as follows:

Product	Application
Ethane	Upstream petrochemical feedstock
Propane	Upstream petrochemical feedstock
LPG (cooking gas)	Fuel for households, vehicles, plants, and upstream petrochemical feedstock
NGLs	Oil refinery feedstock and upstream petrochemical feedstock
Isopentane	Upstream petrochemical feedstock

PTT is currently the major GSP operator with six GSP units, all of which undergo constant improvement and process efficiency, enabling to achieve a total processing capacity of 2,870 MMSCFD which higher than the nameplate capacity of 2,660 MMSCFD.

The production volumes of GSP products from 2018 to 2020 as follows:

Product	2018	2019	2020
Ethane (tons)	2,388,136	2,396,338	2,069,851
Propane (tons)	1,012,359	1,021,520	940,818
LPG (cooking gas, tons)	2,795,800	2,744,868	2,374,785
NGLs (tons)	501,483	525,146	625,831
Isopentane (tons)	47,675	50,877	37,164
<b>Total</b>	<b>6,745,453</b>	<b>6,738,749</b>	<b>6,048,449</b>

Source: PTT

The sales volumes of GSP products from 2018 to 2020 as follows:

Product	2018	2019	2020
Ethane (tons)	2,389,118	2,397,704	2,198,542
Propane (tons)	907,028	891,923	853,025
LPG (cooking gas, tons)	3,203,338	3,594,017	2,947,307
NGLs (tons)	645,181	674,179	603,433
Isopentane (tons)	47,672	50,871	37,161
<b>Total</b>	<b>7,192,337</b>	<b>7,608,694</b>	<b>6,639,468</b>

Source: PTT

The major customers of GSPs consist of the petrochemical group, including PTT Global Chemical Plc., HMC Polymers Co., Ltd., and Rayong Olefins Co., Ltd., and oil traders under Article 7 of the Fuel Trade Act 2000. In 2020, GSPs distributed LPG mainly to these oil traders under Article 7, namely PTT Oil and Retail Business Plc (OR), Siam Gas and Petrochemicals Plc, and Unique Gas and Petrochemicals Plc.

The sales prices for GSP products to petrochemical customers are based on an agreed price formula for each customer. The formula mainly references to the published reference prices of petrochemical products. NGL prices are reference to the global naphtha price. For LPG prices, since August 2017 EPPO will announce the reference prices only for retail domestic LPG; the imported LPG price changed the referenced from monthly CP prices to a bi-weekly average of Platt's FOB Arab Gulf price so as to make LPG costs comparable and competitive for all sources under a free trade market. However, for the GSPs, if LPG Cargo + X (import expenses) exceeds the LPG cost derived from GSPs, the NEPC decided to consign those difference to the LPG Fund, and will subsidize to GSPs if LPG Cargo + X falls below the LPG cost derived from GSPs.

Since 2015, the government requested PTT to assist members of the public consuming LPG in low-income households, retail outlets, hawkers, and food stalls to ease impacts of retail LPG price adjustment. From October 2017 onwards, PTT switched its support to low-income earners through the Public Welfare card. For 2020, PTT's support amounting to THB 7,157,946.23.

## Gas Retail

Besides the distribution of natural gas to the power producers, PTT sells natural gas to industrial customers by invested in distribution pipeline system to connect from the transmission pipeline system to customers for their processes, cogeneration, and commercial purposes, together with distribution through trucks in the form of CNG (compressed natural gas) and LNG. As of December 31, 2020, it boasted 365 contracts with gas distribution system customers and six contracts with CNG/ LNG customers.

The price structure applying to industrial customers differ from power producers. The gas charge consists of two major components including the actual monthly consumption and the capacity management charge. In principle, the price for industrial customers must be competitive with those of alternative fuels, namely fuel oil and LPG.

## NGV

In order to promote natural gas as an alternative transportation fuel, ease impacts on fluctuation in crude oil and refined oil prices, reduce environmental impact and encourage the use of fuel produced domestically, PTT introduced NGV as a fuel for Bangkok Metropolitan Transportation Organization (BMTA)'s NGV buses from 1993 onwards and expand to other vehicles. As of December 2020, Thailand had a total of 340,345 NGV vehicles (data from the Department of Land Transport), with NGV average sales volume 3,963 MMSCFD. The active NGV service stations numbered 415, 19 of which were mother stations, which compressed and filled tank trucks with NGV for delivery to 271 daughter stations beyond transmission pipeline routes and 125 conventional stations along transmission pipeline routes. Bangkok and its perimeter had 197 stations whereas the other provinces had 218 stations.

## Natural Gas Transmission Pipeline Business

The Natural Gas Transmission Pipeline Business engages in service, operation, and pipelines maintenance together with executing legal actions concerning its own business. All of natural gas that producers deliver the gas to PTT at delivery points, will transport to customers via the transmission pipeline system, which belongs to PTT's Upstream & Gas Business Group. PTT's gas transmission system consists of the offshore systems that connect to the gas fields in Gulf of Thailand, the eastern onshore system taking gas from the Gulf and LNG terminals, and the western onshore system taking gas from Myanmar's Yadana, Yetagun, and Zawtika fields at the Thailand-Myanmar border to distribute gas to power producers, GSP, NGV, and industrial customers. PTT's system consists of dew point control units and a common header, together making up a process to control the quality of gas derived from various sources in the Gulf to uniform heating values and uniform quality.

As of December 31, 2020, PTT's transmission pipeline system combining for a total distance of 4,314 kilometers; 2,181 kilometers of onshore system (including those of IPP and segments leading to power plants, but excluding distribution pipelines) and 2,133 kilometers of offshore system.

Details of existing major transmission pipelines as of December 31, 2020

Pipeline	Length (km)	Diameter (inch)	Commercial Operating Date (COD)	Description
<b>Offshore system</b>				
Erawan to Rayong GSPs (Main Pipeline No.1)	415	34	1981	Main pipeline from Erawan Platform to Rayong GSPs in Map Ta Phut
Bongkot to Erawan (Main Pipeline No.1)	171	32	1996	Main pipeline from Bongkot field to Erawan Platform
Erawan to Rayong GSPs (Parallel Pipeline)	413	36	1996 - 1997	Parallel pipeline from Erawan Platform to Rayong GSPs in Map Ta Phut
Erawan to Khanom Power Plant	161	24	1996	Pipeline from Erawan Platform to Khanom Power Plant in Nakhon Si Thammarat
Arthit to Rayong GSPs (Third Pipeline)	610	42	2007	Third pipeline from Arthit field to Rayong GSPs in Map Ta Phut
JDA to Arthit	95	42	2008	Third pipeline connecting JDA gas fields to Arthit field
Chevron extension (Platong 2) to Third Pipeline	48	28	2011	Pipeline from Chevron extension (Platong 2) field to the Third Pipeline
Bongkot South to Third Pipeline	38	24	2012	Pipeline from Bongkot South field to the Third Pipeline
<b>Onshore system</b>				
Rayong GSPs to Bangpakong Power Plant (Main Pipeline No. 2)	107	28	1981	Main pipeline from Rayong GSPs to Bangpakong Power Plant, Chachoengsao
Bangpakong Power Plant to South Bangkok Power Plant (Main Pipeline No. 1)	57	28	1981	Main pipeline from Bangpakong Power Plant to South Bangkok Power Plant, Samut Prakan
Bangphli to Saraburi (Main Pipeline)	99	24	1981	Main pipeline from Bang Phli, Samut Prakan, to Siam Cement Plc.'s cement plants in Saraburi
Nam Phong field to Nam Phong Power Plant	3	16	1990	Pipeline connecting Nam Phong field to Nam Phong Power Plant, Khon Kaen
Rayong GSPs to Bangpakong Power Plant (Parallel Pipeline)	105	28	1996	Parallel pipeline from Rayong GSPs to Bangpakong Power Plant, Chachoengsao
Bangpakong to Wang Noi Power Plant (Parallel Pipeline)	101	36	1996	Parallel pipeline from Bangpakong pressure booster station, Chachoengsao, to Wang Noi Power Plant, Phra Nakhon Si Ayutthaya

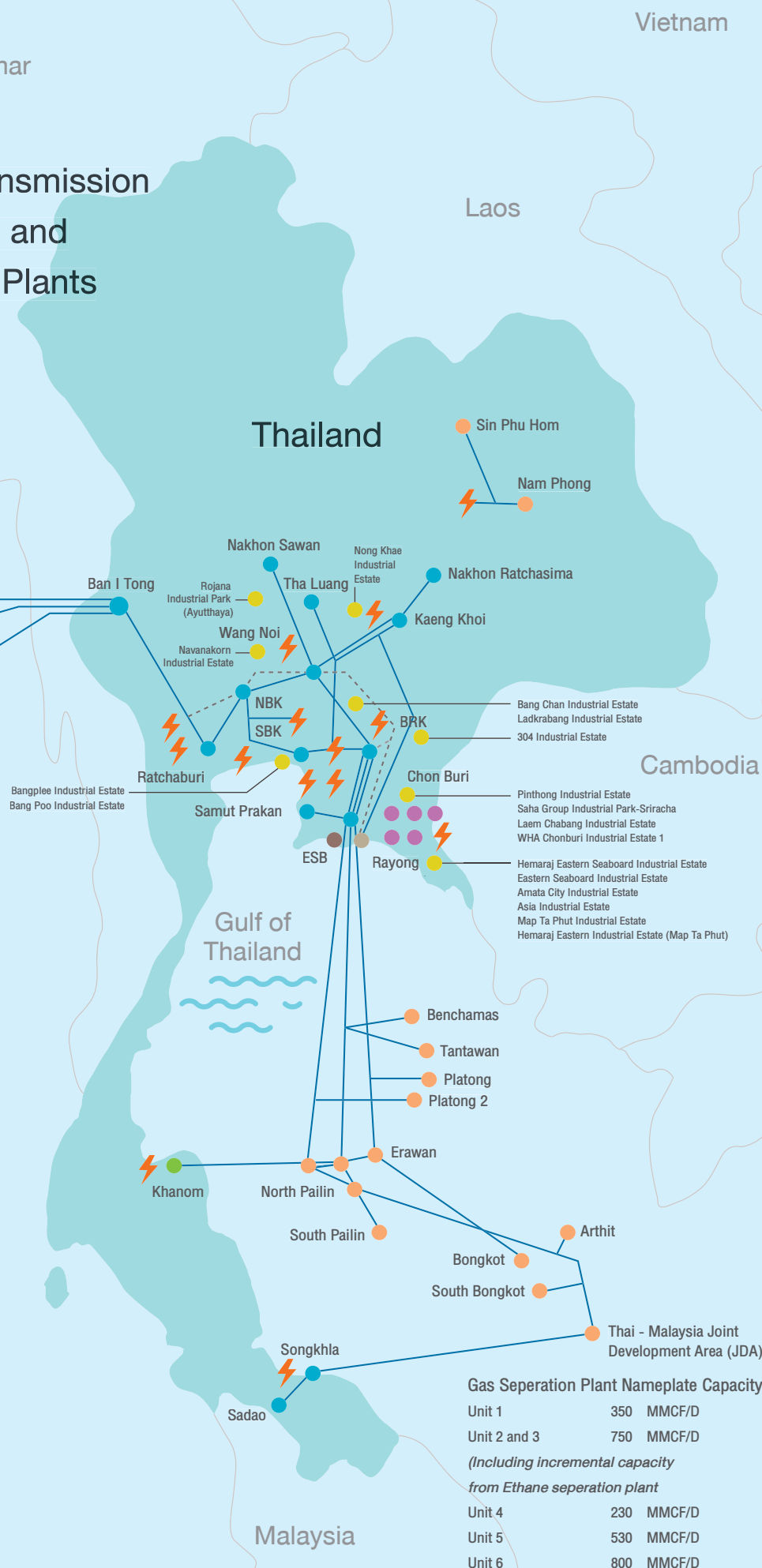
Pipeline	Length (km)	Diameter (inch)	Commercial Operating Date (COD)	Description
Thailand-Myanmar border to Ratchaburi Power Plant	238	42	1998	Pipeline starting from the gas delivery point at the border to take the gas from Yadana and Yetagun fields to Ratchaburi Power Plant, Ratchaburi
Ratchaburi to Wang Noi	154	30	2000	Pipeline from Ratchaburi gas metering station to Wang Noi metering station, Ayutthaya
Rayong GSPs to Bangpakong (Third Pipeline)	110	36	2006	Third pipeline from Rayong GSPs to Bangpakong Power Plant, Chachoengsao
Wang Noi Power Plant to Kaeng Khoi Power Plant	72	36	2006	Pipeline from Wang Noi Power Plant, Ayutthaya, to Kaeng Khoi Power Plant, Saraburi
#RA6 Pressure Control Station to South Bangkok Power Plant	70	30	2007	Pipeline from #RA6 Pressure Control Station to South Bangkok Power Plant, Samut Prakan
Offshore pipeline to Chana Power Plant	8	20	2007	Pipeline from the coast of Chana district, Songkhla, to Chana Power Plant, Songkhla
Pipeline to North Bangkok Power Plant	7	24	2009	Pipeline from South Bangkok Power Plant to North Bangkok Power Plant, Nonthaburi
Onshore pipeline from Thailand-Myanmar border to BVW#1	0.59	28	2014	Pipeline from Zawtika field, Myanmar, to PTT's transmission pipeline at BVW#1, Kanchanaburi
Rayong to Kaeng Khoi (Fourth Pipeline)	298	42	2015	Pipeline from Rayong to Wang Noi and Kaeng Khoi Power Plants
Nakhon Sawan	192	28	2015	Pipeline from Wang Noi Power Plant, Ayutthaya, to Nakhon Sawan
Nakhon Ratchasima	145	28	2018	Pipeline branching off from Wang Noi – Kaeng Khoi segment, Saraburi, to Nakhon Ratchasima
5 <sup>th</sup> Onshore pipeline	72	42	2021	Pipeline from Rayong to Sainoi pipeline – North/ South Bangkok Power Plant



# Natural Gas Transmission Pipeline System and Gas Separation Plants

## GAS TRANSPORTATION PIPELINE CAPACITY

- Natural Gas Field
- ⚡ Power Plant
- Gas Separation Plant Unit 1, 2, 3, 5, 6 in Rayong
- Gas Separation Plant Unit 4 in Nakhon Si Thammarat
- Block Valve/ Important Node in Pipeline Network
- Map Ta Phut LNG Terminal (T-1)
- LNG Receiving Terminal (T-2): Future
- Existing Pipeline
- - - - Future Pipeline
- Industrial Estate



## Upstream Businesses Invested Through PTT Group

### Gas-Related Businesses

PTT engages in gas-related businesses through its affiliates to support PTT Group's fully integrated gas businesses. For example, the LNG business operates an LNG receiving terminal, LNG regasification and storage services to support country's demand as well as an investment expansion and an integrated LNG business across the value chain, also, the gas distribution pipeline business engages in developing and constructing pipeline systems together with gas transportation etc. Thus, PTT invested through affiliates company namely PTT Natural Gas Distribution Co., Ltd. (PTT NGD), Trans Thai-Malaysia (Thailand) Limited (TTM (T)) and Trans Thai-Malaysia (Malaysia) Sdn. Bhd. (TTM (M)), PTTLNG Company Limited (PTTLNG), and Map Ta Phut Air Products Company Limited (MAP).

### Exploration and Production Business

PTT engages in oil and gas exploration and production (E&P) business through its subsidiary PTT Exploration and Production (PTTEP) Plc. (E&P Flagship Company). PTTEP operates domestic and international petroleum E&P and invests in related businesses to find petroleum deposits of crude oil and natural gas that are competitively priced in order to ensure Thailand's energy security. It sells petroleum outputs from domestic and regional projects, mostly natural gas, primarily to the domestic market. As of December 31, 2020, PTTEP had working interests in more than 40 petroleum exploration development and production projects in 15 countries including Thailand and other countries globally.

### Overseas Upstream Business

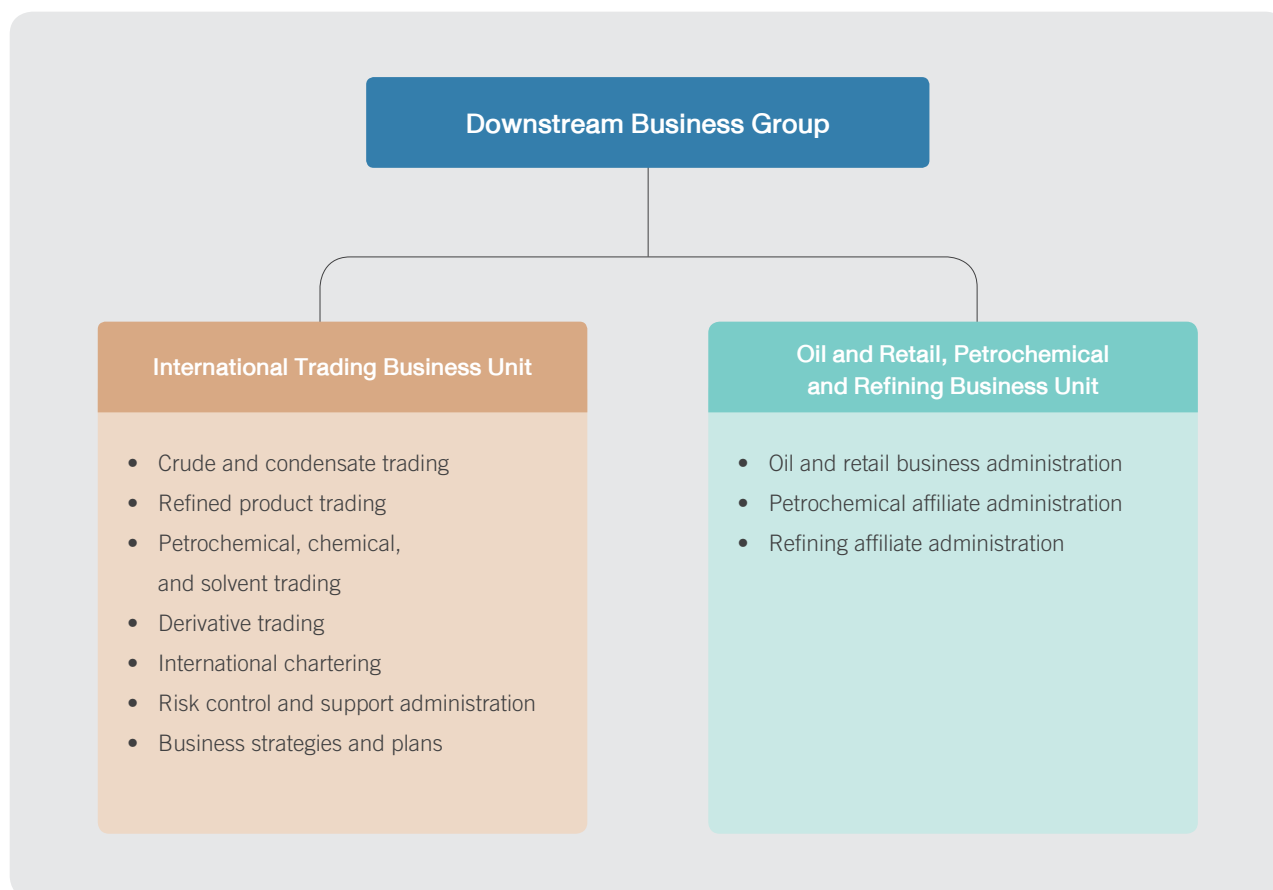
PTT is fully committed to pursuing businesses in search of new energy sources and renewables power to secure energy supply for Thailand and continuously extend its existing businesses by leveraging knowledge, expertise, and experience of its people, as well as synergy among members of PTT Group, particularly for international investments. PTT Energy Resources Company Limited (PTTER), PTT Global Management Company Limited (PTTGM), and PTT Green Energy Company Limited (PTTGE), wholly owned by PTT, are the main vehicle companies for investments. Another vehicle company, PTT Global LNG Company Limited, a 50 : 50 joint venture between PTT and PTTEP, is responsible for LNG-related business investment.

Details of PTT's affiliates regarding business operations/ procurement/ distribution can be found on the website investor.pttplc.com/en/downloads/annual-reports and PTTEP's further information on ptttep.com/en/Investorrelations/Regulatorfilings/Annualfiling.aspx

## Downstream Business Group

The Downstream Business Group consists of two business segments.

### Downstream Business Group Structure



Remark:

\* PTT set up the department to govern and manage the remaining asset, which transferred from oil business unit

## PTT-Operated Downstream Businesses

### International Trading Business Unit

International Trading Business Unit engages in fully integrated international trading ranging from supply procurement, import, export, to international trading of assorted products, namely crude oil, condensate, LNG, LPG, refined product, petrochemical, solvent, and chemical, together with price risk management (hedging) services and international chartering services. Its core objective is to enhance energy security while adding value to Thailand's surplus products in parallel with trading platform expansion to all regions around the world and raising international trading competitiveness for PTT Group.

The business unit's performance hinges on its pursuit of growth opportunities in out-out trading activities. It therefore formed affiliates and representative offices in trading hubs around the world, including Singapore, Abu Dhabi (the United Arab Emirates), Shanghai (China), London (the United Kingdom), and Houston (the United States of America). As a result, the business unit engages trading transactions with various partners covering around the world. Since international trading transactions carrying high values activities, the business unit applied the risk control system employed by the world-class trading houses as its best practices. In addition, a committee is in place to set risk management policies, steer assorted risk management tasks and clearly divide the work structure and roles in the system as Front-Mid-Back for checks and balances. Digital technology is also applied to develop systems for operation and transaction risk controls to enable quick and transparent transactions along with an efficient audit.

## Nature of Merchandises and Products

The business unit's merchandise and products consist of four categories.

### 1) Crude Oil

Crude oil represents assorted hydrocarbon compounds. Its quality varies with the types of organic substances where a given crude oil originates from, along with associated impurities. This is one of a constraint facing refineries. Thailand has several crude oil fields, but since the amount of crude oil extracted and used domestically accounts for only about 20% of the total demand of domestic refineries, therefore, it is necessary for Thailand to import crude oil from abroad. The crude suppliers are primarily from the Middle East, including Saudi Arabia, UAE, Qatar, and Oman, and from the Far East, including Australia, Malaysia, Brunei, Vietnam, and Indonesia, along with other sources such as Africa and the United State of America.

### 2) Condensate

Condensate is a natural gas that is present as gaseous components in underground under high pressure, but liquefies once brought up to the surface of the earth; it is considered as a by-product of gas production. The condensate currently used in Thailand over 60% comes mostly from domestic gas production, while the rest are imported. Refineries currently process condensate directly or blend it with crude oil before refining, in which the refined products has the similar properties as refined light crude oil.

### 3) Oil Refined Product

- Oil refined products include gasoline, kerosene, aviation fuel, gasoil, fuel oil, and low-sulfur waxy residue
- Liquefied Petroleum Gas: LPG
- Natural Gasoline: NGL
- Liquefied Natural Gas: LNG

### 4) Petrochemical Product, Chemical, and Solvent

- Feedstock & By-products include Naphtha and Pygas
- Olefins include propylene, C4 Raffinate, n-Butane, and Diethylene Glycol
- Aromatics include Benzene, Toluene, Mixed Xylenes, Paraxylene, Cyclohexane, and Styrene Monomer
- Chemicals include MTBE and Sulfuric Acid
- Solvents include Methanol, Diethylene Glycol, and Acetone

## Product Distribution of International Trading Business

PTT operates its international trading in three main businesses:

- 1) Crude and condensate trading business
- 2) Oil Refined product trading business
- 3) Petrochemical, chemical, and solvent trading business

### 1) Crude Oil and Condensate

International trading business covers procurement, import, and out-out trading from indigenous and international sources for domestic and overseas refineries, including pursuit of trading opportunities, physical swaps to create profit and system balance, and ensuring that indigenous crude oil and condensate are consumed effectively.

#### 1.1) Domestic Crude Oil

Thailand has limited crude oil reserves and is a net crude oil importer, therefore indigenous crude need to be consumed conscientiously. Currently, PTT procures indigenous crude from various fields, namely Sirikit (Phet), Kamphaengsan and U-thong (BP), Sangkajai, Bung Ya and Bung Muang (North Central), Wichianburi and Si Thep (Wichianburi), Na Sanun East (NSE), Arunothai, Pattani, Jasmine, Tantanwan, Benchamas, Bualuang, and Manora. PTT purchases part of indigenous crude from concessionaires and supply to domestic refineries.

#### 1.2) International Crude Oil

PTT procures and transports crude oil from outside Thailand for domestic refineries together with providing hedging management services. PTT is fully supply crude and condensate to GC and IRPC refineries, whereas supply part of crude and condensate to Thairoil (TOP), Bangchak Corporation Plc. (BCP), and Star Petroleum Refining Plc. (SPRC). The procured volumes are dependent on the quality, prices, bidding, and trading terms proffered by refineries.

PTT procures and imports feedstock to domestic refineries, accounting to over 60% of their throughput needs. PTT also serves as the PTTEP's trading arm for the domestic and international crude oil trade.

Besides supplying imported crude oil for domestic refining, PTT also trades crude oil overseas for out-out trading, which procuring from producing countries worldwide and supply to other countries. This could generates revenue and profits from overseas, as well as building a reputation for the country in the international trading platform.

#### 1.3) Condensate

PTT procures and transports condensate for domestic petrochemical plants and refineries, which GC, PTT Group's petrochemical flagship, serves as the foremost buyer for feedstock purposes. PTT purchases condensate from domestic concessionaires, operators of onshore gas fields namely Sinphuhorm and Gulf gas fields, namely Erawan, Pailin, Bongkot, and Arthit. However, during the shortage of domestic condensate, PTT will import from overseas sources for instance Malaysia, Australia, Philippines, and Indonesia, etc.

## The Supply of PTT's Crude Oil and Condensate

	2018		2019		2020	
	Million barrels	%	Million barrels	%	Million barrels	%
Indigenous crude oil	28.6	7.4	32.4	8.6	28.0	7.8
Indigenous condensate	34.7	9.0	34.5	9.1	27.9	7.8
Imported crude oil	192.3	49.8	178.1	47.2	168.2	46.9
Imported condensate	16.5	4.3	13.5	3.6	22.1	6.2
International trading of crude oil/ condensate	114.2	29.6	118.7	31.5	112.4	31.4
<b>Total</b>	<b>386.2</b>	<b>100.0</b>	<b>377.1</b>	<b>100.0</b>	<b>358.6</b>	<b>100.0</b>

Source: PTT

### 2) Oil Refined Product

PTT procures, imports, exports, and engages in trading of refined products, semi-refined products, LPG, and LNG to strengthen national energy security and balance in normal situation and emergencies, as well as for companies within PTT Group and others in domestic and international. It also pursues international trading opportunities to generate income for the country and forge networks for energy security. As a result, PTT has been well known in world markets. For instance, PTT imports LNG and base gasoline for gasohol production to meet domestic demand as well as exports NGL, a GSP by-product, and surplus fuels from refineries. Nowadays, PTT has the potential for exporting refined products to all regions worldwide at market prices.

### 3) Petrochemical Product, Chemical, and Solvent

PTT procures, imports, and exports, as well as engaging in out-out trading of upstream and midstream petrochemical products of both aromatics and olefins, together with chemicals and solvents; these embrace feedstock, main products, and by-products of refineries and petrochemical plants. PTT serves as the main exporter for GC regarding the surplus petrochemicals in the aromatics line, including benzene and paraxylene. In addition, it enhances trading opportunities by taking part in product bidding from other petrochemical plants in and outside Thailand to generate revenue and profit from international trading in all regions worldwide.

## International Trading Support

International trading support functions consist of:

- 1) Price Risk Management (hedging)
- 2) International Chartering

**1) Price Risk Management (hedging)**

Derivative Trading Department engages in the price risk management of trading, refining, production, petroleum and petrochemicals products, and chartering activities for PTT and PTT Group by trading derivatives in markets to hedge trading risk and fluctuating product prices.

**2) International Chartering**

International Chartering Department supports international trading business by providing services for transportation and time-chartered vessel services for import, export, and trading of products of PTT and PTT Group as well as trading partners outside PTT Group domestically and overseas in order to strengthen its competitiveness and integrated businesses

**International Trading Revenue Structure**

As of December 31, 2020, the International Trading Business Unit reported sales revenue of THB 656,218 million.

**International Trading Volumes and Values by Product Group**

Product	2018		2019		2020	
	Sales revenue (THB million)	Sales volume (Million liters/ Thousand tons)	Sales revenue (THB million)	Sales volume (Million liters/ Thousand tons)	Sales revenue (THB million)	Sales volume (Million liters/ Thousand tons)
<b>International Trading business</b>						
- Crude oil and Condensate	915,219	387	763,616	378	482,062	359
- Oil refined product	227,551	88	248,554	120	131,752	97
- Petrochemical product	93,992	25	72,392	24	41,898	19
- Other products (Thousand Tons)	2,359	83	468	-	506	-
<b>Total for the business unit</b>	<b>1,239,121</b>	<b>500 / 83</b>	<b>1,085,030</b>	<b>522 / 0</b>	<b>656,218</b>	<b>475 / 0</b>

Source: PTT (including trading transactions engaged by affiliates)



## Downstream Businesses Invested Through PTT Group

### International Trading Business

PTT invested in international trading business to undertake full-fledged international trading transactions through three companies namely PTT International Trading Pte. Ltd. (PTTT), PTT International Trading London Ltd. (PTTT LDN), and PTT International Trading USA Inc. (PTTT USA).

Details of PTT's affiliates regarding the business operations/ procurement/ distribution can be found on the website [investor.pttplc.com/en/downloads/annual-reports](http://investor.pttplc.com/en/downloads/annual-reports)

### Oil and Retail Business, Petrochemical and Refining Business

PTT has invested in the integrated refining with interests in three of Thailand's six refineries, total refining capacity is 770,000 barrels per day (BPD), or account for 62% of the national refining capacity (as of December 31, 2020), and petrochemical business ranging from upstream to downstream, from production to sale of fuels, upstream-midstream and downstream petrochemicals both of olefins and aromatics which enables us to add significant value to our business. We also provide marine terminal and tank services. PTT is responsible for procuring crude oil and buying fuels and petrochemicals from PTT Group companies for distribution in domestic and international markets. The performance of

these businesses are primarily subject to the global economy, the spreads between crude oil and products, which is related to global demand and supply together with year-end inventories. PTT Group's petrochemical flagship company is GC; refinery flagship, TOP; integrated petrochemical and refinery operation flagship, IRPC; and oil and retail business flagship, OR. OR operates the integrated sale and distribution of oil products and retailing of a variety of products and other non-oil services, including sale of petroleum products and other products in retail and commercial markets, coffee business, food and beverages, convenience stores, and space management. Additionally, PTT TANK engages in petroleum and petrochemical product receiving, storing, and offtaking services to companies in the Group. PTT exercises direct and indirect governance of its affiliates through representatives that serve as directors and secondments.

PTT invests in the oil and retail, petrochemical, and refining business through five affiliates:

1. PTT Global Chemical Plc. (GC)
2. Thai Oil Plc. (TOP)
3. IRPC Plc. (IRPC)
4. PTT Oil and Retail Business Plc. (OR)
5. PTT Tank Terminal Co., Ltd. (PTT TANK)

Details of PTT's affiliates regarding the business operations/ procurement/ distribution can be found on the website [investor.pttplc.com/en/downloads/annual-reports](http://investor.pttplc.com/en/downloads/annual-reports), including

GC: [investor.pttgcgroup.com/ar.html](http://investor.pttgcgroup.com/ar.html)

TOP: [investor.thaioilgroup.com/ar.html](http://investor.thaioilgroup.com/ar.html)

IRPC: [irpc.co.th/en/about-us/library/annual-report/](http://irpc.co.th/en/about-us/library/annual-report/)

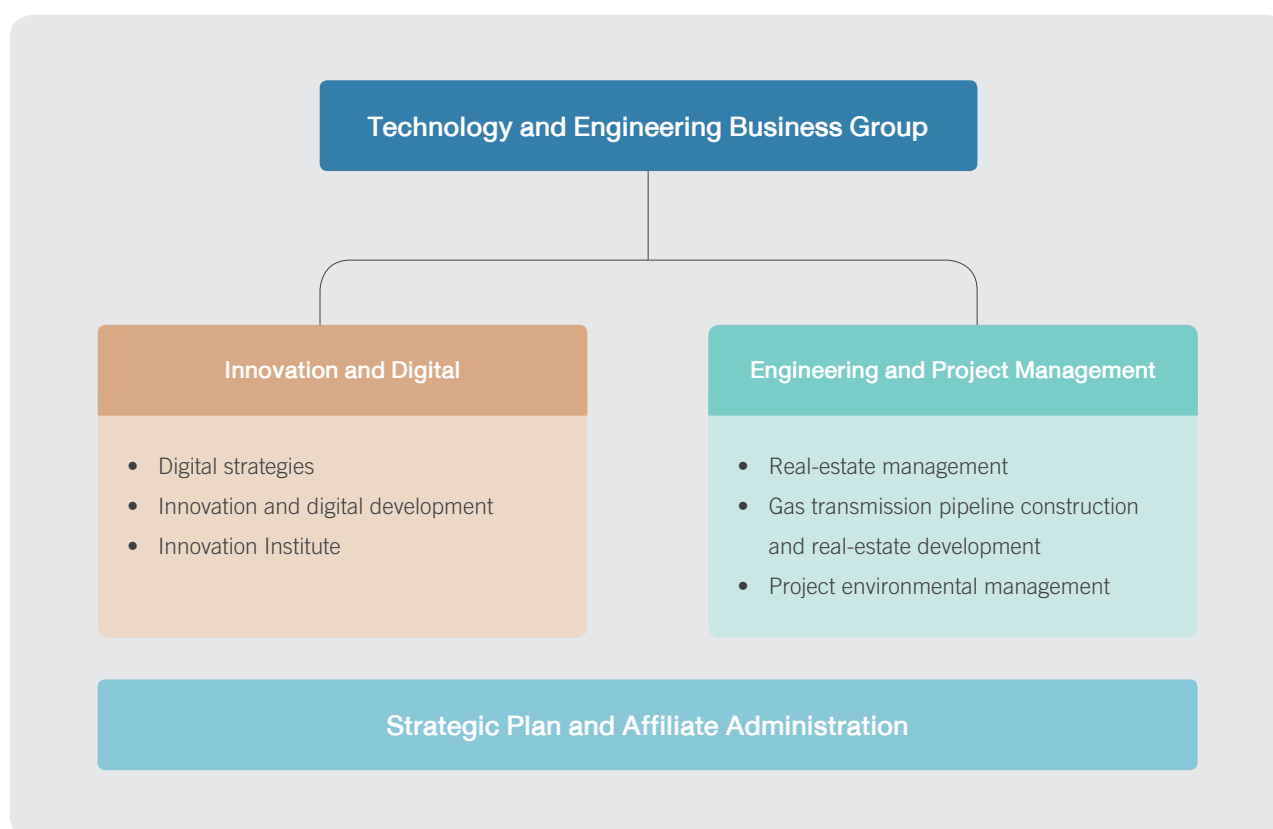
OR: [investor.pttor.com/en/home](http://investor.pttor.com/en/home)

## Technology and Engineering Business

The Technology and Engineering Group was formed on January 1, 2018, as a result of organizational restructuring. This business engages in engineering, real estate, digital, and technology in support of PTT's businesses. It links the management of PTT's core business groups, asset management including land and buildings, pursuit of new business opportunities arising from PTT's assets for added value, pursuit of excellence in real-estate development and integrated engineering services, R&D (technical and innovation), development of prototypes and pursuit of New Business S-Curve opportunities to accommodate domestic and international growth.

Below is a description of the Technology and Engineering Group.

### Structure of the Technology and Engineering Group



## PTT-Operated Technology and Engineering Businesses

### Innovation and Digital

This segment focuses on developing new businesses to accommodate megatrends and groom PTT for entering assorted New Business S-Curve businesses, including new energy businesses by investing in renewable power project, battery business, electric vehicle related businesses, and electricity value chains. Moreover, the Innovation Institute, which undertakes R&D by focusing on strengthening technologies and evolving researchers' caliber to become specialists in individual aspects, extending digital advancements and developing digital transformation.

## Engineering and Project Management

This segment consists of assets management including land and buildings, supporting new business opportunities from PTT's assets for value addition, and engineering and construction project management including the construction of gas transmission pipeline and gas separation plant, etc. The project assessment of safety, environment, society, and communities; determined regulatory for supporting PTT's project's to achieve its goal and target. In addition, a specific structures has been established to enable projects catering to PTT's strategies for new businesses, including Wangchan Valley Development Project for EECi and the opportunity for joint development of various Smart City projects, etc.

## Technology and Engineering Businesses Operated through PTT Group

As of December 31, 2020, PTT commanded the following 6 affiliates under the supervision of the Technology and Engineering Group:

1. Global Power Synergy Plc. (GPSC)
2. District Cooling System and Power Plant Co., Ltd. (DCAP)
3. Thaioil Power Co., Ltd. (TP)
4. Energy Complex Co., Ltd. (EnCo)
5. PTT Energy Solutions Co., Ltd. (PTTES)
6. PTT Digital Solution Co., Ltd. (PTT Digital)

PTT Group engaged in power business through GPSC, a Power Flagship. GPSC conducts its business primarily in the production and distribution of electricity, steam, industrial water and other utilities which operates by itself and by invested in other companies. As of the year-end 2020, its total equity capacities were 5,055 MW of power generation, 2,946 tons per hour of steam, 7,372 cubic meters per hour of industrial water, 15,400 refrigerated tons of chilled water, and 30 megawatts hour per year of energy storage unit.

Additionally, on January 4, 2021, PTTGM (a subsidiary of PTT) has acquired 50% of Global Renewable Power Company Limited ("GRP")'s ordinary shares (GRP is a wholly owned subsidiary of GPSC). As a result, PTTGM holds 50% and GPSC holds 50% shareholding of GRP's registered capital. The objective of the acquisition of GRP's shares is a part of PTT's expansion in international renewable energy power plants, which focus in solar energy production businesses and wind energy production businesses. In this regard, such share acquisition is in accordance with PTT Group's strategic plan to become a leader in the renewable energy or green energy sectors, which to expand its business and investment portfolio, to enhance its competitiveness in the renewable energy, as well as to achieve the group target of the renewable power output capacity of 8,000 megawatts within 2030. However, the joint investment in GRP by PTT and GPSC will not cause any changes in the business operation of GPSC which is the Power Flagship of PTT Group.

Details of PTT's affiliates regarding the business operations/ procurement/ distribution can be found on the website [investor.pttplc.com/th/downloads/annual-reports](http://investor.pttplc.com/th/downloads/annual-reports), and GPSC further information on [investor.gpscgroup.com/ar.html](http://investor.gpscgroup.com/ar.html)

## Other Business Groups

For instance, PTT Treasury Center Company Limited (PTT TCC) operating a corporate treasury center for PTT and subsidiaries, providing services by sourcing of Thai and foreign currencies, both long-term and short-term, for loans to PTT and/or PTT subsidiaries, together with the debt, liquidity, and finance management, for the interests of PTT and subsidiaries.

Details of PTT's affiliates regarding the business operations/ procurement/ distribution can be found on the website [investor.pttplc.com/en/downloads/annual-reports](http://investor.pttplc.com/en/downloads/annual-reports)

## 1.2.3 Marketing and Competition

### Exploration and Production Business

#### Marketing

PTTEP conducts petroleum exploration and production businesses in both domestic and international. The target markets are both domestic and overseas where the company has invested. In 2020, the total sales ratio of natural gas to liquid was 78% : 22%. PTTEP sells its outputs from domestic and regional projects primarily to the Thai market through PTT, the major buyer and processor of all products. PTT then turns the processed products to power sector, petrochemical sector, transportation sector, industry sector, and household sector.

Marketing of petroleum products varies with their characteristics and field location which resulting in differentiate the market and sales price structures.

#### 1) Natural Gas

Due to capital-intensive investment in developing oil and gas exploration business, gas sales agreements (GSAs) must be agreed or signed between the buyer and seller before any major investment is made. GSAs are typically a long-term contract, ranging from 15 to 30 years. Prices, volumes, and points of sale are stipulated for each of the contracts. Gas prices are usually linked to fuel oil prices and several key economic indices to reflect the investment costs and be competitive comparing with other fuels along the GSA period.

#### 2) Condensate and Crude Oil

Condensate and crude oil prices are determined by their properties and benchmarked with crude oil prices of those predominantly sold in the region. Contracts are either short-term or long-term, and some are sold in spot markets.

#### 3) Naphtha

Naphtha produced from ADNOC Gas Processing Project (AGP), the largest gas processing complex located onshore of Abu Dhabi, UAE, is sold by Abu Dhabi National Oil Company (ADNOC) which represents as Marketing Agent. Selling price followed official selling price in the region and naphtha is sold under short-term contract.

#### 4) LPG

LPG produced from S1 Project is sold to PTT under a long-term contract with the price in line with the government's policy and announcements by the Joint Committee on Energy Policy Administration. Moreover, LPG produced from ADNOC Gas Processing Project (AGP) is sold under short-term contract which selling price refer to official selling price in the region.

#### Competition

Thailand's E&P industry is an oligopolistic since high petroleum demand compared with production, due to the business' relatively high investment and advanced technology required. The GSAs, especially natural gas, are predominantly long-term contract coupled with take-or-pay clauses to attract new investments to the market.

Regarding the approximate domestic production in 2020, PTTEP's petroleum production accounts for 38% of the total domestic production in 2020, which is the leader among the domestic producers.

Producers	% Domestic Production Volume
PTTEP	38
Chevron	28
Mitsui Oil Exploration	9
Petronas	10
Total	7
Others	8

Source: Department of Mineral Fuels, Ministry of Energy (as of November 2020)

**As of year ended 2019, the total amount of the natural gas reserves in Thailand and the Malaysia-Thailand Joint Development Area (MTJDA) are as follows:**

Reserves	Natural Gas (Billion Cubic Feet)	Crude (Million Barrels)	Condensate (Million Barrels)
Proved Reserves	4,882.23	125.54	127.21
Probable Reserves	4,202.93	92.22	145.65
Possible Reserves	2,064.35	56.74	101.23

Source: Annual Report 2019 of the Department of Mineral Fuels

In Thailand, there are many large operators in petroleum exploration and production such as Chevron Thailand Exploration and Production Limited, PTT Exploration and Production Public Company Limited, Chevron Offshore (Thailand) Ltd., Hess (Thailand) Limited, Mitsui Oil Exploration Company Limited. In 2020, the average production volume of domestic natural gas was at 3,262 MMSCFD, decreased by 10% from previous year, crude oil production was at 117,029 BPD, decreased by 7% from 2019. Additionally, condensate production volume was at 84,835 BPD, decreased by 21% from 2019.



Thailand's petroleum production volumes in 2011 – 2020 are as follows:

Year	Natural Gas (Million Cubic Feet per day)	Crude (Barrels per day)	Condensate (Barrels per day)
2011	3,577	139,991	84,136
2012	4,007	148,985	89,885
2013	4,045	149,482	91,159
2014	4,073	138,552	94,330
2015	3,852	152,387	95,629
2016	3,777	163,527	94,489
2017	3,620	141,248	98,572
2018	3,527	129,201	99,010
2019	3,623	125,889	102,332
2020	3,262	117,029	84,835

Source: Website of the Energy Policy and Planning Office, Ministry of Energy ([www.eppo.go.th](http://www.eppo.go.th))

## Natural Gas Business

Currently, Thailand's natural gas business is regulated by the Energy Regulatory Commission (ERC) under the Energy Business Act 2007 according to the government policy to restructure the energy industry management by distinctly separating policy, monitoring and operation from one another. The energy regulatory supervises both power and natural gas business for greater efficiency, security, and adequacy. Subsequently, ERC was established as an independent regulatory agency to overlook the country's energy industry, prevent illegal monopolization and protect energy consumers and those affected by the energy business. The Energy Business Act 2007, was proclaimed in the Royal Gazette on December 10, 2007, and has come into force since December 11, 2007, onwards.

PTT is the only fully-integrated gas company in Thailand. In 2020, PTT and affiliates engaging in the gas business adhered to the following marketing policies:

- Supply strategy - procure natural gas and LNG for national energy security and commercial competition to support the gas business liberalization policy
- Operating strategy - maintain the operational excellence to meet customers' needs and establish growth platform for the future
- Marketing strategy - extend gas sales agreements (GSAs) with current power producers to preserve its market share while pursuing new markets to raise its gas or LNG sales volume both domestically and internationally
- Portfolio expansion - focus on investment opportunities worldwide, which includes the gas, LNG and non-gas businesses.

As for the gas supply and wholesale business, there are currently a total of five operators that have secured shipper licenses from ERC including PTT. However, in 2020 PTT is still the major operator who deliver natural gas through the gas transmission pipeline network. To date, only EGAT has utilized the gas transmission system and the LNG terminals by importing spot LNG for its own power plants to test the third-party access (TPA) system according to the gas business liberalization policy in the first phase, which is under the implementation scope defined by the Ministry of Energy.

For the investment and operation of gas distribution pipeline system, PTT is the major investor and operator. Apart from PTT, there are other companies operating in distribution pipeline system including PTT NGD, which engaged in the developing and constructing distribution systems to transport and distribute natural gas to customers in industrial zones around Bangkok and perimeter.

### Current Natural Gas Demand

In 2020, the average gas supply volume is approximately 4,394 MMSCFD (calculated at heating value of 1,000 BTU per cubic feet) (64% from domestic fields and 36% imported from international fields) decreased by 402 MMSCFD or 8% compared to 2019. The overall gas supply and distribute volume decreased from all customers according to the economic slowdown and COVID-19 pandemic.

The breakdown of gas sales volume by customers are as follow:

- **Power Sector**

The average sales volume is 2,613 MMSCFD (accounted for 59% of total sales volume) decreased by 7% from 2,810 MMSCFD in 2019. The volume consist of the sales volume to EGAT 786 MMSCFD, IPP 546 MMSCFD, and SPP 1,281 MMSCFD.

- **Industrial Sector**

The average sales volume is 709 MMSCFD (accounted for 16% of total sales volume) decreased by 6% from 751 MMSCFD in 2019.

- **Transportation Sector**

The average sales volume in transportation sector is 163 MMSCFD (accounted for 4% of total sales volume) decreased by 26% from 220 MMSCFD in 2019.

- **Gas Separation Plant**

The gas usage on gas separation plant in order to add the value to natural gas had the total volume at 909 MMSCFD in 2020 (accounted for 21% of total sales volume) decreased by 10% from 1,015 MMSCFD in 2019.

## Power Generation by Fuel Type (2011 – 2020)

Unit: Million Units

Financial Statements	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
1. Hydro	7,935	8,431	5,412	5,164	3,761	3,543	4,687	7,597	6,310	4,540
2. Natural Gas	108,261	119,368	119,218	120,314	128,525	126,150	121,044	116,265	121,841	112,859
3. Fuel Oil & Diesel	1,331	1,363	1,418	1,669	923	491	330	177	1,125	722
4. Coal	31,712	34,583	35,352	37,572	34,582	37,107	35,732	35,796	35,825	36,823
5. Imported Power	10,774	10,527	12,572	12,260	14,414	19,825	24,427	26,669	25,547	29,551
Renewable Energy & Others	4,077	5,211	7,234	9,046	10,041	12,537	14,944	17,923	21,402	20,501
<b>Total</b>	<b>164,090</b>	<b>179,483</b>	<b>181,206</b>	<b>186,025</b>	<b>192,246</b>	<b>199,653</b>	<b>201,164</b>	<b>204,427</b>	<b>212,050</b>	<b>205,995</b>
<b>Percent growth</b>	<b>(0.4)</b>	<b>9.4</b>	<b>1.0</b>	<b>2.7</b>	<b>3.3</b>	<b>3.9</b>	<b>0.8</b>	<b>1.6</b>	<b>3.8</b>	<b>(2.9)</b>

Source: EPPO website data, Ministry of Energy ([www.eppo.go.th](http://www.eppo.go.th))

## Policy on Promoting Competition in Natural Gas Industry

The government has launched a policy to promote natural gas business competition throughout the system. The objective is to raise the efficiency of supplying and service providing, which enables consumers to get quality services at reasonable and fair prices. To this end, the government advocated a rise in the number of LNG supply and wholesale players and assigned ERC to grant shipper licenses and issue the third party access regime (TPA regime) so that other shippers can use PTT's natural gas infrastructure. PTT Group complied with such policy and on March 30, 2015, announced its first onshore natural gas pipeline third party access code (the latest revision was announced on June 7, 2017). PTT LNG announced its first LNG terminal third party access code on March 30, 2015 (the latest revision was announced on March 31, 2020).

The Committee on Energy Policy Administration (CEPA) on August 30, 2019, endorsed experimental guidelines for EGAT's spot LNG import of up to 200,000 tons in two vessels, each 65,000 tons. PTT LNG coordinated with EGAT in implementation of CEPA's resolution by receiving the first LNG shipment on December 28, 2019, and the second on April 21, 2020.

Currently, ERC has approved a total of three shipper licenses. In its meeting on May 20, 2020, it approved the LNG import by Gulf Energy Development Plc. of up to 0.3 MTA and by Hin Kong Power Holding Co., Ltd. (HKH), of up to 1.4 MTA for its Hin Kong Power Plant 1 and Plant 2, where the total capacity is 1,400 megawatts (MW). At its meeting on May 27, 2020, ERC approved a license for B.Grimm LNG Co., Ltd., to import LNG up to 0.65 MTA.

PTT is prepared for competition in the gas business, addressing the public policy to push Thailand's role as a regional LNG hub for import and export LNG to other countries in the area.

### Outlook for Natural Gas Demand

On October 20, 2020 the cabinet agreed on NEPC's resolution on March 19, 2020 to endorse the Thailand Power Development Plan 2018 - 2037 (PDP 2018 Rev.1) and Gas Plan 2018 which was proposed by the Ministry of energy. The notions and targets of Gas Plan 2018 were to support gas consumption in many economic sectors in order to reduce air pollution, to accelerate natural gas exploration and production in domestic fields and joint development

and overlapping areas, as well as to enhance the efficiency of gas infrastructure development and usage, together with to promote the competition in the gas industry.

The assumption for the Outlook of Natural Gas Demand in Gas Plan 2018 forecasted in line with PDP 2018 Rev.1 which decreased the electricity production from coal and nuclear power generation plant and increased the gas usage to produce electricity from 37% in 2079 according to PDP 2015 to 53% in 2080 as stated by PDP 2018 Rev.1. The gas usage in gas separation plant, which produced feedstock of LPG and Petrochemical, forecasted from the reserve in gulf of Thailand. The gas consumption in industrial sector forecasted aligned with GDP, the GDP for 2018 - 2037 was estimated to increase 3.8% per year, together with the extension of gas distribution network. For transportation sector, the gas usage will in line with the volume of NGV users. Consequently, the total domestic gas demand outlook is at 5,348 MMSCFD in 2037 increasing by 0.7% per year, 67% of gas demand will be from power sector, 21% from industrial sector, 11% from gas separation plant, and 1 % from transportation sector. The projection is higher than the new base case of Gas Plan 2015 Rev.2 which expected that the gas demand in 2036 will be around 5,062 MMSCFD increasing by 0.1% per year.

## International Trading Business

### Marketing

Domestic markets feature main customers, including refineries with demand for crude oil and condensate through the supply of domestic producers and import from overseas producers, along with petrochemical plants needing feedstock from overseas producers, import of gasoline for gasohol production, import of LPG for the industrial, transport, and household sectors to cater to national demand for imports, which reflect on the role of strengthening national energy security. In 2020, the business unit posted 51% in revenue from the domestic market (11% from domestic supply and 40% from import).

External markets featured main customers like refineries, petrochemical plants, national oil companies, multinational energy companies, and international trading firms. Transactions are conducted through trading outside the country and export of refined products, petrochemicals, chemicals, and solvents beyond domestic demand so as to generate revenue and profit from overseas. In 2020, the business unit posted 49% in revenue from international markets (47% from out-out trading and 2% from export).

To foster business growth and trading opportunities, one needs to engage in worldwide trading. One of the key strategies is to penetrate oil trading hubs through offices in various countries, including Singapore (responsible for the entire Asian region), China (responsible for China and

nearby countries), UAE (responsible for the Middle East), England (responsible for Europe and Africa), and the USA (responsible for the Americas). These offices contribute to around-the-clock tracking of intelligence and movements; when disequilibrium between supply and demand in a given region arises, the business unit can pursue inter-regional trading at arbitrage opportunities. Also, PTT's customers and partners in various regions can closely connect and pursue opportunities to add value and expand trade in that region as well.

### Competition

The business unit faces more intense competition from national oil companies in the Middle East and world-class energy companies holding various assets, including producing wells, ports, oil depots, refineries, and petrochemical plants. These companies now take international trading more seriously, leveraging commercial advantages of such assets into trade platforms and asset-backed trading, a form of trading used by major multinational trading companies to grow their investment into various assets to add value and raise their competitiveness as well as trade advantages today. Besides, more digital technological development applied to business speeds up access to trade data as well as prices more comprehensively, in turn lowering trade opportunities and business profit. In 2020, the business unit and affiliates posted total trade volumes of 1.3 million barrels a day, or 1.4% of the global trade value, along with over 1,200 partners and customers located in 70 countries over the world.



The trends for the industry and business competition will remain intense. World economic growth, particularly post-COVID-19 recovery, and the US-China trade war will affect world energy demand. At the same time, political unrest in oil-producing countries and the oil price war among producers will affect global production volume, with bearing on short-term business competition. As for long-term trade trends, trading in the world's energy markets of fossil fuels may begin to slow down with the rising tide of avoiding energy forms that have caused global warming for such a long time. People may turn to clean energy forms with less environmental impacts, including wind and solar energy for power generation, or electric battery or hydrogen in the automotive and transport industries. Still, such clean energy forms have not yet proved reliable due to application limits, so LNG tends to be a key alternative in the transition to future clean energy. Nowadays, LNG trade has become more crucial to global energy trade because of the booming production of major producers along with favorable intercontinental transport. As a result, LNG is now a viable choice for many countries worldwide use as their core energy source of countries and the world, a supporting factor for LNG as a challenge facing international trading business in the future.

## Refining Business

### Refining Industry

#### Marketing

Currently, Thailand has a total of six refineries with a total refining capacity of about 1,232,000 BPD (including GC's condensate splitter capacity of 135,000 BPD). As of September 30, 2020, these refineries yielded 1,018,396 BPD (including LPG outputs from GSPs and petrochemical plants).

Thailand's profile of refined product outputs appears in the table below.

Unit: BPD

Product	2018	2019	2020
Gasoline	226,886	225,488	298,871
Diesel	476,759	423,460	648,185
Aviation fuel	140,177	131,244	74,855
Fuel oil	102,733	94,177	108,389
Kerosene	36,818	35,224	37,896
LPG	166,167	155,733	189,336
<b>Total</b>	<b>1,149,540</b>	<b>1,065,326</b>	<b>1,357,532</b>

Source: Department of Energy Business, Ministry of Energy

#### Competition

In 2019, Thailand exported refined products averaging 172,100 BPD, a decline of 21.8%, most of which were diesel, fuel oil, and gasoline, to Cambodia (30%), Malaysia (18%), and Laos (13%).

## Petrochemical Business

### Marketing

Thailand's petrochemical industry shrank mildly in 2019 from the previous year, with domestic consumption of petrochemicals falling 0.3% from 17,345 thousand tons/year in 2018 to 17,287 thousand tons/year, together with exports decreased 2.9% from 8,478 thousand tons/year in 2018 to 8,235 thousand tons/year in 2019 due to world economic recession and the US-China trade war which is Thailand's key trading partners for petrochemical, polymer, and plastic product exports.

### Thailand's profile of overall production, import, export, and consumption

Unit: Thousand tons/year

Year	Supply		Consumption	
	Production	Import	Consumption	Export
2017	22,640	1,534	17,131	7,041
2018	24,132	1,562	17,345	8,478
2019	23,934	1,577	17,287	8,235

Source: Petroleum Institute of Thailand

### Competition

#### Olefins

In 2019, the total production volume was comparable to 2018, whereas the domestic demand for main products dropped, which in contrast with increasing export volume around 7.5% from the previous year, in LDPE, LLDPE, PP and PVC respectively.

#### Aromatics

In 2019, the total production volume fell with weak demand prompted by the pressure of the US-China trade war in conjunction with rising in new capacities, notably from China, in line with the decrease in domestic production and overall export product volume.

## Oil and Retail Business

Thailand has 52 registered fuel traders in Article 7 as of January 31, 2021. The domestic fuel demand in 2020 was 47,504 million liters. Topping the group was diesel, followed by gasoline, LPG, aviation fuel, and fuel oil.

Thailand's fuels market is a free one with ongoing competition under market mechanisms in price, quality development of products and services, cost management in supply chains, and development of new business models for more revenue. Today a portion of the industrial sector has shifted to cheaper energy forms than oil, including natural gas and coal. However, one notices continued growth in fuel demand in Thailand.

Below is a profile of Thailand's fuel consumption for 2018 to 2020.

Unit: Million liters

Product	2018	2019	2020
LPG <sup>1/</sup>	8,686	8,204	7,347
Gasoline	11,373	11,791	11,709
Kerosene	8	8	6
Aviation fuel	7,095	7,153	2,745
Diesel	23,603	24,602	23,946
Fuel oil	2,192	1,966	1,751
<b>Total</b>	<b>52,957</b>	<b>53,724</b>	<b>47,504</b>

Source: Department of Energy Business

Remark:

1/ Excluding LPG used as petrochemical feedstock

OR is an important player in the domestic fuel market of most products. According to the statistics of the Department of Energy Business, in 2020, its market share was 41.7% of overall sales.

Below is a profile of oil traders' market shares from 2018 to 2020.

Unit: Percent

Company	2018	2019	2020
OR <sup>1/</sup>	40.1	40.8	41.7
Bangchak	10.4	10.7	7.5
Esso	11.3	10.5	8.0
Shell	9.3	8.9	6.4
Minor traders	28.9	29.1	36.4

Source: Department of Energy Business

Remarks:

Excluding LPG used as petrochemical feedstock

1/ Including PTT's and OR's market shares

## Oil Price Structure

The oil price consists of two elements: ex-refinery and retail. The ex-refinery wholesale price consists of the ex-refinery price, excise tax, municipal tax, Oil Fund contribution, Energy Conservation Promotion Fund contribution, and VAT. The retail price consists of the ex-refinery wholesale price, marketing margin, and VAT.

Thailand imports oil, mostly crude oil with the rest being refined products amid liberalized fuel trade, so the oil price is made by the public sector on ex-refinery prices, based on the world prices of given products under the import parity principle. Consideration factors include currency exchange rates (or the Baht), directly affecting cost calculation under such principle.

On the part of the excise tax, municipal tax, VAT, Oil Fund contribution, and Energy Conservation Promotion Fund contribution, the public sector decides rates, which vary with each fuel. The producers are held responsible for submitting applicable taxes and fund contributions to the public sector at defined rates.

Due to world product prices depend on the market situations and the government decides different rates of these parameters for each fuel, retail prices are continually adjusted. The oil price structure of December 30, 2020, appears as follows:

## Oil price structure in Bangkok Metropolis as of December 30, 2020

Unit: THB/liter

	Gasoline 95	Gasohol 95 E10	Gasohol 91	Gasohol 95 E20	Gasohol 95 E85	Diesel B10
<b>Ex-refinery price</b>	<b>10.9730</b>	<b>11.9972</b>	<b>11.6234</b>	<b>12.9615</b>	<b>20.4548</b>	<b>13.6450</b>
Excise tax	6.5000	5.8500	5.8500	5.2000	0.9750	5.8000
Municipal tax	0.6500	0.5850	0.5850	0.5200	0.0975	0.5800
Oil Fund	6.5800	0.6200	0.6200	(2.2800)	(7.1300)	(2.5000)
Energy Conservation Promotion Fund	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000
<b>Ex-refinery wholesale price</b>	<b>24.8030</b>	<b>19.1522</b>	<b>18.7784</b>	<b>16.5015</b>	<b>14.4973</b>	<b>17.6250</b>
VAT	1.7362	1.3407	1.3145	1.1551	1.0148	1.2337
<b>Ex-refinery wholesale price including VAT</b>	<b>25.5392</b>	<b>20.4929</b>	<b>20.0929</b>	<b>17.6566</b>	<b>15.5121</b>	<b>18.8587</b>
Marketing margin	3.3839	2.1095	2.2310	3.3490	2.8298	2.1788
VAT	0.2369	0.1477	0.1562	0.2344	0.1981	0.1525
<b>Retail price</b>	<b>30.16</b>	<b>22.75</b>	<b>22.48</b>	<b>21.24</b>	<b>18.54</b>	<b>21.19</b>

Source: EPPO

Remarks:

- Ex-refinery prices are based on world refined product prices under import parity principle
- Tax and Fund contributions are set by the public sector

## LPG Distribution Industry

## LPG Distribution Industry

It was projected that in 2020 Thailand would see lower LPG demand in the transport, industrial, and household sectors, notably the transport sector, because cheaper in oil prices have made some LPG-fueled vehicles turn to oil fuels. What is more, the trend is for fewer LPG vehicles and less petrochemical feedstock in line with the sluggish economy.

## LPG Price Structure

The LPG price structure is made of

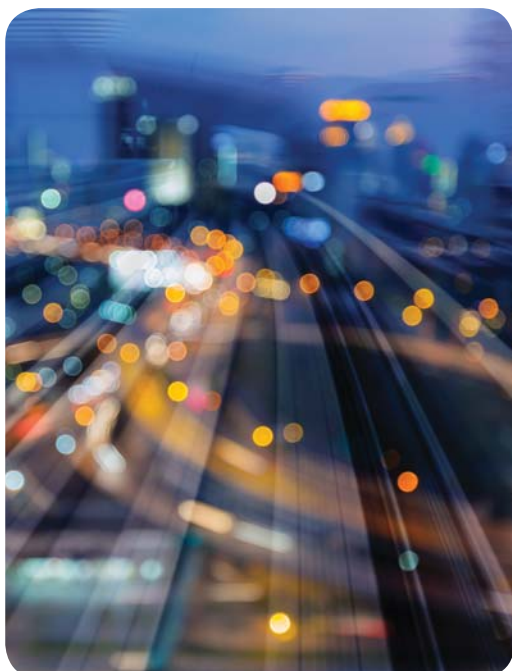
- (1) Ex-refinery wholesale price, consisting of
  - Ex-refinery price
  - Excise tax, municipal tax, Oil Fund contribution, and VAT
- (2) Retail price, consisting of
  - Ex-refinery wholesale price
  - Marketing margin and VAT.



## LPG price structure as of September 30, 2020

	THB/kg
<b>Ex-refinery price</b>	<b>16.6103</b>
Excise tax	2.1700
Municipal tax	0.2170
Oil Fund Contribution	(4.6215)
<b>Ex-refinery wholesale price</b>	<b>14.3758</b>
VAT	1.0063
<b>Ex-refinery wholesale price including VAT</b>	<b>15.3821</b>
Marketing margin	3.2566
VAT	0.2280
<b>Retail price</b>	<b>18.8667</b>

Source: EPPO



## Technology and Engineering Business

## Thailand Electricity Industry

Currently, Thailand has an installed power generation capacity of 45,476 megawatts in EGAT system. Electric power consumption at the end of November 2020 was 172,497 gigawatt-hours, decreasing 3.4% compared to the same period last year. The decrease was resulted from lower demand of electricity consumption in the industrial and business sectors since the beginning of 2020. Additionally, the situation resulted from the COVID-19 pandemic which led to the slowdown in Thai economy and global economy. However, in the middle of 2020, electricity consumption was likely to grow steadily due to the relaxation of government's lock down measures. The overall peak demand of EGAT's power system in 2020 was at 30,342 megawatts, 6% lower than the last year.

## Competition in the Power Business

PTT's power business has not experienced an intense competition in the core business operation as there is an electricity power transmission system and steam pipelines directly to customer. Furthermore, there is the Power Purchase Agreement with EGAT and has a long term power purchase and steam purchase agreement with industrial users which provide a guarantee of stability in supplying electricity and steam to customers. Additionally, the company mostly generate and supply power and steam from Cogeneration Power Plant which has lower costs than industrial users generating electricity and steam by itself. However, there are competitors coming in and offering some customers in the areas in order to compete for the projects that the agreements is going to expire or for the new up-coming projects.

## 1.2.4 Business Assets

PTT's core business assets consist of investment properties; property, plant and equipment; right-of-use assets, goodwill; intangible assets; and exploration and evaluation assets. The net book values as of December 31, 2020, were as follows:

Unit: THB million

	Investment properties	Land	Buildings & building improvements	Machinery & equipment	Exploration and production properties	Mining properties	Other assets	Construction in progress	Right-of-use assets	Goodwill	Other intangible assets	Exploration and evaluation assets	Total
Net value	8,026	49,587	139,163	620,893	290,361	3,739	5,818	183,156	70,831	106,994	68,473	86,945	1,633,986
Obligations	None	1,265	19,369	53,062	None	None	1,493	90	None	None	None	None	75,279

Besides assets mentioned above, PTT's business assets includes subsidiary PTTEP's core business assets, which consist of petroleum reserves. As of December 31, 2020, the total amount of Proved Reserve of PTTEP and its subsidiaries was 295 million barrels of crude oil, condensate, and LPG along with 4,760 billion cubic feet of natural gas. The total amount of Proved Reserves in term of oil equivalent in consolidation was therefore 1,074 million barrels of crude oil equivalent. These reserves are audited and assessed every year by PTTEP's geologists and petroleum engineers to obtain standardized numbers.



Proved Crude Oil, Condensate, and Natural Gas Reserves<sup>1/</sup>

	Crude Oil and Condensate <sup>2/</sup>			Natural Gas			Crude Oil Equivalent		
	(Million barrels)			(Billion Cubic Feet)			(Million Barrels of Crude Oil Equivalent)		
	Indigenous	Overseas	Total	Indigenous	Overseas	Total	Indigenous	Overseas	Total
<b>Proved reserves</b>									
As of December 31, 2018	116	48	164	2,181	1,105	3,286	470	207	677
1) Revision of previous estimates	13	(1)	12	160	(53)	107	41	(4)	37
2) Improved recovery	1	-	1	1	1	2	2	1	3
3) Additional development well drilling & new discoveries	2	45	47	21	954	975	5	207	212
4) Purchase/ sale of reserves	21	106	127	816	582	1,398	153	206	359
5) Production	(30)	(11)	(41)	(475)	(212)	(687)	(107)	(43)	(150)
<b>As of December 31, 2019</b>	<b>123</b>	<b>187</b>	<b>310</b>	<b>2,704</b>	<b>2,377</b>	<b>5,081</b>	<b>564</b>	<b>574</b>	<b>1,138</b>
<b>Proved reserves</b>									
As of December 31, 2019	123	187	310	2,704	2,377	5,081	564	574	1,138
1) Revision of previous estimates	9	4	13	145	23	168	33	9	42
2) Improved recovery	1	6	7	1	-	1	1	6	7
3) Additional development well drilling & new discoveries	6	6	12	165	2	167	33	6	39
4) Purchase/ sale of reserves	-	-	-	-	-	-	-	-	-
5) Production	(27)	(20)	(47)	(435)	(231)	(666)	(98)	(55)	(153)
Proved reserves derived from joint-venture investments <sup>3/</sup>	-	-	-	9	-	9	1	-	1
<b>As of December 31, 2020</b>	<b>112</b>	<b>183</b>	<b>295</b>	<b>2,589</b>	<b>2,171</b>	<b>4,760</b>	<b>534</b>	<b>540</b>	<b>1,074</b>

Remarks:

1/ Proved reserves include PTTEP's net equity reserves and those of the countries that own oil and gas fields

2/ Including NGL

3/ Including reserves under the APICO joint-venture project

## Long-Term Leases

PTT's major long-term property leases are the agreements for using Ratchaphatsadu land (royal land) subleased to the Ministry of Finance for PTT Plc.'s business under an agreement between the ministry and PTT dated June 3, 2008. Property contract which PTT segregated for the ministry under the verdict of the Supreme Administrative Court, are right-of-use land, pipelines, equipment, and tools which together formed transmission pipeline systems. The assets under the agreement were booked as intangible assets for the use of such Ratchaphatsadu land for 30 years (January 1, 2008, to December 31, 2037). After the period expiring, the ministry pledged to allow PTT to use this segregated land for another 30 years. Regarding compensation payment for land use, the agreement called for annual payment at the rate derived from revenue sharing of onshore gas transmission pipeline tariff of each calendar year. This tariff means the charge for the onshore transmission pipeline system (Area 3), which includes demand charge and commodity charge under the rule for setting natural gas prices and pipeline charges under the NEPC announcement No. 1 of 2001 or future amendments. The compensation is calculated by a sliding scale as detailed below.

Unit: THB million

Revenue	Compensation Rate (% of Revenue)		Annual Compensation
	Minimum	Increment	
0 - 3,600	5%		= Minimum compensation 180
> 3,600 - 3,700	10%		> 180 - 190
> 3,700 - 3,900	15%		> 190 - 220
> 3,900 - 4,100	20%		> 220 - 260
> 4,100 - 4,300	25%		> 260 - 310
> 4,300 - 4,500	30%		> 310 - 370
> 4,500 - 5,000	36%		> 370 - 550
> 5,000			= Maximum compensation 550

## Investment Policy in Subsidiaries and Associates

PTT's investment policy on existing businesses and consideration for new schemes, capacity growth, and acquisition of shares or businesses. PTT has taken many factors into consideration; business growth trends, investment capable of adding value and economic viability, and enhanced competitiveness for PTT. Aforementioned investment may be invest through PTT or affiliates, subject to suitability and the potential of the affiliates.

### 1.2.5 Outstanding of Undelivered Project

-None-

### 1.2.6 Environmental Impacts

#### Environmental Impacts of Gas Separation Plants (GSPs)

Throughout the operations of the Gas Separation Plants (GSPs), PTT pays great attention to the impacts on the environment, safety and occupational health as well as the quality of life and health of people living nearby by continuously and strictly monitoring environmental quality. Based on the environmental quality monitoring results of all GSPs since the start of operations, it was found that air quality, noise, water quality and waste management from the processes are all well below regulatory limits. In addition, PTT improves the efficiency of processes as well as implementing energy conservation projects, for example, a waste heat recovery project at GSP Unit 5, power generation and cogeneration projects for the Ethane GSPs, and a waste gas recovery unit (Remaining Gas Recovery Unit, RGRU) for GSPs in Rayong, of which the EIA report was approved by the agency and construction was completed.

Moreover, PTT has determined to control air pollution consistently. In 2020, the construction was begun to install Regenerative of Thermal Oxidizer (RTO) and the SO<sub>2</sub> Scrubber at GSP Unit 6 and the Ethane Separation Plant in order to eliminate hydrogen sulfide contamination from residual acidic gas.

In addition to compliance with laws, PTT's GSPs at Rayong and Khanom achieved Integrated Management Systems (IMS) Certification, ISO 14001 Environmental Management Systems Certification, Occupational Health and Safety Management System (ISO 45001) Certification, Quality Management System (ISO 9001) Certification, Business Continuity Management System (ISO 22301) Certification, and Energy Management System (ISO 50001) Certification.

#### Environmental Impacts of Gas Transmission Pipeline Operations

Although the construction of PTT's gas transmission pipelines had been initiated before the announcement of EIA requirements for petroleum transmission systems and fuel pipelines of all sizes by the Ministry of Science, Technology and the Environment Act of 1996, PTT was aware of the importance of environmental protection in pre-construction, construction and operations stages. It therefore conducted EIA to determine preventive measures, mitigation measures and developing plans to monitor environmental impacts throughout the service life of projects. Since the construction of the first gas pipeline in the Gulf of Thailand, all other pipeline projects have consistently followed the same environmental practices. With the information acquired from the first environmental monitoring in 1997, it can be concluded that all projects have completely fulfilled the obligations on preventive measures, mitigation measures and monitoring in accordance with those described in EIA reports.

In May 2014, with the stipulation of EIA requirement by MNRE for petroleum and petroleum product pipeline projects and later an ER (Environmental Report) requirement by Ministry of Energy depending on types and size of the project, PTT conducted EIA of the entire gas pipeline master plan, consisting of transmission and distribution pipelines for industrial customers, power plants, and NGV gas stations. The EIA identified environmental impacts and recommended prevention, mitigation measures and monitoring plans through the project life.

The projects with approved EIA reports from the National Environment Board and ongoing construction include installation of the fifth gas pipeline and installation of onshore pipeline from Ratchaburi to Wang Noi RA6 to Ratchaburi (RRPP). In addition, PTT implements its gas pipeline network maintenance plan to extend the service life of the first gas pipeline by changing protective casing materials and replacing some sections of the pipeline. At present, construction has been completed in three sections, including interconnecting with the first gas pipeline from KP5 to KP13 (Rayong), from KP47 to KP53 (Chon Buri), and from station BV20 to WK5.

The pipeline projects directed to industrial customers, power plants and natural gas stations (NGV) with EIA or ER approval and ongoing construction are a gas distribution system to JSR BST Elastomer Co., Ltd., and Krungthep Synthetics Co., Ltd.; a gas distribution system within the Eastern Hemaraj Industrial Estate, Map Ta Phut (Phase 1) and another to Thai Shin Kong Industries Corporation Co., Ltd.

In 2020, projects whose EIA reports were approved by ONEP include the fifth onshore gas pipeline, amendment of a detailed EIA section between Baan Kluay and Sai Noi and of details of a land deed under the Agricultural Land Reform for a gas distribution system to Nava Nakorn Industrial Estate Nakhon Ratchasima. One project that has been endorsed is the gas distribution system in the 304 Industrial Park.

To ensure the implementation of quality, safety, occupational health and environmental management system of international standards, all business units under the PTT Natural Gas Distribution function have adopted the PTT Integrated Management System (PIMS). PIMS has unified international management systems together, for example, Environmental Management Standard (ISO 14001), Occupational Health and Safety Management System (ISO 45001) and Quality Management System (ISO 9001).

## 1.2.7 Notable Research and Development (R&D) Work of PTT Innovation Institute

### Process Technology and Applied Research

All business of PTT Group related to production processes whether natural gas industry, petroleum production processes, or petroleum refining and petrochemical complexes. Therefore, PTT Innovation Institute focuses on R&D of process technology for such industries, both encompassing product value addition, process efficiency in energy consumption, productivity, and waste reduction in addition to development of processes employing advanced technology. The institute has played a key role in R&D and assessment of the efficiency of catalysts and adsorbents for PTT Group to replace imports and to be able to assess and choose suitable catalysts and adsorbents, and to cut costs and add value to the business units by over THB 100 million a year.

In addition, the institute is involved in R&D on processes and development as well as process simulation models to raise the efficiency of energy consumption and develop new technologies fitting raw-material sources and market trends, including R&D on microchannel base reactors that are small and efficient for energy transfer and high mass. In addition, these reactors are highly safe and strong for usability; for example, the microchannel heat condenser. Nowadays, the Institute can extend such innovation to commercialization by selling technology licenses. It also plans to build on such technology in various industries. The institute plays a role in carbon dioxide conversion technology assessment to develop processes and convert the gas into valuable products to guide business units in their investment and extension consideration for PTT's future businesses.



To support energy applications for PTT Group and third-party agencies, the institute constructed and prepared an Energy Application Laboratory for actual use to develop industrial machinery and gas application technology in the industrial and household sectors. At the same time, it organized training on gas engines for operators that are the Gas Business Unit's customers to grow the capability for testing gas applications in machinery to accommodate industrial fuel conversion from diesel, LPG, or fuel oil into natural gas. These grow gas sales volumes including develops and selects technology for efficient energy applications in the industrial and commercial sectors in addition to natural gas, such as solar energy, wind energy, and energy storage to support PTT's business in efficient energy applications.

## Bio-Technological and Material Research

To support PTT's sustainable businesses, the institute conducted R&D on bio-technology, bio-production processes, and R&D on technology and products like polymers, materials, and chemicals to pave the way for innovation and products for PTT Group's businesses as well as to support emerging businesses related to life sciences, bio-economy, and advanced materials.

In conducting bio-technical R&D, the institute both supports PTT's core businesses and develops innovations supporting new businesses for PTT in the future. To elaborate on the first goal, the institute has developed a bio-technical process to support of fuel production, successfully developing processes for yeast applications that raise ethanol production efficiency for the energy and other industries. The institute also values R&D on the assessment and extension of the use of transmission pipelines to maintain previous efficient conditions to support gas supply and transmission from indigenous fields and gas imports, PTT's crucial mission. The institute conducts R&D on assessment of service extension of transmission pipelines, new chemicals and specialty chemicals for such pipelines, and processes as well as plant integrity. It has considered anti-corrosion materials for both the inside surface and the plange of the pipes, anti-leak solutions, valve-cleaning materials, sacrificial anodes, and pigging discs. The institute has provided these products for the business unit for trial use, while seeking sales opportunities for third-party customers.

To develop innovations in support of emerging businesses for PTT, the institute built on its proficiency in bio-technology in developing bio-materials for medical applications, including bio-cellulose bandage products and bio-degradable materials for medical supplies, such as catgut, artificial organs, and drug delivery. Additional R&D continues on polymers, materials, and chemicals for PTT Group, including plastics from petroleum and bio-plastics, for example, granular cleaning agents for machinery, bio-plastic-coated paper cups, and 100% bio-degradable plastic bags. The institute developed coffee chaff compounds, resulting from the chaff obtained from coffee roasting and mixed with polymers for molding into products and furniture items, a valuable way to reduce industrial waste reduction and add value by producing environmentally friendly products.

## Petroleum Product and Automotive Research

The institute develops fuel products and lubricants (automotive and industrial) to keep its market share leadership while leading the industry in catering to newly identified needs of customers. It has also introduced new international standards and promotes technical aspects for the public sector in the fuel field, such as alternative fuels, lubricants, and auto-motives to guide policy formulation related to national energy utilization. This year PTT was the first to launch sale of its XtraForce clear fuel to accommodate GDIs (gasoline direct injection) engines, thus boosting the sales of OR's clear fuels from last year. It has also developed several other lubricants for commercial application. A notable product is "PTT Lubmarine" for ocean-going tankers, a universally accepted product with OEM approval for tanker engine use.

The institute has laboratories for technical services for fuel products and lubricant products for machinery and auto-motives for PTT Group and third-party agencies. It also supports research, problem-solving, analyses and tests, standards setting, and consultation and acts as a clearinghouse for applicable research databases. The institute's sophisticated automotive lab accommodates diverse tests, with testing methods that are universally accepted. It selects applied energy technology, conducts technical research on energy conservation and efficient energy consumption, and tests and assesses engines, auto-motives, combustion, and release of fuel pollutants.

## New Energy Technology Research

In addition to supporting PTT's current businesses, the institute recognizes the importance of the development of technology and innovation to strengthen PTT's energy leadership by promoting innovation that aligns with the strategy of forging ahead toward novel businesses related to the power value chain, utilizing technology as a key tool for driving the future energy business toward a society of sustainable power consumption. This aligns with a megatrend that involves moving centralized energy production to decentralized energy production, as well as consumption of energy derived from renewable energy sources to sustainability and greener energy, for example, energy storage technology in battery or hydrogen form. As a result, the institute has constructed a battery laboratory on the grounds of Vidyasirimethi Institute of Technology (VISTEC) for battery molding into pouch cells. It also provided scholarships for VISTEC students to construct a test laboratory for cylindrical cell battery production that accommodates battery technology extensions from the laboratory and then assessment of such technology by outside sources. It has also developed batteries in conjunction with GPSC for sale in the household and industrial sectors, while joining forces with automotive manufacturers in developing power trains for electric tricycles and electric minibuses. Recognizing the value of the hydrogen technology as a viable energy storage technology building on the petroleum value chain, the institute joined public and private sectors in organizing a Hydrogen Thailand Symposium to jointly define Thailand's direction for harnessing hydrogen technology. As for renewable energy, solar cells are a highly promising source, so the institute studied domestic and international players to find ways to establish cooperation to apply this

technology to suit Thai business models and climate. Finally, it joined the academia in fostering technological proficiency in support of technology assessment.

The institute also conducts R&D on systems of research apparatus for electrical machinery products, measurement, and communication with tools (IoT) in support of PTT's innovation. To this end, electric chargers have undergone successful R&D and were installed in OR's chargers as a pilot project. The institute has built on the EV wall charger for sale to the real-estate (property) sector or to retail motorists. It has continued development to accommodate electric power and application formats that are more and more diverse. The institute has also extended its proficiency in measurement so that it can develop an innovative PM2.5 "NONG PIM" particulate measurement tools to track and report air quality while transmitting data through online networks with real-time readings through the website and online applications. Today this tool has been installed in key industrial areas and NGV mother stations.

## Environmental Technology Research

In addition to business considerations, PTT recognizes the criticality of environmental preservation and conducts R&D and management of environmental issues to ease and prevent the impacts of environmental problems on PTT Group's businesses on the move toward sustainable growth. Such efforts lead to environmental innovation and promote the Circular Economy as well as a Smart Environment, providing services to support R&D work while developing environmental technology and products for PTT Group and third-party agencies.

To this end, the institute conducts R&D on environmental technology and innovation, assesses environmental quality (air, water, soil, and waste) for PTT's businesses and office buildings to define guidelines, methods, and measures to prevent or mitigate impacts arising from non-compliance. R&D embraces technologies for preventing, remedying, controlling, rehabilitating, and treating pollutants derived from PTT Group's activities in the short term and long term, for example, systems to treat odors or VOCs from plants and innovations related to a prototype automatic food waste composter. The institute also joined business units in extending their proficiency in environmental control and treatment so that it can assess the potential technology on wastewater treatment to grow PTT's new businesses.

The institute has also developed a weather simulation model, leveraging pollutant databases from various sources to test pollutants in a given area in three dimensions, the technological right of which is being sold to PTT Group for their application. It has also investigated LCA of fuels derived from petroleum, bio-fuels, compressed natural gas, and bio-plastics to serve as data for alternative/ renewable-energy development with an eye toward minimizing environmental impacts. By building on proficiency in environmental technology and AI technology, the institute has developed innovations, including smart bins that can automatically sort waste by using the image classification system as well as a prototype barcode scanning system for plastic cups for sorting and collecting PET plastic cups from Café Amazon shops for processing and reuse as valuable products. Another innovation is a prototype for treating PM2.5 and airborne germs that can eliminate PM2.5 particulates while killing airborne germs. All these examples are meant to develop environmental treatment processes for efficiency and mitigating business impacts on the environment and communities in line with PTT's guidelines and commitment to social responsibility while enhancing PTT Group's sustainable businesses.

## Strategic Plans and Management of Innovations

Research and innovation administration forms a key component for setting directions, monitoring, and assessing business outcomes and steering the work of the institute to efficiently achieve its goals. Such administration consists of strategic plans and management of innovations, intellectual properties, research capability development, commercial technological development, and other support functions.

Regarding future research and innovation strategic plans, PTT has developed a PTT Idea to promote the Commercialization Gate (PTT I2C Gate) process to screen research by respective applicable agencies, thus aligning research work with corporate directions and enabling efficient resource consumption. Technology Foresight was developed to anticipate technology and apply it jointly in defining policies and research strategies to add long-term value to PTT Group. Cooperation and innovation administration are utilized within PTT Group to achieve the goals and best interests in overall resource management for the group.

An institute unit is charged with driving technology toward commercialization by assessing economic viability of research projects and developing business models to drive research work to commercialization. To drive innovation efficiency, the institute appointed a unit to administer intellectual property by investigating opportunities for technological developments and applications (IP Landscape & FTO) before launching research projects, preparing intellectual property databases, conducting IP valuation, and facilitating patent filing in addition to promoting innovation among PTT Group.

To promote PTT's innovation sustainability, the institute appointed another unit to monitor and manage knowledge and to develop and grow the caliber of researchers and staff so as to promote systematic and efficient innovation creation. General administration supports research and innovation as a whole, including publication of research and innovation work, community relations, and management of warehouses, and overall institute management for efficient operation.

The PTT Innovation Institute achieved ISO 14001 Environmental Management Certification, as well as OHSAS 18001 Occupational Health and Safety Management Certification from Management system Certification Institute (Thailand) (MASCI) and TIS 17025 Certification from the Thai Industrial Standards Institute (General Requirements for the Competence of Testing and Calibration Laboratories).



## 1.3 Shareholding Structure of PTT Group

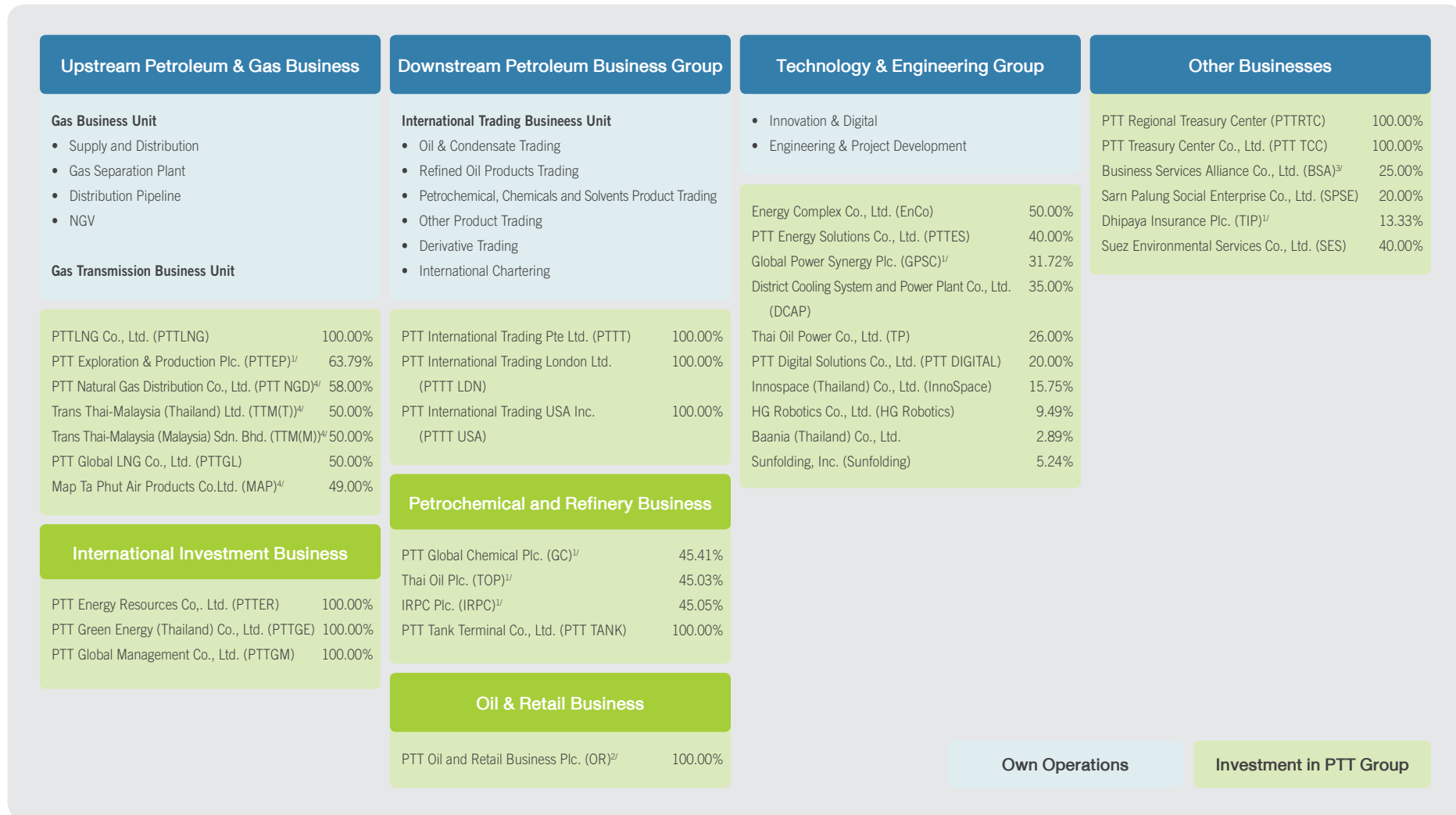
### 1.3.1 Shareholding Structure of PTT Group

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

Our operations cover the energy industry's entire business value chain from upstream activities to downstream activities with an emphasis on value added to its businesses as well as creating energy innovation. PTT has its own business operations and operate through subsidiaries, the following structure illustrates the integration of our operations.



## Business Structure of PTT Group Companies



**Remarks:**

Information as of December 31, 2020. (All figures are presented by PTT's portion.)

1/ These seven listed companies registered in the Stock Exchange of Thailand.

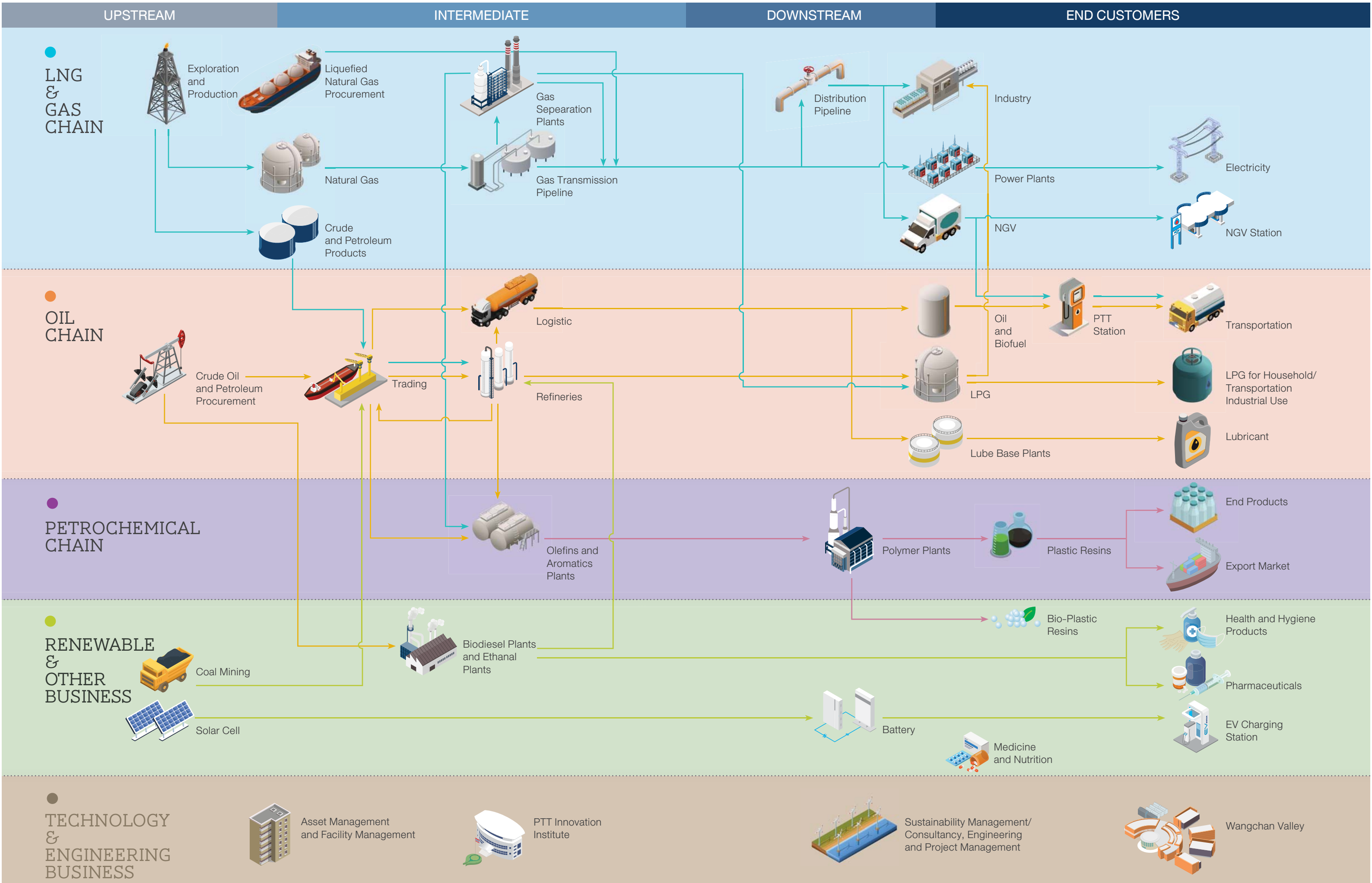
2/ PTT established a unit to supervise the assets transferred from Oil Business.

3/ BSA is a wholly-owned subsidiary as PTT holds all common share of BSA.

4/ Shareholding in these companies is a joint investment in other businesses. Details are under 1.2 Nature of Business/Procurement/Distribution



Create Value through Business Chain





### 1.3.2 Parties with Conflict of Interest

-None-

### 1.3.3 Relations with Major Shareholders' Business Group

PTT is a state enterprise, with the government through the Ministry of Finance as its major shareholder, under the supervision of the Ministry of Energy. Its business operations must also comply with the National Energy Policy Council Act B.E. 2535 (1992) with the supervision of the National Energy Policy Council (NEPC). As a state enterprise, the public sector can supervise its operations in compliance with national energy, economic and social policies.

### 1.3.4 Shareholders

The following table illustrates PTT's shareholding structure as of January 5, 2021, the record date for the 2020 interim dividend payment.

Item	Shares (Million)	Value (THB Million)	%
<b>Registered Capital</b>	<b>28,562.9</b>	<b>28,562.9</b>	-
<b>Paid-up Capital</b> (as of January 5, 2021)	<b>28,562.9</b>	<b>28,562.9</b>	<b>100.00</b>
• Ministry of Finance	14,598.9	14,598.9	51.111
• Vayupak Fund 1 by MFC Asset Management Plc.	1,650.0	1,650.0	5.777
• Vayupak Fund 1 by Krung Thai Asset Management Plc.	1,650.0	1,650.0	5.777
• Institutional and public investors	10,664.0	10,664.0	37.335
<b>Unpaid Capital</b>	-	-	-

Top 10 shareholders (as of January 5, 2021) are as follows:

No.	Name	Shares	%
1.	Ministry of Finance	14,598,855,750	51.111
2.	Vayupak Fund 1 by MFC Asset Management Plc.	1,650,000,000	5.777
3.	Vayupak Fund 1 by Krung Thai Asset Management Plc.	1,650,000,000	5.777
4.	Thai NVDR Co., Ltd.	1,493,046,473	5.227
5.	Social Security Office	568,209,000	1.989
6.	SOUTH EAST ASIA UK (TYPE C) NOMINEES LIMITED	542,303,745	1.899
7.	STATE STREET EUROPE LIMITED	366,396,500	1.283
8.	Federation of Savings and Credit Cooperative of Thailand Ltd.	362,097,167	1.268
9.	Electricity Generating Authority of Thailand Saving and Credit Cooperative Limited	197,436,468	0.691
10.	GIC PRIVATE LIMITED	168,770,600	0.591
<b>Total</b>		<b>21,597,115,703</b>	<b>75.613</b>

*Remarks:*

- Number 6, 7 and 10 are nominee accounts. PTT's investigation at Thailand Securities Depository Co., Ltd. (TSD), found that the ultimate shareholder's names could not be disclosed. However, the Ministry of Finance remained the sole majority shareholder on behalf of the State, which in part dictates PTT's management policy. The ministry nominated directors to the Board for approval by the shareholders. Other substantial shareholders, including Number 6, 7 and 10 exercise no influence over PTT's management policy formulation, including director nomination.
- Shareholders of Thai NVDR Co., Ltd., who hold non-voting depository receipts (NVDR) in No. 4, are ineligible for voting at shareholders' meetings except when exercising their voting rights on delisting the shares from SET.

## 1.4 Registered and Paid-up Capital

### 1.4.1 Common Shares

As of December 31, 2020, PTT's registered capital totaled THB 28,562,996,250, consisting of 28,562,996,250 common shares at THB 1 per share. These shares represented THB 28,562,996,250 in paid-up capital, or 28,562,996,250 common shares.

### 1.4.2 Other Shares with Different Terms or Rights from Common Shares

-None-

### 1.4.3 PTT's Shares or Convertible Securities as Underlying Securities for Issuing Mutual Funds for Foreign Investors

-None-

## 1.5 Issuance of Other Securities

### 1.5.1 Convertible Securities

-None-

### 1.5.2 Debt Securities

#### Bonds and Debentures

As of December 31, 2020, PTT had THB 92,584 million of Baht denominated debentures and US-dollar denominated debentures issued by PTT and PTT Treasury Center Co., Ltd. (PTT TCC), which are guaranteed by PTT, equivalent to THB 47,390 million. The detail is summarized as follows:

Debentures	Amount (THB million)	Redemption date	Guarantee
Domestic debentures <sup>1/</sup>	92,584	2021 - 2110	None
Foreign debentures <sup>2/ 3/</sup>	47,390	2035 - 2070	None
<b>Total</b>	<b>139,974</b>		

Remarks:

1/ Fitch Rating's national rating of long-term PTT and PTT TCC debentures at "AAA (tha)"

2/ Moody's international rating of foreign PTT and PTT TCC debentures at "Baa1"

3/ S&P's international rating of foreign PTT and PTT TCC debentures at "BBB+"

## Unsecured, Unsubordinated Domestic Debentures

Unit: THB million

Symbol	Issuance date	Maturity date	Tenor	Amount (THB million)	Annual coupon rate (%) (payment frequency)	Terms
PTTC215A	May 23, 2006	May 23, 2021	15 years	1,030	6.53 (semi-annually)	-
PTTC21NA	Dec 15, 2014	Nov 15, 2021	6 years, 11 months	10,000 <sup>1/</sup>	4.00 (semi-annually)	-
PTTC21NB	Oct 19, 2015	Nov 15, 2021	6 years, 27 days	4,200	3.50 (semi-annually)	-
PTTC222A	Feb 25, 2010	Feb 25, 2022	12 years	4,000 <sup>2/</sup>	4.50 (semi-annually)	-
PTTC227A	Jul 2, 2020	Jul 2, 2022	2 years	2,000	1.21 (semi-annually)	-
PTTC237A	Jul 24, 2020	Jul 24, 2023	3 years	2,000	2.25 (semi-annually)	-
PTTC239A	Sep 13, 2013	Sep 13, 2023	10 years	10,000 <sup>3/</sup>	6.58 (once at the end of redemption period)	-
PTTC243A	Mar 6, 2009	Mar 6, 2024	15 years	14,967 <sup>4/</sup>	(Year 1 – 5) 5.00 (Year 6 – 8) 6.20 (Year 9 – 15) 6.80 (semi-annually)	Debenture holders have right to redeem at the end of 8 <sup>th</sup> anniversary of the issue date
PTTC247A	Jul 31, 2009	Jul 31, 2024	15 years	9,387 <sup>5/</sup>	(Year 1 – 5) 4.25 (Year 6 – 10) 5.50 (Year 11 – 15) 5.75 (semi-annually)	Debenture holders have right to redeem at the end of 10 <sup>th</sup> anniversary of the issue date
PTTC257A	Jul 2, 2020	Jul 2, 2025	5 years	3,000	2.05 (semi-annually)	-
PTTC277A	Jul 24, 2020	Jul 24, 2027	7 years	13,000 <sup>6/</sup>	2.85 (semi-annually)	-
PTTC307A	Jul 2, 2020	Jul 2, 2030	10 years	2,000 <sup>7/</sup>	2.84 (semi-annually)	-
PTTC357A	Jul 2, 2020	Jul 2, 2035	15 years	6,000	3.20 (semi-annually)	-

Symbol	Issuance date	Maturity date	Tenor	Amount (THB million)	Annual coupon rate (%) (payment frequency)	Terms
PTTC457A	Jul 2, 2020	Jul 2, 2045	25 years	7,000	3.74 (semi-annually)	-
PTTC10DA	Dec 2, 2010	Dec 2, 2110	100 years	4,000 <sup>8/</sup>	5.90 (semi-annually)	Debenture holders have right to redeem at the end of 50 <sup>th</sup> and 75 <sup>th</sup> anniversary of the issue date and other case as defined in the Indentures
<b>Total</b>				<b>92,584</b>		

### Unsecured, Unsubordinated Foreign Debentures

Unit: THB million

Symbol	Issuance date	Maturity date	Tenor	Amount (THB million)	Annual coupon rate (%) (payment frequency)	Terms
USD Bond 2005 <sup>9/</sup>	Aug 3, 2005	Aug 3, 2035	30 years	1,610 <sup>12/</sup>	5.875 (semi-annually)	Debenture holders have right to exercise put option in the event that (i) the Thai Government, directly or indirectly, ceases to own and control at least 50% of PTT's issued and outstanding capital stock and (ii) within 180 days from the date of such decrease in ownership, PTT's Credit Ratings is reduced below such Credit Rating immediately prior to the occurrence of such change of control as defined in debentures prospectus and related documents.
USD Bond 2012 <sup>10/</sup>	Oct 25, 2012	Oct 25, 2042	30 years	7,265 <sup>13/</sup>	4.50 (semi-annually)	<ul style="list-style-type: none"> <li>Debenture holders have right to exercise put option in the event that (i) the Thai Government, directly or indirectly, ceases to own and control at least 50% of PTT's issued and outstanding capital stock and (ii) within 180 days from the date of such decrease in ownership, PTT's Credit Ratings is reduced below such Credit Rating immediately prior to the occurrence of such change of control as defined in debentures prospectus and related documents.</li> <li>PTT have right to exercise call option (Make-whole Redemption) as defined in debentures prospectus and related documents.</li> </ul>

Symbol	Issuance date	Maturity date	Tenor	Amount (THB million)	Annual coupon rate (%) (payment frequency)	Terms
USD Bond 2019 <sup>9-11/</sup>	Oct 24, 2019	Aug 3, 2035	15 years, 9 months, 10 days	7,399 <sup>14/</sup>	5.875 (semi-annually)	Debenture holders have right to exercise put option in the event that (i) the Thai Government, directly or indirectly, ceases to own and control at least 50% of PTT's issued and outstanding capital stock and (ii) within 180 days from the date of such decrease in ownership, PTT's Credit Ratings is reduced below such Credit Rating immediately prior to the occurrence of such change of control as defined in debentures prospectus and related documents.
USD Bond 2019 <sup>9-11/</sup>	Oct 24, 2019	Oct 25, 2042	23 years, 1 day	9,971	4.50 (semi-annually)	<ul style="list-style-type: none"> <li>• Debenture holders have right to exercise put option in the event that (i) the Thai Government, directly or indirectly, ceases to own and control at least 50% of PTT's issued and outstanding capital stock and (ii) within 180 days from the date of such decrease in ownership, PTT's Credit Ratings is reduced below such Credit Rating immediately prior to the occurrence of such change of control as defined in debentures prospectus and related documents.</li> <li>• PTT have right to exercise call option (Make-whole Redemption) as defined in debentures prospectus and related documents.</li> </ul>
USD Bond 2020 <sup>11/</sup>	Jul 16, 2020	Jul 16, 2070	50 years	21,145	3.70 (semi-annually)	<ul style="list-style-type: none"> <li>• Debenture holders have right to exercise put option in the event that (i) the Thai Government, directly or indirectly, ceases to own and control at least 50% of PTT's issued and outstanding capital stock or PTT ceases to own and control, directly or indirectly, at least 99% of PTT TCC's issued and outstanding capital stock and (ii) within 180 days from the date of such decrease in ownership, PTT's Credit Ratings is reduced below such Credit Rating immediately prior to the occurrence of such change of control as defined in debentures prospectus and related documents.</li> <li>• PTT have right to exercise call option as defined in debentures prospectus and related documents.</li> </ul>
Total				47,390		



*Remarks:*

- 1/ PTT engaged in an interest rate swap from Baht-denominated debentures worth THB 6 billion at a fixed rate to THBFIX + a fixed rate per year on the Baht-denominated principal. The swap will end on November 15, 2021.
- 2/ PTT engaged in a cross-currency swap from Baht-denominated debentures worth THB 4 billion to dollar-denominated ones worth USD 120.55 million at LIBOR + a fixed rate per year on the dollar-denominated principal. The swap will end on February 25, 2022.
- 3/ PTT engaged in an interest rate swap from Baht-denominated debentures worth THB 10 billion at a fixed rate to a lower rate. The swap will end on September 13, 2023.
- 4/ PTT engaged in an interest rate swap from Baht-denominated debentures worth THB 2 billion at a fixed rate to THBFIX + a fixed rate per year on the Baht-denominated principal. The swap will end on March 6, 2024.
- 5/ PTT engaged in an interest rate swap from Baht-denominated debentures worth THB 6 billion at a fixed rate to a floating rate based on long-term USD reference rate. The swap will end on August 15, 2024.
- 6/ PTT engaged in an interest rate swap from Baht-denominated debentures worth THB 1.5 billion at a fixed rate to THBFIX + a fixed rate per year on the Baht-denominated principal. The swap will end on July 24, 2027.
- 7/ PTT engaged in an interest rate swap from Baht-denominated debentures worth THB 2 billion at a fixed rate to a lower rate. The swap will end on July 2, 2030.
- 8/ PTT engaged in an interest rate swap from Baht-denominated debentures worth THB 4 billion: THB 2 billion at a fixed rate to a lower rate, to end on December 2, 2027, and the other THB 2 billion at a fixed rate to a lower rate, to end on June 2, 2028.
- 9/ In 2019, PTT exercised the liability management by repurchasing its USD bonds (USD bonds 2005) in the amount of USD 244.955 million, and PTT TCC has reissued new USD bonds (USD bond 2019), which guaranteed by PTT in the same amount of USD 244.955 million. The current PTT's USD bonds 2005's outstanding is USD 53.297 million.
- 10/ In 2019, PTT exercised the liability management by purchasing its USD bonds (USD bonds 2012) in the amount of USD 330.09 million, and PTT TCC has reissued new bonds (USD Bond 2019) guaranteed by PTT in the same amount of USD 330.09 million. The current USD bonds 2012's outstanding is USD 240.51 million.
- 11/ PTT TCC issued the bonds guaranteed by PTT. The guarantee's maximum liability will be capped at an amount equal to 125% of the outstanding of the PTT TCC's bond. The guarantee amount for USD Bond 2019, series maturity on Aug 3, 2035 and Oct 25, 2042 are USD 306 million and USD 413 million respectively. Also, USD 875 million is the maximum guarantee for USD Bond 2020.
- 12/ PTT engaged in a cross-currency swap from dollar-denominated debentures worth USD 53.297 million to Baht-denominated ones worth THB 1,749.21 million at a fixed rate to a lower rate on the Baht-denominated principal. The swap will end on Aug 3, 2035.
- 13/ PTT engaged in an interest rate swap from dollar-denominated debentures worth USD 240 million at a fixed rate to a floating rate based on the long-term USD reference rate. The swap will end on Nov 7, 2025.
- 14/ PTT engaged in an interest rate swap from dollar-denominated ones worth USD 100 million at a fixed rate to floating rate based on LIBOR. The swap will end on Aug 3, 2024.

## Short-term Bills of Exchange

As of December 31, 2020, there was no outstanding of short-term bill of exchange.

## 1.6 Dividend Policy

### PTT

PTT pays out as dividends no less than 25% of its net income after deducting all provisional reserves required by law and PTT. While the net income is based on the consolidated financial statements, dividend payment is subject to future investment plans, necessities, and suitability. Once the Board has decided on annual dividend payment, it must seek approval from the shareholders' meeting. An exception is for interim dividend payment, which the Board can approve and report to the next shareholders' meeting.

### Subsidiaries

Each subsidiary may proceed with dividend payment by taking into account its remaining cash flow in comparison with the investment capital. If the cash flow is substantial enough after legal provisions, the subsidiary may consider to proceed with dividend payment on a case-by-case basis.

#### PTT Dividend Payment

Year	2018	2019	2020
Earnings per share (THB/share)	4.15	3.20	1.32
Dividend per share (THB/share)	2.00	2.00	1.00
Dividend payout ratio (%)	48	63	76

## 2. Risk Management

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### 2.1 Risk Management Policy and Plans

#### Risk Management

Recognizing the value of risk management under changing circumstances that may affect businesses due to internal and external factors, PTT relentlessly complied with the principles and approach of COSO-ERM 2017 (Committee of Sponsoring Organization of the Treadway Commission), an international standard on risk management. PTT regards risk management as a critical component of all its business processes that must be comprehensively connected, so it has integrated Governance, Risk and Compliance (GRC) and defined an enterprise risk management policy for everyone to observe. An Enterprise Risk Management Committee (ERMC), a GRC Management Committee (GRMC), and a Corporate Plan and Risk Management Committee (CPRC) were thus appointed to steer overall risk management for maximum efficiency.



## Risk Management Structure

Corporate risks are systematically managed through PTT's various management committees. Risk management must be integrated with the formulation of enterprise plans to give risk management plans effectiveness and efficiency in line with corporate goals and strategies. Operational risks fall under the supervision of executives responsible for a given function. All units are responsible for managing and controlling risks to manageable levels and this has been spelled out in the job descriptions of all units.

## Risk Management Tools

PTT has investigated and applied various risk management tools, including declaration of the risk appetite, risk assessment and risk prioritization using a risk map, mitigation plans, key risk indicators (KRIs). The Monte Carlo Simulation technique has also been adopted to identify possible impacts on business results, known as Value at Risk (VaR). In addition, it monitors key changes in external factors and emerging risks to develop proactive risk management measures before such risks harm PTT's business.

## Risk Management Culture

PTT cultivates risk management awareness among all its employees along with nurturing risk management ambience and culture, focusing on due resource allocation and provision of assorted support by integrating risk management with key processes to promote effective risk management.

## 2.2 Risk Factors Facing PTT's Businesses

PTT analyzes internal and external circumstances as well as various trends (economic, social, political, technological, industrial, competitor, and others) to arrive at corporate risk factors, grouped as follows:

### 2.2.1 Current and Emerging Risks Facing Businesses of PTT or PTT Group

#### Strategic Risks

#### Strategic Direction

With dynamic innovation or technological progress resulting in disruptive technology that changes customers' needs and current business flows, PTT values the determination of PTT Group's business strategic directions to accommodate changing directions of the economy, society, energy, technology, and consumers' behavior that align with global megatrends. If PTT's strategies cannot promptly cater to such change, it could suffer from impacts on businesses and performance.

A new strategy of establishing a New S-Curve has therefore been devised to pursue opportunities and develop new business models to handle upcoming changes. A new set of vision, direction, and future business strategies has been mapped out by an annual Top Executive Thinking Session (TTS) and a Strategic Thinking Session (STS) among senior PTT Group executives. The resulting business strategies then translate into five-year business plans, which are then integrated with risk management plans. In addition, PTT holds a meeting of PTT Group executives every month to monitor all affiliates' performance and share ideas to modify short-term business plans and strategies to ensure planned performance outcomes.

Cybersecurity is another factor potentially affecting goal achievement. PTT has laid down a system for cybersecurity and manage it with ISO 27001 to close gaps in both technology and processes.

As for ESG risks, PTT requires assessment of material issues for the corporation each year, embracing risks and their likelihoods while considering the severity of impacts of all stakeholders' decisions and impacts on the corporation. Such key factors are then managed by various processes and mechanisms, meaning that these factors are fed into processes to define corporate strategies and corporate risk management. They are also managed by regular processes of process owners.

## Investment Risks

PTT not only continuously grows its businesses, but also seeks new investment schemes for itself and PTT Group. Doing so exposes PTT to risks of lower-than-targeted returns on investment, project delays, and project cost overruns.

PTT has therefore developed criteria for investment and investment budget management by PTT and PTT Group and applied PTT's affiliate governance approach to screen decisions, monitor, and steer PTT's and PTT Group's investment. The process is known as SIM (Strategic Investment Management), in which a Strategic Investment Management Committee, made up of executives with assorted expertise, screens investment, monitors, and reports on PTT's investment to support decision-making by the PTT Management Committee (MC) and the Board. Investment with massive value or those with significant risks must be presented to the ERM for comments before the Board's decision.

Once a given investment has secured the Board's approval, monitoring takes place for reporting to the Strategic Investment Management Committee, the MC, and the Board every quarter to ensure PTT's most useful and efficient capital. In addition, PTT regularly monitors and analyzes PTT's and PTT Group's investment portfolios to improve on performance and revise investment plans while valuing critical path management to minimize project risks so that projects may be completed in time, within budget, with suitable characteristics, and in due compliance.

## Personnel Development to Sustain Business Growth

PTT has been experiencing swift expansion due to the growth in investment here and abroad together with its pursuit of new business opportunities through new business investment, the introduction of advanced technology and innovations to drive business operations. As a result, unless PTT can groom skillful, experienced personnel in time and in adequate supply, this could harm its businesses and long-term goal achievement.

Digital technological reform affecting business disruptions in several industries has prompted PTT to groom its employees by adjusting their core competency sets to match strategies, corporate directions, and risks from external factors, not to mention assessment of personnel competency in parallel with capacity building through two key components.



1. Employees are redeveloped in core competency through arrangement by the PTT Leadership and Learning Institute (PLLI). The redevelopment program provides them with knowledge of technological and digital trends, overall change management, and a basic concept of innovation development to be able to apply and handle changes and step up as change leaders.
2. Employees are redeveloped in functional competency for each business through arrangement by the Functional Academy. The redevelopment program provides training and in-depth skills of each business with real practices.

In addition, to accommodate the execution of strategic directions by each business unit, PTT has laid down a structure supporting work and allocated personnel required to meet the needs of each business unit. At the same time, personnel management proceeds through the mechanism of career path management. Each career path features a manpower review where key positions are identified along with individual development plans to develop specialized skills for each career path along with leadership development and promotion of overall learning for PTT Group. These moves ensure that PTT will constantly command an adequate supply of quality executives and employees.

## Climate Change Risks

Today's investors have included risk management and opportunities related to climate as an investment factor in businesses affecting the environment amid the global community's keener awareness of climate change, as seen in the Paris Agreement (an accord under the United Nations treaty on climate change to define measures to lower carbon dioxide emissions). In PTT's case, the focus is on hydrocarbon-based energy businesses. PTT's measures to control and mitigate impacts consist of the following:

- Definition of the PTT Group Clean and Green Strategy as a strategic direction with clear goals for greenhouse gas reduction
- Implementation of a project to raise process efficiency and energy conservation

- Modification of investment criteria in support of greenhouse gas reduction projects or for more control of projects with greenhouse gas emissions
- Investigation and implementation of the Task Force on Climate-related Financial Disclosures (TCFD) to assess impacts on the corporation of climate change strategic implementation as well as under various climate scenarios before transparently disclosing data to investors
- Investment growth in renewable energy and low-carbon businesses
- Establishment of cooperation within PTT Group and with external agencies to urge greenhouse gas reduction through clean energy.

## Reputation Risks

While PTT's reputation has been long accepted, it could still face reputation risks if it could not maintain its work to match stakeholders' expectations. This could fast worsen given today's rapid spread of information due to communication technology, which is why PTT must multiply its care for stakeholders.

In looking after stakeholders under its mission, PTT efficiently manages stakeholders and relentlessly revises and develops its implementation by pushing through engagement of stakeholders by the AA 1000 SES international standard and the State Enterprise Assessment Model (SE-AM), which takes into account comprehensive engagement of stakeholders. PTT also spells out stakeholders' key issues and addresses issues of importance to stakeholders.

PTT compiles and analyzes stakeholders' needs and expectations by surveying and researching stakeholders along with megatrends to serve as key data in developing key issues among stakeholders. Once these issues are summarized, PTT assigns related units to develop a stakeholder management plan and then report the outcomes to the ERM every quarter so that its comments and recommendations may find their way into work improvement; around the year-end PTT assesses stakeholders' engagement for a review before the following year's activities.



This year PTT revised its plans to embrace transformation in stakeholders' expectations due to constant change in circumstances in order to address their needs faster while lowering risks to its reputation, notably impact assessment and extension of aid to stakeholders affected by COVID-19. Instances are the donation of alcohol to public agencies and hospitals nationwide, measures to control and prevent the spread of COVID-19 to ward off infection among the population in areas around gas transmission pipeline construction projects, relaxed financial burdens to suffering customers, activities to spur tourism economy, and hiring under the Restart Thailand Project.

## Operational and Business Risks

### Diminishing Natural Gas Outputs and Continuity of Gas Production

After more than 30 years of production, reserves of natural gas from producing fields in Thailand and Myanmar have been largely depleted. Moreover, some fields have gradually entered the 'Post-Plateau' period, the period stipulated in the Gas Sales Agreements where producers are permitted to slash the daily contract quantity or the daily amount of natural gas to be delivered. Under these circumstances, the chance of getting the same delivery volume as written in agreements is getting slim. In addition, the gas sales agreements for the Bongkot and Erawan gas fields, currently producing 2,085 MMSCFD, will end in 2022 - 2023. The government policy is to allow bidding and change the regime to Production Sharing Contract (PSC) with terms of reference including a minimum combined delivery volume of 1,500 MMSCFD for the entire agreement period of 10 years, lower than the former agreement. PTTEP, as the operator of the group, won the bidding and E&P rights for both blocks. Even so, if the PSC signing between the government and PTTEP together with concession block handover deviate from plans, there could be impacts on the continuity of gas delivery from these two gas fields, which would certainly affect the business performance of PTT.

To cope with the dwindling delivery volume of indigenous gas, PTT has procured additional long-term LNG. Under the preparation for additional use of LNG, construction of the second LNG terminal in Rayong and laying of the fifth pipeline are underway. Exploration of natural gas from new sources, as well as those in the Gulf of Thailand and the Malaysia-Thailand joint development area (MTJDA), is also ongoing.

### Risks of Significant Changes in Prices and Volumes of Petroleum and Petrochemical Sales

Domestic and international factors affecting petroleum and petrochemical demand, including economic, catastrophes, epidemics, and trade war, directly affect prices and sales volumes, in turn affecting PTT's and PTT Group's performance results. In addition, our raw material and feedstock prices and sales prices of natural gas, condensate, crude oil, petroleum products, petrochemicals, alternative energy, and the spreads between product and raw materials/ feedstock prices—domestic ones and overseas—are subject to high volatility of the world market. This could compromise our performance and returns on future investment.

To mitigate such risks, PTT has defined a risk mitigation plan to efficiently sustain the impacts of volatile energy prices. It formulated scenario planning for various oil prices to promptly handle future changes and uncertainty. PTT Group management has appointed a Price Strategy and Risk Management team under the Petrochemical and Refining Integrated Synergy Management (PRISM), tasked with analyzing world oil price movement and jointly carry out price hedging management among companies in PTT Group to obtain the greatest benefit. Today, to manage price risks, the group engages in hedging through derivative contracts in both petroleum and petrochemical prices. To this end, meticulous, prudent data analyses are conducted while suitable risk management tools are chosen to fit periods and objectives.

Also in place is a structure and process for supervising risk management with checks and balances of international standards. Similarly, a Value at Risk (VaR) is defined for each commercial transaction. A risk status summary report is regularly required for relevant executives and units to control and monitor PTT Group's price risks beyond what is acceptable.

## Compliance with Applicable Policies, Laws, and Regulations

There are many new laws and regulations with complexities that can affect the business performance of PTT as well as its corporate image and reputation. Some are laws on trade competition and the Public Procurement and Supplies Management Act. New and amended government policies, laws, and regulations of concern are budgeting laws, state audit laws, laws concerning public-sector financial discipline, laws on anti-corruption, Personal Data Protection Act, laws on cybersecurity, and laws whose interpretation is unclear, thus causing discrepancy in compliance.

To fully comply with relevant laws, PTT is committed to its Compliance Policy, which governs all activities' compliance with state laws and regulations of PTT Plc, and the Compliance Framework, an operating guideline to ensure full compliance with state laws and regulations of PTT Plc. Regular reviews are in place to align with the business and execution context as well as change in laws. A responsible unit of PTT closely monitors development of new laws with proactive participation, including analyzing and clarifying issues of doubt or obstacles to PTT and occasionally seeking clarification on certain legislation so as to align PTT's business with these new laws and regulations to be enforced in the future. Also in place now

is the Compliance Department's process, working alongside the 2nd Line of Defense Alliances. PTT has also integrated Governance, Risk and Compliance (GRC) so that its business may command good governance in line with the corporate governance code, adequate internal control, comprehensive risk consideration, and compliance of operation to lower non-compliance risks. Performance reports are duly made to the GRMC, and the Corporate Governance Committee respectively. PTT continuously promotes the culture of the PTT Way of Conduct to all staff throughout PTT Group to have all activities performed in the same conduct, same standard and same direction, including compliance.

## Risk Arising from Public and Applicable Government Agencies' Policies

The National Energy Policy Council (NEPC) endorsed an approach to promote competition in the natural gas business on July 31, 2017, to give natural gas users improved service by raising the number of players as well as efficiency. Another objective is to breed more efficient competition in the procurement of gas supply while stimulating procurement efficiency. A possible byproduct of this approach is that prices of natural gas—a key component of the national energy fuel cost—could drop in line with the prices of fuels. To achieve this, the Ministry of Energy endorsed phase 1 execution (pilot project) by assigning the Electricity Generating Authority of Thailand (EGAT) to get prepared to become a new shipper; it also acknowledged the principles and approaches for phase 2 and phase 3 by assigned agencies who investigated the move into such phases, after which they were to report to the Committee of Energy Policy Administration (CEPA) and NEPC for endorsement.

This year the Ministry of Energy completed phase 1 with EGAT's import of LNG in December 2019. Currently it is investigating a suitable format of phase 2 implementation to get prepared to approve. In mid-2020 the Energy Regulatory Commission (ERC) approved shipper licenses to four new natural gas business operators. PTT is awaiting clarity of the phase 2 approach. The presence of new operators may shrink PTT's gas market share. Yet, PTT is managing such change to remain the steward of energy security by procuring enough fuels for domestic demand and raise its competitiveness with new operators in addition to planning business growth. An instance is its internal restructuring to accommodate PTT's role and duties for business agility and competitiveness with new players together with business growth to accommodate regional demand, notably the LNG hub notion. In addition, for the pending approach for greater competition in phase 2, PTT or PTT Group could be among the new players competing in applying for a shipper license from ERC. This new role of PTT would segregate PTT's roles more clearly for greater business transparency.

Thanks to over four decades of experience in the natural gas business, PTT will retain its competitiveness in gas procurement amid volatile fuel market circumstances and public policies. A case in point is that this year PTT successfully managed seven spot LNG vessels to meet domestic demand at an average price of just US\$2.5/MMBtu—which speaks volumes for PTT's efficient business adaptation.

## Disruption of Production and Business Operations

With its several sites worldwide, PTT is exposed to disruptions of production and business operations resulting from human errors, malfunctioning machinery, catastrophes, threats of political instability, together with terrorist activities, epidemics, and other hazards. All these could prove detrimental to PTT and could wreak damage on its major infrastructure. PTT therefore values process safety management (PSM) by focusing on systematically managing and controlling operating risks through the introduction of engineering technology and sophisticated international standards, application of suitable tools and management systems, and preparedness for emergencies and incident management. An instance is the PTT Group Oil Spill Remediation Guidelines, formulated to prevent and mitigate environmental impacts and rapidly restore the ecology and biodiversity, resulting in the ability to do business even if such incidents occur. To lower the likelihood and impacts of such threats, PTT activates PTT Group Security, Safety, Health and Environmental Management Standard (PTT Group SSHE MS) and the PTT Group Business Continuity Management System Standard (BCMS) for all business units and PTT Group to leverage in developing and linking up with both common systems. PTT not only safeguards value-adding activities at sites, but does so in every stage of work to prevent disruption and prevent value-adding activities under PTT's business chain from being disrupted. In addition, PTT reviews, amends, and develops BCM to ensure practical connection between business units and stages integrated corporate BCM drills, human resource preparation plans (process to locate key personnel), backup office preparation plans, and information system preparedness plan to ensure BCMS recertification under ISO 22301.

Following best practices in the petroleum and petrochemical industries, PTT has taken out insurance policies to protect its core business assets from business disruption, in addition to further insurance coverage for operation suspension. But such subscription may not be all-inclusive since no insurance company offers such comprehensive insurance. Alternatively, sometimes it could prove uneconomic to buy excessively high-coverage insurance. While PTT believes that its affiliates have insurance policies that are of industrial standards, PTT cannot control the ceilings of PTT Group's insurance policies to cover possible damage. In other words, should properties not be significantly or fully covered, or should insurance companies face severe financial problems causing them to go out of business due to such events, PTT's financial position, business performance, and business opportunities could face grave repercussions.

### Risk from Work-Related Accidents

PTT's long-term goal for controlling accidents causing its employees and contractors injuries to need medical care is zero, so it defined control and mitigation measures, namely internationalized workplace standards, fostering of awareness of safety as a second nature for employees and contractors, safety assessment to identify risks and hazards and remedy them before accidents happen. To this end, various safety management systems, including process safety and transport safety, underline PTT's drive toward corporate implementation with continuous improvement.

### Cybersecurity Risks

Cyber-threats and cybersecurity are on the rise, with impacts seen in various forms, including theft of key data, virus attacks, ransomware, and system penetration to seize control of public utility systems. PTT takes seriously preventive and mitigation actions to curb the risk of becoming a target, which would have severe repercussions on corporate confidence and image among stakeholders. PTT has applied the ISO/IEC 27001 (information security system) scope of implementation to improve cybersecurity, including system inspection and assessment of risks arising from information system loopholes; installation of Line of Defense tools (involving the intrusion prevention system (IPS) antivirus and AI in the investigation and monitoring of threats); development of an IT security policy under the ISO/IEC 27032 international standard, embracing IT and OT (operation technology) by using the service of the Security Operation Center (SOC) of PTT Digital Solutions in surveillance and prevention of key software or hardware from penetration or authorized access around the clock. In place is a test to locate loopholes of a given service (application vulnerability assessment). This year PTT abolished the use of USB storage with its computers while adding multi-factor authentication for access to critical work systems and Cloud Security. In addition, PTT commands a BCM system in case of threats facing its information system. When emergencies arise that could affect business, PTT coordinates with network entities actions to control the situation and mitigate impacts in parallel with workforce education, including PTT's education and phishing mail tests among the workforce, followed by close outcome measurement.

## Risk Arising from COVID-19

The spread of COVID-19 and relevant public-sector measures have shaken the petroleum and petrochemical industry. PTT Group has closely monitored the situation to manage risks and issue various measures by appointing a PTT Group Vital Center to plan and manage the overall crisis in the short term and long term under the 4Rs (resilience, restart, re-imagination, reform) approach through:

### Performance Results and Financial Strength

PTT Group has mapped out a common management approach, including modified production plans in line with demand, reduction of raw material and feedstock imports and management of inventories, cost reduction measures, financial projection, cash flow, investment capacity suiting circumstances, and financial discipline of PTT Group to maintain financial strength, namely:

- Reduce-avoid-defer expense management measures for PTT Group to lower its operating expenditure (OPEX) and revise its capital expenditure this year by 10 - 15% while stressing the cost-conscious corporate culture
- Liquidity management and maintenance of financial strength for PTT Group by securing cash from banks' credit lines or borrowing among PTT Group, prefunding in line with market situation, and revising short-term investment. A focus has been on low-risk investment tools with high liquidity, risk management for debtors and creditors to maintain liquidity while commanding suitable measures to support debtors, and tax management in view of the public sector's announced tax assistance measures.
- PTT Group boasts PTT Group value chain optimization, designed to optimize demand, supply, and inventory management through mitigation plans designed to preserve PTT Group's competitiveness and strength.

## Supply Chain and Business Process

In place are plans to prevent site work disruption through work scheduling and assigning critical personnel together with backup team members, reserving second sites, and monitoring and modifying production plans in line with highly volatile markets to avoid significantly affecting capacities. In addition, employees, contractors, and third parties are strictly screened before entering work sites, employees or contractors in the risky group are quarantined, social distancing measures are defined, and overcrowding on site is avoided.

As for cybersecurity risk prevention of corporate digital system access through the Work from Anywhere mode, PTT commands a roaming security system designed to ensure safe work from employees' computer access from their residences or other work sites. The virtual private network (VPN) system access boasts a network with high protection and privacy; to access the network, the computer must pass PTT's security standard and self-authenticate each time. In addition, software is graded standard or nonstandard for conference calls.

### Personnel Health and Safety

A PTT morale power hub was set up to manage personnel physical and mental safety. Preventive and control measures are in place for domestic COVID-19 infection within PTT together with regular provision of news and information along with easy access to the hub.

## Financial Risks

### Volatility of the Baht

Changes in the exchange rate between the Baht and the US dollar directly and indirectly affect the bulk of PTT's revenue because its prices of natural gas, petroleum, and petrochemical products are tied to the world (US\$-linked) market prices. In other words, PTT's revenue varies with the value of the Baht. Yet, changes in the Baht value also affects PTT's margin since the bulk of its profits are fixed in the Baht currency, whereas costs are in the dollar denomination, which is tied to world market prices, as are prices.

Fluctuation of the Baht affects PTT's net book profit/ loss because of PTT's and subsidiaries' outstanding foreign loans. Yen-denominated loans leverage participating swaps to convert loans into dollars to agree with dollar-denominated revenue. That way, PTT manages to counter most of the risks of yen fluctuation against the dollar.

To ease risks of Baht fluctuation, PTT balances its foreign-currency loans with its foreign-currency revenue (that is, taking a natural hedge) while managing its foreign-currency deposits and purchasing forward foreign currencies for smart repayment and commercial transactions—including imported natural gas and crude oil, trading of domestic products in baht but US\$-linked in value, and appropriate product exports. PTT has also developed a finance policy as an efficient, uniform guideline for itself and PTT Group, which includes terms for various risk management practices which could affect PTT's financial position.

## Financial Support to Affiliated Companies

To promote relentless growth, PTT invests in new projects, grows its businesses, or adjusts its operations. Sometimes such investment is undertaken through new companies or link-ups with strategic partners or through PTT Group companies, or all of these. Some of these companies may still be starting up projects or may not yet be financially strong, so shareholders and PTT still need to extend cost-overrun support to allow them to operate under strategies and business policies of PTT Group as a whole. Some may need cash support during commercial operations, which may result from force majeure or business down-cycles, thus calling for financial help from shareholders. Such financial help may be provided through sponsor support agreements, subordinated debt, equity, trade credit, or shareholder loan, or a combination of these.





PTT will consider extending loans or commercial credit, or both, to individual affiliates in the hope that such a policy and action would foster sustainable strength for PTT and PTT Group. PTT subscribes to such policy and actions.

In extending such financial support to these affiliates via subordinated loans, commercial credit, or loans from the shareholders, PTT cannot guarantee that these companies will be able to repay such loans or credit, that they will not face financial woes again, or that they will not need financial support from PTT again. Any such possibilities could hurt PTT's performance and financial position. Besides, if PTT or any member of PTT Group becomes a default party under any agreement on shareholder support, some creditors may accelerate debt repayment. Therefore, PTT cannot guarantee that it will not raise its own shareholding or raise its shareholding to more than half or take over such company if such action is considered more beneficial. If any of this should happen, the Thai financial reporting standards require PTT to consolidate the financial statements of the company in question with those of PTT, effective from the date of such control. In short, such consolidation could undermine PTT's overall financial position.

At any rate, PTT commands a process to screen and approve its investment together with close monitoring of PTT Group's performance through various committees, including the Investment Committee and the committee appointed to administer cooperation among finance and accounting groups. PTT Group Way of Conduct is cascaded to all in PTT Group to ensure uniform management under international standards and guidelines, timely risk management, and minimized impacts on PTT Group.

## Securing of Funds

The businesses of PTT and PTT Group require massive pre-paid capital investment. Although PTT closely monitors and manages business risks, the actual investment capital required could deviate from project plans.

Thanks to PTT's and PTT Group's business conduct that focuses on fostering long-term growth and corporate governance, PTT plans to invest in prudent business growth with due regard for sources of capital, particularly capital structuring to duly maintain crucial financial ratios on a par with peer companies. Continuous monitoring of factors for investment capital sourcing has assured PTT that it can secure sufficient funds for future business expansion at a suitable cost of funds.



## 2.2.2 Investment Risks for Shareholders

### Risks from the Major Shareholder's Management

As of January 5, 2021, the Ministry of Finance was PTT's major shareholder with 14,598,855,750 shares, or 51.11% of all issued and paid-up capital, which entitles it to vote at the AGM. Yet, most significant agenda items are required by PTT's Articles of Association to pass with three-quarters of the AGM votes, including amendments to the memorandum of association and the articles of association, capital increase or decrease, issuance of debentures, company mergers, company liquidation, company sale or transfer (whole or partial), acquisition or transfer of other companies (public or private), engagement in, amendment, or termination of lease agreements for entire or partial company business, delegation of other parties to manage the business, mergers with other parties to share profits or losses, and voting to dismiss any director ahead of term completion. If an agenda item concerns a matter in which the ministry as a major shareholder has vested interests, including related transactions, acquisition or sale of assets from or to the ministry, the ministry cannot vote on such item. In addition, PTT has required independent directors to account for at least half the Board; it currently has 11 out of 15 on the Board, who must command expertise and useful experience to PTT and must engage in no conflicts of interest with PTT. It also appointed an Audit Committee (made up of three independent directors without vested interests in PTT) to monitor its business and look after shareholders' interests so that business may proceed transparently in line with PTT's corporate governance code.

### Risks of Uncertain Returns on Investment for Shareholders

PTT's share prices may rise or fall in a volatile fashion, subject to several factors beyond its control, including

- Prices of petroleum, petrochemicals, or other reference product prices
- Change in various policies, regulations, requirements, or terms affecting industry
- Economic situation, crisis, or abnormal situation, including COVID-19 and the oil price war.

These factors could depress share prices below what investors paid for or higher than their sold portions, or both, thus putting investors at risk from uncertain returns on investment.

### Risk from Dividend Affordability Below Investors' Expectation

PTT's affordability is subject to several factors, including capital budget and capital reserve for business growth, loan repayment, and cash flow from operating activities. If these factors affect PTT's affordability of the annual dividends or interim dividends, or both, it could risk payment of dividends at lower rates than investors' expectation. Yet, PTT's dividend policy is that at least 25% of net profit after deducting all reserves under the law and company regulations.

## 2.2.3 Risks Facing Investing in Foreign Securities (If the Issuer is a Foreign Company)

-None-

## 3. Driving Business for Sustainability

### 3.1 Sustainability Management Policy and Targets

#### Sustainability Management Policy

PTT is determined to operate the business in line with the principles of sustainable development, Sufficiency Economy Philosophy and social responsibility by creating collaboration, trustworthiness, and value for stakeholders. Hence, PTT's President and Chief Executive Officer announced the PTT Sustainability Management Policy, which was communicated throughout the Company and its business value chain in order to drive the Company towards operational excellence, transparency, and effective response to changes. Apart from operating according to the international standards and measurements, the Company must strive to balance the three dimensions of environmental, social, and governance (ESG). PTT Sustainability Management Policy is reviewed annually with regard to the current situations, outlooks, trends, and other factors related to sustainability issues, both internally and externally, as well as all the relevant rules, regulations, and standards with all group of stakeholders in mind. All the aforementioned factors would drive the Company to achieve its vision, strategic directions and targets effectively, while fulfilling the Sustainable Development Goals (SDGs). In 2020, the revisions in the policy aimed to illustrate its determination to manage material issues on three dimensions: environmental, social, and governance. The policy also focused more on risk management, adaptation to changes, and business opportunity seeking. To this end, all executives and employees are responsible for contributing, driving, integrating, and executing the policy throughout the organization and deploy to PTT affiliates and all stakeholders, and to pursue collaborative action through dialogue and partnerships with global organizations to strengthen sustainable development capabilities.



For more information, please visit [www.pttplc.com](http://www.pttplc.com) and refer to the "Sustainability" tab, "Governance" heading and "PTT Group Sustainability Management System" sub-heading.



#### PTT Sustainability Management Policy

##### Environmental

Adapt business toward low carbon society along with operating in an environmentally friendly way. Control and minimize the impact on the ecosystem and biodiversity as well as mitigating and being more resilient to climate change by applying the principles of the circular economy.

##### Social

Conduct business responsibly. Respect the human rights principles. Protect labor rights, safety, health, and elevate working environment whilst continuously develop knowledge, skills and competency of employees. Apply organization core competency to create shared values and improve the quality of life of the community and society for sustainable growth.























##### Governance

Comply with the good corporate governance principle, ethics, laws, obligations, and regulations in all countries of operations and adhere to international practices and guidelines. Disclose information and performance transparently. Manage risk, adapt to change, and seek opportunities to ensure sustainable business growth and reduce the impact from operations throughout the value chain whilst balancing the interests of a diverse group of stakeholders.

## PTT's Sustainability Management Targets

PTT adheres to becoming the “Thai Premier Multinational Energy Company”, with the mission to respond to all stakeholders equally through the “SPIRIT” core value. Additionally, “Transparency & Sustainability” is included as a part of the “PTT by PTT” aspiration to ensure the strategic direction of sustainability management towards the environment and society, while creating a sustainable growth for all sectors, as follows:



Strategic Directions	Short/Long-term Targets	Performance	Contribution to the 20-Year National Strategy	Contribution to the SDGs
 <b>Environmental: Sustainable Production and Consumption</b>	 Developing toward low carbon society and environmentally-friendly business operation	<ul style="list-style-type: none"> <li>Limit PTT Group's greenhouse gas emissions below 40.2 million tonnes of CO<sub>2</sub> equivalent for 2020</li> <li>Reduce PTT Group's greenhouse gas emissions by 20% compared to the business-as-usual scenarios by 2030.</li> </ul>	<ul style="list-style-type: none"> <li>PTT Group's greenhouse gas emissions were 30.2 million tonnes of CO<sub>2</sub> equivalent within the target.</li> <li>Revised PTT Group's long-term greenhouse gas emission target in 2030 from 20% to 27% compared to the business-as-usual scenarios.</li> </ul>	<ul style="list-style-type: none"> <li>National Strategy 5: Eco-Friendly Development and Growth</li> </ul>  7.2 7.3  13.1 13.2 13.3
	 Driving resource utilization based on the principles of the circular economy	<ul style="list-style-type: none"> <li>Apply the principles of the circular economy in the PTT Group's operation, aiming towards Maturity Level 3 of the circular economy principle, according to the British Standard Framework for implementing the principles of the circular economy in organizations (BS 8001 : 2017), by 2030.</li> </ul>	<ul style="list-style-type: none"> <li>Developed PTT Group Circular Economy Maturity Level Assessment Guideline in alignment with the BS 8001 : 2017 standard for self-assessment.</li> <li>Launched a prototype of plastic cup receiving machine for Café Amazon to separate and collect polyethylene terephthalate or PET cups. The machine could separate and collect PET plastic cups gathered from branches of Café Amazon, which were later upcycled as tumblers.</li> </ul>	<ul style="list-style-type: none"> <li>National Strategy 5: Eco-Friendly Development and Growth</li> </ul>  6.3 6.4 6.5  12.2 12.4 12.5
 <b>Social: People's Well-being</b>	 Creating social values and uplifting the society's quality of life	<ul style="list-style-type: none"> <li>Set up the target to dedicate at the minimum of 1-3% of its net operating profits to social investment.</li> </ul>	<ul style="list-style-type: none"> <li>The total budget on the social investment was THB 620.37 million, or 4.04% of the net operating profits.</li> </ul>	<ul style="list-style-type: none"> <li>National Strategy 3: Developing and Strengthening Human Capital</li> <li>National Strategy 4: Social Cohesion and Equity</li> </ul>  4.1  7.1  15.2
	 Promoting safe working environment and respecting human rights	<ul style="list-style-type: none"> <li>2020 targets:               <ul style="list-style-type: none"> <li>- Zero Lost Time Accident (LTA) for both employees and contractors</li> <li>- Total Recordable Injury Rate (TRIR) for employees not exceeding 0.066 per 200,000 working hours, and for contractors not exceeding 0.080 per 200,000 working hours</li> <li>- Total Recordable Occupational Illness Rate (TROIR) for employees not exceeding 0.12 per 200,000 working hours</li> <li>- Zero catastrophic process safety incidents</li> </ul> </li> <li>Zero human rights complaints</li> </ul>	<ul style="list-style-type: none"> <li>LTA: 1 for employees, and 2 for contractors</li> <li>TRIR: 0.089 for employees, and 0.116 for contractors</li> <li>TROIR: 0 for employees</li> <li>2 catastrophic process safety incidents</li> <li>Zero human rights complaint</li> </ul>	<ul style="list-style-type: none"> <li>National Strategy 4: Social Cohesion and Equity</li> </ul>  8.7 8.8
	 Powering the workforce to support the business growth in the future	<ul style="list-style-type: none"> <li>Increase the Human Capital Index (HCI) by at least 1% annually</li> </ul>	<ul style="list-style-type: none"> <li>HCI was 77%, which was 3% higher than the previous year.</li> </ul>	<ul style="list-style-type: none"> <li>National Strategy 3: Developing and Strengthening Human Capital</li> </ul>  8.5
 <b>Governance: Corporate Governance and Performance Excellence</b>	 Operating with good corporate governance and integrity (Governance, Risk and Compliance: GRC)	<ul style="list-style-type: none"> <li>Zero non-compliance to laws, rules and regulations, and the prevention from repetition of non-compliance throughout PTT Group.</li> </ul>	<ul style="list-style-type: none"> <li>Zero non-compliance incident</li> <li>The Integrity and Transparency Assessment (ITA) result was in the A-level with the score of 91.88.</li> </ul>	<ul style="list-style-type: none"> <li>National Strategy 6: Public Sector Rebalancing and Development</li> </ul>  16.5 16.6
	 Adapting to changes and accelerating business growth to drive the economy	<ul style="list-style-type: none"> <li>Value creation from business growth</li> <li>Profit from new businesses</li> <li>Business growth</li> </ul>	<ul style="list-style-type: none"> <li>Restructured the business and expanded to new businesses through contractual agreements.</li> </ul>	<ul style="list-style-type: none"> <li>National Strategy 2: Competitiveness Enhancement</li> </ul>  7.1  8.2

## 3.2 Impact Management to Stakeholders in the Business Value Chain

### Stakeholder Analysis from the Business Value Chain

PTT has taken into account the utmost importance of the stakeholder management throughout the business value chain, covering those impacted by PTT's business operation or have influences on the company from the past, present and into the future. As a result, PTT puts an emphasis on the value chain management's effectiveness to ensure our mission to balance all groups of stakeholders equally. Internally, thirteen business lines have identified their stakeholders through three steps of stakeholder analysis as follows:

1. Identify core business objectives, scopes, and the purposes to engage the stakeholders.
2. Analyze the relevant value chain, identify its stakeholders, both internally and externally, who could be affected by the business operation or who could have influences on the business operations, the missions, or the activities.
3. List all stakeholders from all business lines and categorize them into key groups of stakeholders so that the corporate-level stakeholders are identified.

### 6 Key Stakeholder Groups



#### Public Sector:

policy makers, regulators, state enterprises, court of justice, independent entities, parliament and senate, and international organizations



#### Community & Society:

communities surrounding PTT's operation sites, general public, youths, educational institutes, mass media, local politicians, and NGOs.



#### Investor:

common shareholders, debenture shareholders, juristic persons and individual investors, securities firms, stock analysts



#### Customer:

business customers (B2B), consumers (B2C), and government customers



#### Supplier & Partner:

partners, suppliers, joint ventures, and business alliances



#### Employee:



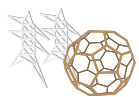







PTT executives and employees

### Stakeholders' Engagement Scores





## Stakeholder Value Chain Analysis Results

					
Stakeholder Groups		Upstream Petroleum and Natural Gas Business Group	Downstream Petroleum Business Group	Technology and Engineering Business Group	Business Support Units*
	Public Sector	●	●	●	●
	Community & Society	●		●	●
	Investor				●
	Customer	●	●	●	
	Supplier & Partner	●	●	●	●
	Employee	●	●	●	●

Remark:

\* Business support units include Corporate Strategy, Finance & Accounting, General Counsel, Organization Management & Sustainability, and Corporate Audit.

## Stakeholder Engagement in the Business Value Chain

In order to accommodate our stakeholders' interests and concerns, PTT has gathered the information from stakeholder engagement sessions, together with the global trends, business plans, and suggestions from the PTT Board of Directors for further analysis. As a result, PTT has initiated a corporate stakeholder engagement plan in response to the significant issues or concerns from the stakeholders' perspectives such as:

- 1. Compliance & Transparency:** Compliance to law, rules and regulations, and transparency in business operation
- 2. Brand & Trust:** Branding and trust in business operation
- 3. Energy Transition:** Adaptation to changes of business in the future
- 4. Climate Change:** Climate change, pollution and environmental impact management
- 5. Health & Safety:** Health and safety of the communities caused by the business operation

The following action is to identify relevant stakeholders to each concern or issue and assign relevant functions to set up appropriate stakeholder engagement plans in order to improve its operation, objectives, targets, and key performance indicators (KPIs). Each business line must report its progress to the PTT's Enterprise Risk Management Committee (ERMC) quarterly.

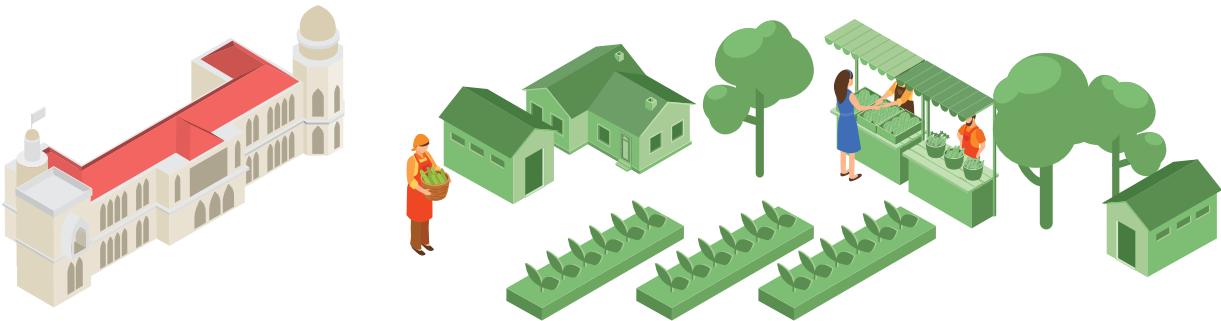
## In-depth Stakeholder Focus Group regarding Sustainability Management Issues

In 2020, PTT organized an in-depth interview with thought leaders and arranged a focus group interview with representatives from each stakeholder group in accordance to the AA1000 Stakeholder Engagement Standard (AA1000SES) and the GRI Standards. The stakeholders have suggested that PTT should increase its transparency standard, and fair business conduct to encourage business competition. In addition, PTT should consider speeding up its inventions of products and services in response to climate change, and ecological impacts, as well as reviewing PTT Group's business direction towards Thailand's vision of the low-carbon society. Consequently, the suggestions and opinions from this session, along with the issues and concerns from the value chain analysis, would be inputs for the materiality assessment process.



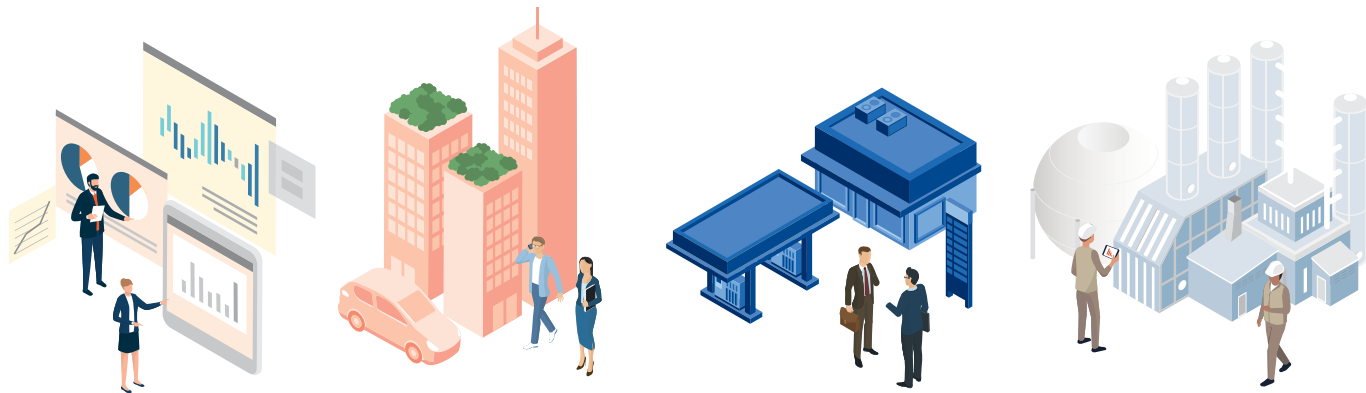
For more information, please visit [www.pttplc.com](http://www.pttplc.com) and refer to the "Sustainability" tab, "Governance" heading and "Stakeholder Engagement" sub-heading.



Stakeholder Engagement Results



	Public Sector	Community & Society		
Engagement Channels	<ul style="list-style-type: none"><li>Monthly meetings with the government agencies</li><li>Monthly visits to PTT's operation sites</li><li>Quarterly seminars and workshops, to create understanding about PTT business with the public sector</li></ul>	<ul style="list-style-type: none"><li>Online social media, such as</li></ul> <div><div> PTT Group</div><div> PTT News/ We love PTT/ GODJI</div><div> @pttplc_ official</div><div> godji_ pttgroup</div></div> <ul style="list-style-type: none"><li>1365 Contact Center</li><li>PTT website or email: <a href="mailto:pttvoice@pttplc.com">pttvoice@pttplc.com</a></li><li>Social projects to uplift the quality of life of the people affected by the COVID-19 pandemic</li></ul>		
Needs/ Expectations	<b>Compliance &amp; Transparency</b> <ul style="list-style-type: none"><li>Adequate and timely information disclosure</li></ul>	<b>Brand &amp; Trust</b> <ul style="list-style-type: none"><li>To conduct the business taking into account the benefits of Thai society</li><li>Initiate social projects that respond to the needs/ expectations of the stakeholders</li></ul>	<b>Climate Change</b> <ul style="list-style-type: none"><li>Improving the community's quality of life, free from environmental problems</li></ul>	<b>Health &amp; Safety</b> <ul style="list-style-type: none"><li>Health care for the community and safety of the community from the impacts of PTT business operations</li></ul>
Examples of Key Performance	<ul style="list-style-type: none"><li>Managed internally to provide information to the government agencies faster, for example, categorizing the information, or setting a process for information disclosure</li><li>Disclosed the information through PTT website and other social media. </li></ul>	<ul style="list-style-type: none"><li>Created understanding of the issues regarding energy, innovation, energy technology, efficiency and transparency in the business operation of the Company</li><li>Conducted social projects such as online marketplace for local products, support for local tourism, job training for community energy program, and the Restart Thailand campaign, page 142</li></ul>	<ul style="list-style-type: none"><li>Reduced greenhouse gas emissions through the energy efficiency projects, and the renewable energy projects, for example, the Waste Heat Recovery Project, page 134</li><li>Increased carbon sequestration with the expansion and the preservation of the urban greenspace, page 147</li></ul>	<ul style="list-style-type: none"><li>Managed safety and occupational health of all projects, for example, installing dust net, sound and vibration measurement at the construction sites </li><li>Set measurements to control and prevent COVID-19 infection, page 176 and set community aid programs, page 142</li></ul>

Remark:  For more information, please visit [www.pttplc.com](http://www.pttplc.com)



	Investor	Customer	Supplier & Partner	Employee
Engagement Channels	<ul style="list-style-type: none"><li>Online meeting</li><li>PTT Group operation site visits</li><li>Annual general meeting of shareholders</li><li>Opportunity Day</li><li>Digital Roadshow</li></ul>	<ul style="list-style-type: none"><li>Meetings with customers to raise accurate understanding of business conduct</li><li>"PTT Life Station" Application</li><li>1365 Contact Center</li></ul>	<ul style="list-style-type: none"><li>Supplier seminar</li><li>Grievance on corruption-related issues: <a href="mailto:grchelpdesk@pttplc.com">grchelpdesk@pttplc.com</a> or <a href="mailto:pttvoice@pttplc.com">pttvoice@pttplc.com</a></li></ul>	<ul style="list-style-type: none"><li>Monthly meeting of the Relation Affairs committee</li><li>The executives and employees joined hands in doing community development activities</li><li>Seminars of business functions</li></ul>
Needs/ Expectations	<b>Energy Transition</b> <ul style="list-style-type: none"><li>Good business performance</li><li>Development of the energy or the energy innovation in response to the business disruptions in the future.</li></ul>	<b>Brand &amp; Trust</b> <ul style="list-style-type: none"><li>A quick support and problem-solving regarding the Company's products and services.</li></ul>	<b>Compliance &amp; Transparency</b> <ul style="list-style-type: none"><li>Transparency, fair, speed and clarity of the procurement process</li></ul>	<ul style="list-style-type: none"><li>Security and professional advancement</li><li>Adaptation for changes in PTT's business operations</li><li>Work-life balance</li></ul>
Examples of Key Performance	<ul style="list-style-type: none"><li>Communicated business strategies and directions to the investors to create confidence during the PTT Group operation site visits, annual general meeting of shareholders, and Opportunity Day, activities.</li></ul>	<ul style="list-style-type: none"><li>Reduced the burden of the consumers regarding the product prices by subsidizing the price of natural gas for vehicles (NGV).</li><li>Launched "PTT Life Station" Application, to assist with the locations of NGV stations, or as a contact point to get the after-sales services.</li></ul>	<ul style="list-style-type: none"><li>Developed a procurement process in the Digital Procurement platform such as PTT Vendor Management website, of which vendors could use the status tracking for their contracts, goods receiving, and payments. </li><li>Provided information to create a better understanding on steps, processes, for internal and external users.</li><li>Joined the government's Integrity Pact (IP) program for the the Onshore Gas Transmission Pipeline No. 5, Phase II.</li></ul>	<ul style="list-style-type: none"><li>Enhanced the skill and knowledge of the workforce constantly.</li><li>Virtual classroom, page 152</li><li>Appropriately adjusted the welfare according to the needs. </li></ul>

Remark:  For more information, please visit [www.pttplc.com](http://www.pttplc.com)

## Materiality Assessment

PTT's materiality assessment process is conducted in accordance to the GRI Sustainability Reporting Standards 2016 and the International Integrated Reporting Council (IIRC) to identify issues impacting the Company's business operation covering aspects on environmental, social, and governance, as well as, other issues that could affect the value creation in the business value chain. The assessment also covers the needs and expectations of the stakeholders. The material issues are re-assessed annually to monitor any changes on the issues significant to the company and its stakeholders so that the issues could be managed effectively and reasonably. Materiality assessment covers three processes as follows:



### 1. Issue Identification for the Organization and the Stakeholders

Relevant functions throughout the organization identified issues from the standards, rules and regulations, and related international guidance, which are in line with the context of risks, strategies, and sustainability management of the company. On the other hand, they also take into account the needs and expectations of the stakeholders from the business value chain related to each function.



### 2. Prioritization

The identified issues are screened to assess their level of significance from opportunity and impact to business value creation, encompassing finance, business and operations, corporate reputation, impact to customers, suppliers and partners, and employees. Besides, the level of interest and impact of the stakeholders are also included in the assessment process. Material issues are then brought into the process of strategy development, and manage effectively thereafter.

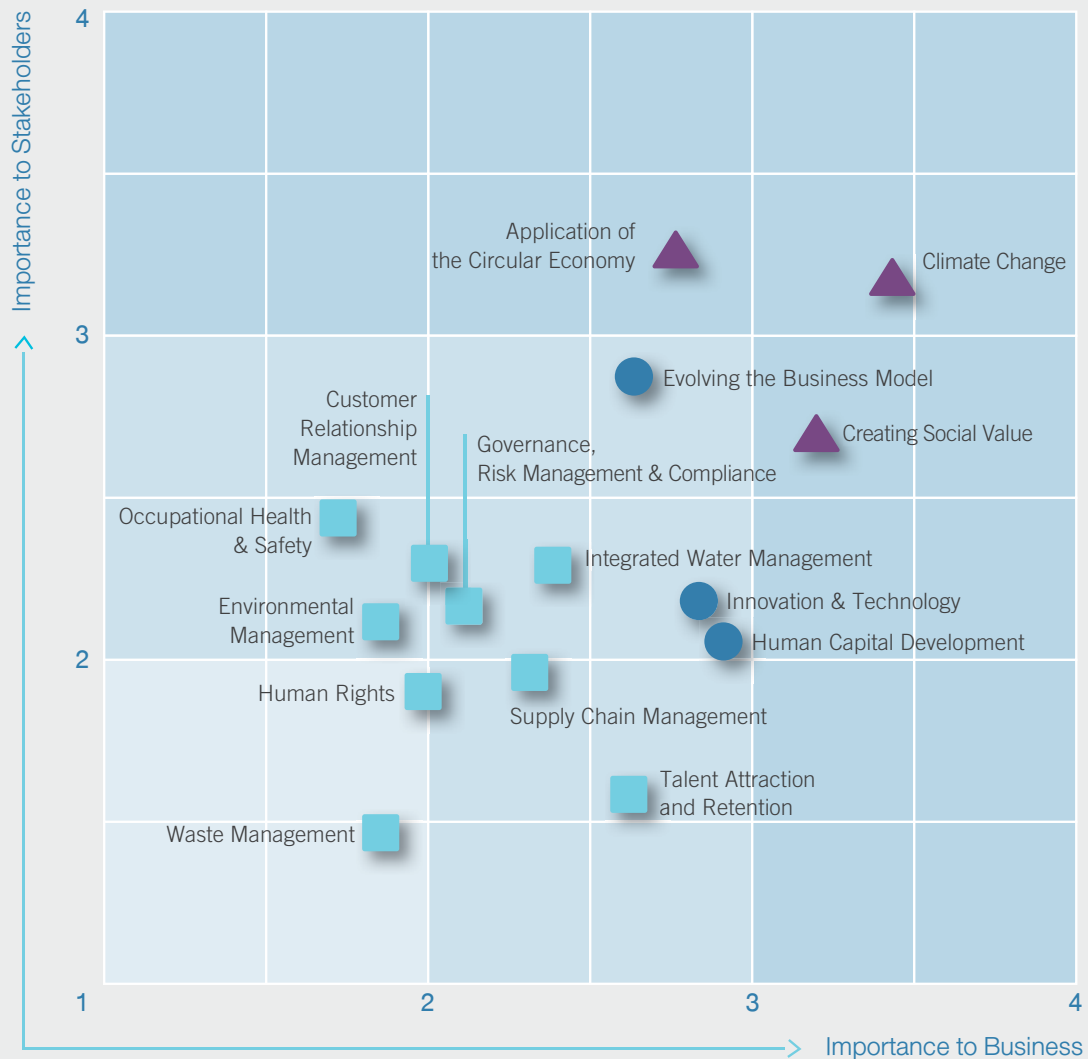


### 3. Verification and Validation

The Governance, Risk, and Compliance Management Committee (GRCMC) is responsible for managing sustainability, following up the progress, as well as, sharing their views and suggestions, and giving consultancy, together with the top executives of related functions. In addition to the internal review of the material issues, PTT also arranges an assurance process by the independent external assurer to verify the materiality assessment process, stakeholder engagement approach, data collection and performance monitoring to its completeness, accuracy, and credibility. Lastly, PTT integrates the observations from the independent external assurer to improve the internal management approach and the disclosure.

## Materiality Assessment Results

PTT had reviewed material issues to have a comprehensive coverage over the changing context by revising the material issue's heading from Sustainable Governance to **Governance, Risk Management & Compliance**, to align with the business operation. Product Stewardship was revised to **Customer Relation Management** to better cover the customer-oriented issues. Besides, to better focus on the development and application of technologies in various aspects of operations, the Research, Development, and Innovation was changed to **Innovation & Technology**, and highlighted **Waste Management** which would lead to the **Application of the Circular Economy**. Effluents and Waste was included in the **Integrated Water Management**, while the **Environmental Management** was added to better portray the Company's management on the impacts towards the environment. Moreover, the company had realized the importance of the sustainable creation of the shared values between the company and the community and society. Corporate Citizenship was, therefore, changed to **Creating Social Value**.



In order to set up the management approaches, PTT had categorized the material issues into three groups, which were:



#### Sustainable Value Creation Material Issues

- Focus on creating value for a sustainable growth
- Set a top-down approach and a long-term, strategic, direction and target, to be deployed into the state enterprise/business plan throughout the Business Group/ Business Unit, and corporate level.
- Set lagging KPIs, long-term targets, and a clear roadmap



#### Enabling Material Issues

- Manage similarly to managing the Sustainable Value Creation Material Issues as it was a crucial issue which enhances the effectiveness of the Sustainable Value Creation management.



#### Business Fundamental Material Issues

- Focus on the value creation, risk mitigation, and productivity improvement
- Integrate into the corporate management systems and assign responsible functions for each material issue.
- Set leading KPIs, and mid-term targets.

Material Issues on Sustainability

Details

Contribution to the SDGs

Material Issues on Sustainability

Details

Contribution to the SDGs



Climate Change

GRI 305: Emissions  
GRI 302: Energy

- The management of direct greenhouse gas emission (Scope 1) and indirect greenhouse gas emission (Scope 2)
- The management of other indirect greenhouse gas emission (Scope 3) such as the promotion of biofuels, and the investment in alternative energy
- Government policy risk and climate change law
- Maintaining investors' trust regarding the issues on climate change risk
- Business opportunities promotion regarding the climate change and the readiness to transform to low-carbon society



Additional Information:

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Climate Change Management



Innovation and Technology

GRI: Not Applicable

- Research and technology development, and the process to develop an innovation to commercialization, and to increase competitiveness
- Research and technology development, and the development of an innovation responding to sustainability-related issues
- Innovation promotion and technology application for the process, product, and service
- Adoption of digital technology to change business process and activities of the company
- Violation of cybersecurity



Additional Information::

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Innovation and Product Stewardship



Application of the Circular Economy

GRI 201: Economic Performance  
GRI 306: Waste  
GRI 303: Water and Effluents

- Designs of process, products, and services, with the life cycle management principle in mind
- The opportunity of new product development from waste/ unused material
- Resource efficiency such as raw material or water
- Finding value or setting a new purpose of usage for used or depreciated products or assets



Additional Information:

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- Climate Change Management
- Waste Management
- Sustainability Strategy
- Innovation and Product Stewardship
- Integrated Water Management



Evolving the Business Model

GRI 203: Indirect Economic Impact

- Business direction responsive to future disruption
- Business strategies responsive to energy transition and climate change
- Inefficient business development process that could not create competitive advantages
- Business opportunity seeking from global megatrends to develop a new business models and to create growth for the company



Additional Information:

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Sustainability Strategy



Creating Social Value

GRI 413: Local Communities

- Participation with the community to lift their quality of life through volunteer programs or community development activities
- Increase the quality of life of community or society through the education promotion, economic development to help ease poverty problem, health care, and job creation
- National human capital development
- Preservation of natural resources and environment (the expansion of greenspace)
- Management of impacts of operation on local communities
- Promotion of creating social values with the community such as the Social Enterprise (SE) program



Additional Information:

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- Creating Social Value
- Capital Project Management



Human Capital Development

GRI 404: Training and Education

- Training courses to improve competency and capability meeting the needs of the executive and employees to prepare for the future business
- Knowledge management
- Succession planning



Additional Information:

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Human Resource Management

Remark:  
 For more information, please visit [www.pttplc.com](http://www.pttplc.com)

Scope of Impact

Internal PTT PTT Group

External

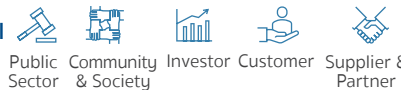


Remark:  
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Scope of Impact


Internal PTT PTT Group

External





Material Issues on Sustainability		Details		Contribution to the SDGs		Material Issues on Sustainability		Details		Contribution to the SDGs	
<div></div> <div>Waste Management</div> <div>GRI 306: Waste</div>	<ul style="list-style-type: none"><li>Management of hazardous waste from production process</li><li>Reduction of waste to landfill and waste minimization from the source of origin</li></ul> <div></div>	<div> 11.6</div> <div> 12.2 12.4 12.5</div> <div>Additional Information:  Waste Management</div>	<div></div> <div>Environmental Management</div> <div>GRI 307: Environmental Compliance</div>	<ul style="list-style-type: none"><li>Management and protection of environmental impacts from business operation and capital project operations</li><li>Control of air pollution such as oxides of nitrogen (NOx), sulfur dioxide (SO<sub>2</sub>), and volatile organic compounds (VOCs)</li><li>Biodiversity management</li></ul> <div></div>	<div> 3.9</div> <div> 6.3</div> <div> 7.1 7.2 7.3</div> <div> 12.2 12.4</div> <div> 13.1 13.2 13.3</div> <div> 14.1 14.2</div> <div> 15.2</div> <div>Additional Information:  Environmental Management  Biodiversity  Air Quality Control  Spill Management</div>						
	<div></div> <div>Governance, Risk Management and Compliance</div> <div>GRI 102: Governance GRI 205: Anti-corruption GRI 415: Public Policy</div>	<ul style="list-style-type: none"><li>Fair operating business conduct according to principles of corporate governance and transparency</li><li>Anti-corruption, bribery, and fraud</li><li>Compliance with law, rules and regulations</li><li>Business continuity management and crisis management</li></ul> <div></div>		<div> 16.3 16.5 16.6</div> <div>Additional Information:  Corporate Governance  PTT Group Sustainability Management System  Fair Operating Practice  Risk Management</div>	<div></div> <div>Integrated Water Management</div> <div>GRI 303: Water</div>	<ul style="list-style-type: none"><li>Efficient water consumption</li><li>Responsible management of wastewater without the impacts on the society and the environment</li><li>Risk of water scarcity in the production process</li><li>Fair water resources allocation without the impacts on the community and the society</li></ul> <div></div>	<div> 6.3 6.4 6.6</div> <div> 14.1</div> <div>Additional Information:  Integrated Water Management</div>				
<div></div> <div>Supply Chain Management</div> <div>GRI 308: Supplier Environmental Assessment GRI 414: Supplier Social Assessment</div>	<ul style="list-style-type: none"><li>Sustainability risk management from the procurement process and the suppliers' operation</li><li>Procurement guideline following the government policy and green procurement</li><li>Participation and shared value creation with suppliers and contractors within the PTT Group value chain</li><li>Value chain stability management</li></ul> <div></div>	<div> 12.7</div> <div>Additional Information:  Supply Chain Management</div>	<div></div> <div>Human Rights</div> <div>GRI 412: Human Rights Assessment</div>	<ul style="list-style-type: none"><li>Respecting human rights</li><li>Human rights risk and impact management throughout the business value chain</li><li>Grievance management and remediation</li><li>Prevention of human rights violation from the daily operation, capital project operation, or emergency and crisis situations</li></ul> <div></div>		<div> 8.5 8.7 8.8</div> <div>Additional Information:  Human Rights Management</div>					
<div></div> <div>Customer Relationship Management</div> <div>GRI 416: Customer Health and Safety</div>	<ul style="list-style-type: none"><li>Occupational health and safety risk that cause injuries/ illness of the employees and contractors</li><li>Process safety risks</li><li>Travel and transportation safety risk</li><li>Marine transportation safety risk</li><li>Efficient emergency, crisis, and business continuity management to prevent impacts on business, society, community, and the environments</li></ul> <div></div>	<div> 3.6</div> <div> 8.8</div> <div>Additional Information:  Security, Safety and Occupational Health</div>		<div></div> <div>Talent Attraction and Retention</div> <div>GRI 404: Training and Education</div>	<ul style="list-style-type: none"><li>Building employee engagement</li><li>Adherence to corporate values</li><li>Appropriate remuneration and welfare management</li><li>Talent attraction and retention</li></ul> <div></div>	<div> 5.5</div> <div> 8.5</div> <div> 16.7</div> <div>Additional Information:  Human Resource Management</div>					

Remark:  
 For more information, please visit [www.pttplc.com](http://www.pttplc.com)

Scope of Impact

Internal

 PTT

 PTT Group

External


 Public Sector

 Community & Society

 Investor

 Customer

 Supplier & Partner

Remark:  
 For more information, please visit [www.pttplc.com](http://www.pttplc.com)

Scope of Impact

Internal

 PTT

 PTT Group

External

 Public Sector

 Community & Society

 Investor

 Customer

 Supplier & Partner



Sustainable Value Creation

Inputs

Financial Capital

- 28,562,996,250 shares of issued and additional paid-in capital
- THB 2,219,739 million in revenue from products and services in 2019
- THB 288,972 million from EBITDA (Earnings Before Interest/ Tax/ Depreciation) in 2019

Manufactured Capital

- Production and research facilities
- Infrastructure such as natural gas pipelines and petroleum terminals
- 6 Gas Separation Plants with a total production capacity of 2,870 million cubic feet per day
- Natural gas pipeline network spanning approximately 4,772 kilometers

Intellectual Capital

- Knowledge-based assets
- Licensed technology, innovation, and other initiatives
- Research fund of THB 521 million

Human Capital

- 3,506 PTT employees
- Skills and experiences of our people, suppliers, and partners
- Average training for executives and employees: 31.19 hours
- Average training cost for executives and employees for THB 13,472 per person
- 38.5% of female executives and employees to the total number of employees

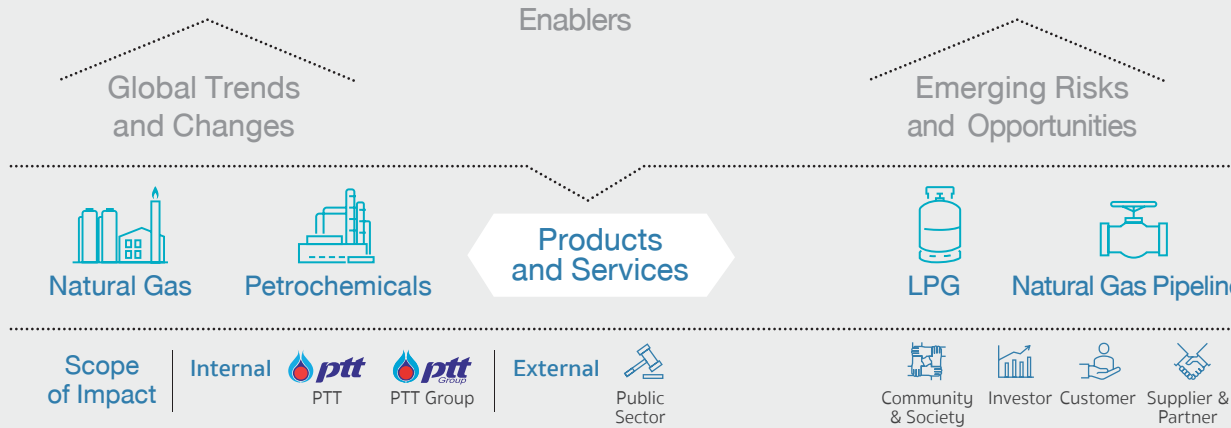
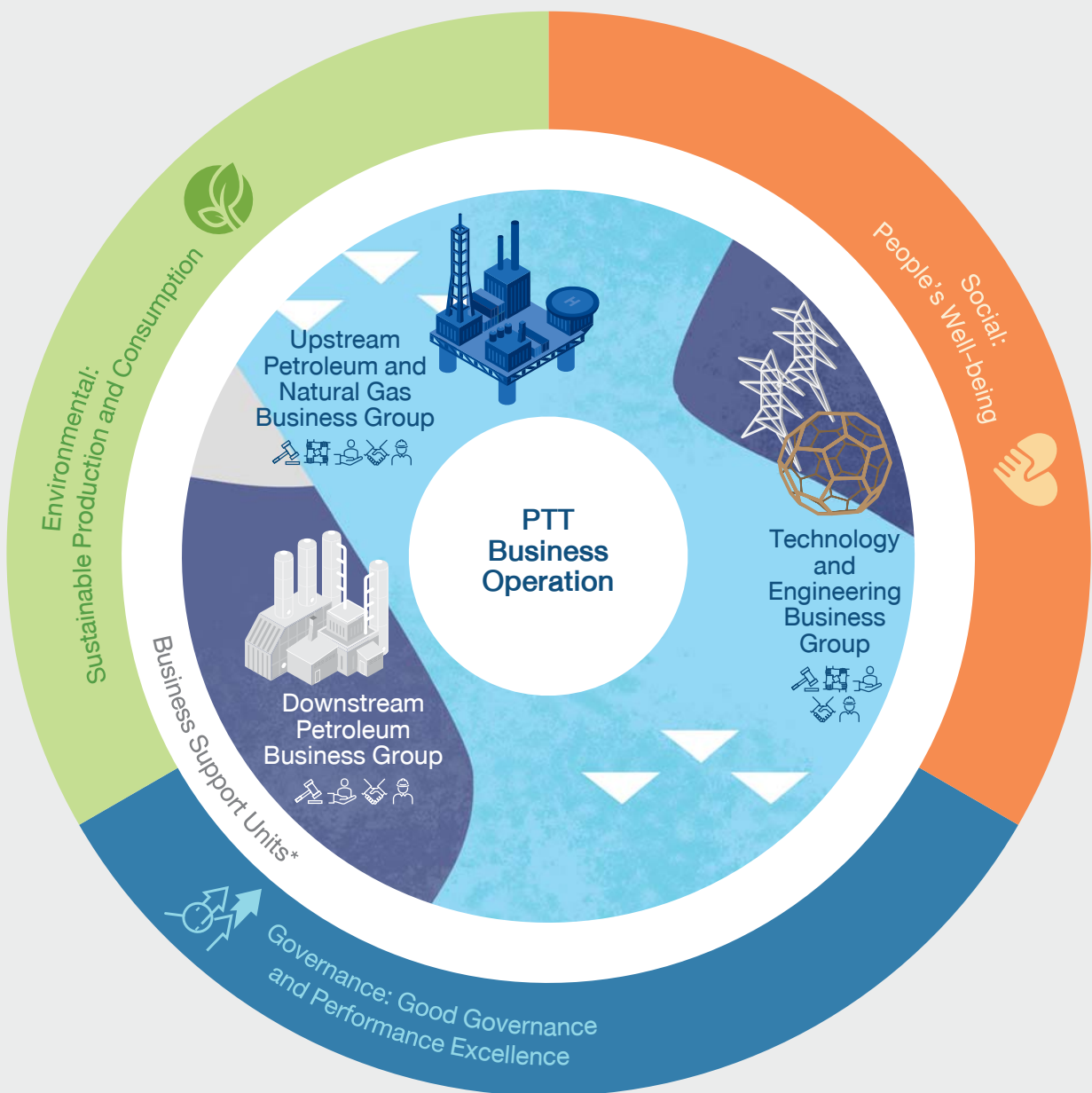
Social and Relationship Capital

- Relationship between PTT and stakeholders
- Brand and reputation
- Investment in social development: THB 620.37 million
- Stakeholder engagement

Natural Capital

- Renewable and non-renewable natural resources
- Investment in natural capital: THB 329 million

PTT Business Operation



Value Creation

To the Company

Environmental Sustainable Production and Consumption

- Direct greenhouse gas emission (Scope 1) at 28.99 million tonnes of CO<sub>2</sub> equivalent
- Indirect greenhouse gas emission (Scope 2) at 1.23 million tonnes of CO<sub>2</sub> equivalent
- 7.58% of recycled and reused water against total volume of freshwater withdrawal in PTT
- Reforestation project of 1 million rai in honor of His Majesty King Bhumibol Adulyadej to offset an average of 2.14 million tonnes of CO<sub>2</sub> equivalent per year, valued at over THB 280 million per year.

Social People's Well-being

- Human capital return on investment: 194 times
- 80% employee engagement score
- Employee turnover rates: Male employees: 0.63 Female employee: 0.57
- 100% employee succession rate
- 100% engagement with communities in operational areas
- Stakeholder engagement score at 83
- No community conflicts

Governance Corporate Governance and Performance Excellence

- Sales and service income: THB 1,615,665 million
- EBITDA: THB 225,672 million
- Net debt to EBITDA 1.68 times
- Earnings per share: THB 1.32 per share
- Annual dividend payment: THB 28,563 million
- Income tax payment considered as government administration or national development: THB 25,166 million
- 24 new products developed and 49 patents and petty patents
- Direct and indirect revenue from research and development: THB 1,413 million

To Stakeholders

Capital

All Groups	
All Groups	
Public Sector Community & Society Employee	
Public Sector Community & Society Employee	
Employee	
Employee	
Employee	
Employee	
Community & Society	
All Groups	
Community & Society	

Investor, Employee	
Investor, Employee	
Investor	
Investor	
Investor	
Public Sector	
Employee, Customer Supplier & Partner	
Employee, Investor	

Remark:  
\* Business support units include Corporate Strategy, Finance & Accounting, General Counsel, Organization Management & Sustainability and Corporate Audit.

### 3.3 PTT's Overall Performance and Material Issue Management



PTT is determined to be a business leader by adhering to the principles of sustainable development, the Sufficiency Economy Philosophy and the Approaches of Sufficiency Economy to the Industrial Sector, the framework of ISO 26000 : 2010 Guidance on Social Responsibility, and other related standards. The company has built participation, trustworthiness, and value for its stakeholders, through operational excellence and business transparency, and a continued development of innovation and technology, so that the business would grow stably and sustainably in all three dimensions, which are Environmental, Social, and Governance, or ESG. Also, PTT is contributing to the Sustainable Development Goals (SDGs), focusing on five dimensions, which are People, Planet, Prosperity, Peace, and Partnership, or 5Ps.

Each year, PTT analyzes internal and external factors and other related contexts to identify material issues on sustainability, as well as, risks and opportunities, which might have positive or negative impacts on PTT and the stakeholders. PTT then prioritizes those factors to identify the material issues

which will be managed through the organizational mechanism or governance process carried out by PTT's Management Committee, the management, and other related departments. Besides, the material issues will be taken as input factors and will be brought into the process of setting business directions and strategies and the enterprise risk management, so that those issues will be managed systematically. In 2020, fifteen material issues were analyzed and integrated into the process of setting business direction, and deployed as the "Master Plan on Sustainability Management, Social Responsibility, and the Environment, 2021 - 2025". According to the master plan, enterprise risk and challenges, as well as, business opportunities accumulation was governed. The master plan covers the strategic direction and roadmap on sustainability, KPI, short and long-term target, and PTT sustainability development plan. This complies to the organizational vision, mission, aspiration, sustainable management policy, corporate strategic direction, as well as, responsibilities of related departments.



For more information, please visit [www.pttplc.com](http://www.pttplc.com) and refer to the "Sustainability" tab, "Governance" heading and "Sustainability Strategy" sub-heading.



## Climate Change

### Opportunities and Challenges

Referring to the report of the Intergovernmental Panel on Climate Change (IPCC), stating that the target to reduce the greenhouse gas emission under the Paris Agreement could not stop the global climate to rise not over than 2 degree Celsius. Therefore, each country was requested to set a more challenging target. Thailand has expressed its stand point through its global climate change policy and through the movement to drive the reduction of greenhouse gas emission in the energy and transportation sectors. As a result, Thailand has achieved its target of reducing greenhouse gas emission by 7 - 20% in 2020. The country is likely to adjust its greenhouse gas emission target to be more challenging in the future. Hence, PTT has realized the importance of the situation and forecasted the impact that could occur, so that the Company would be ready for the challenges. Continuously, the Company has determined to operate in accordance with PTT Group's climate change strategies, which include the revision of the greenhouse gas reduction target of the Group by more than 20% in 2030, and the approach on calculation methodology on the greenhouse gas reduction of the Group in order to achieve the reduction target. However, PTT has realized that climate change could provide opportunities in accelerating the study and the application of clean energy, responding to the Power Development Plan 2018 - 2037, which has set the portions of energy mix for power production from renewable energy by 20 - 35% of the total power consumption in 2037, while supporting the development of the innovation to move towards the low-carbon society effectively.

### Management of Material Issues



Environmental:  
Sustainable Production and Consumption



Developing toward low carbon society and  
environmentally-friendly business operation

Corporate Indicators	Short/ Long-term Indicators	Performance
<ul style="list-style-type: none"> <li>Indicators of Top executives</li> <li>Performance results of PTT Board of Directors and employees at all levels</li> </ul>	<p><b>Short-term Indicators</b></p> <ul style="list-style-type: none"> <li>Limit PTT Group's direct and indirect greenhouse gas emission below 40.2 million tonnes of CO<sub>2</sub> equivalent in 2020.</li> <li>Increase the greenhouse gas reduction and capture from the operation of the company, as certified by the government agencies within 2021.</li> <li>Increase revenue from low-carbon products by 2023.</li> </ul> <p><b>Long-term Indicators</b></p> <ul style="list-style-type: none"> <li>Limit the greenhouse gas emission by reducing the greenhouse gas emission of the PTT Group by 20% in 2030, compared to the business-as-usual scenario.</li> </ul>	<ul style="list-style-type: none"> <li>PTT Group's greenhouse gas emissions were 30.2 million tonnes of CO<sub>2</sub> equivalent within the target, due to the following activities; energy efficiency management, flare gas reduction and reuse, and methane leakage control.</li> <li>Use of renewable energy such as the installation of solar cell panel at the office buildings, operation buildings, and at the service stations.</li> <li>Increased investment on renewable energy and electricity value chain.</li> <li>Brought internal carbon price into consideration when making investment decision and approved by top executives.</li> <li>Operated with the determination to move to low-carbon society throughout the value chain in compliance with circular economy.</li> <li>Greenhouse gas emission target of the PTT Group in 2030 was revised from the previous 20% reduction target to 27% reduction target, compared to the business-as-usual scenario.</li> </ul>

## Key Performance

PTT is involved in submitting recommendations to the Climate Change Act in addition to building up a cooperative network with the government sector through forest and greenspace carbon sequestration projects. The program also brings PTT technical knowledge to develop internal mechanisms involving the carbon reduction and sequestration assessment. On an annual basis, PTT reviews the PTT Group Clean and Green Strategy which covers the strategy on climate change management. In 2020, the target is to limit PTT Group's direct and indirect greenhouse gas emissions below 40.2 million tonnes of CO<sub>2</sub> equivalent through the reduction of energy intensity from the Energy Management Projects by 3.21 gigajoules per tonne of products. Regarding the long-term target, PTT Group's greenhouse gas emission target in 2030 is to reduce to 27% compared to the business-as-usual scenario. In addition, PTT has developed a web-based database for PTT Group's greenhouse gas emission data

collection and reporting. PTT also submitted petty patent on carbon credit assessment for certification and carbon trading of biofuel consumption.

According to the government policy to promote the increase of biofuel consumption, OR has developed and distributed biofuel products, contributing to the reduction of 3.0 million tonnes of CO<sub>2</sub> equivalent. In addition, PTT also promoted the consumption of natural gas, which is the cleanest fossil fuel compared to other fossil fuel, and the transition from fossil fuel to renewable energy.

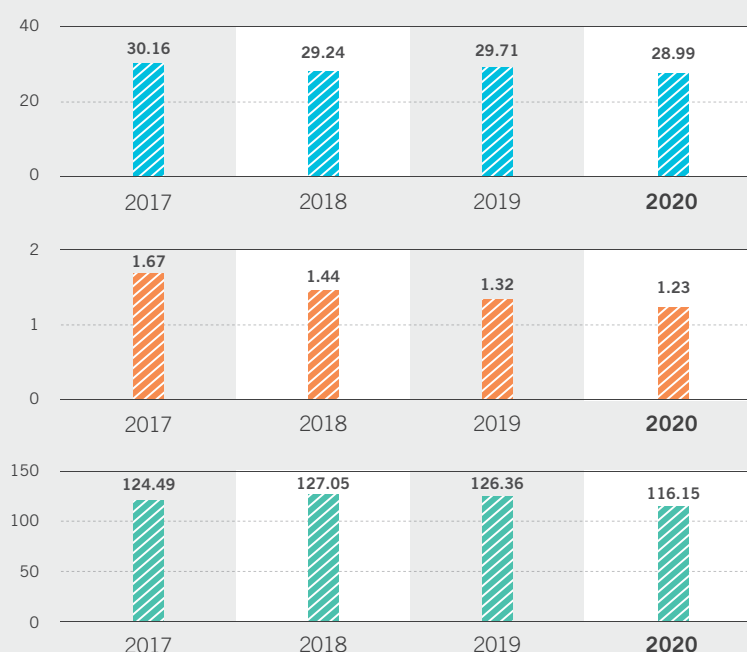
Besides, PTT has applied the principles of the Task Force on Climate-related Financial Disclosures (TCFD) to assess risks, impacts, and business opportunities, in order to response to the related frameworks on climate change such as Climate Action 100+, and CDP. The Company has been on the process of studying other related approaches such as setting a science-based targets.

Figure 1

### PTT Group's Direct and Indirect Greenhouse Gas Emissions<sup>1</sup>

Unit: Million tonnes of CO<sub>2</sub> equivalent

- ▨ Direct greenhouse gas emission (Scope 1)
- ▨ Indirect greenhouse gas emission (Scope 2)
- ▨ Greenhouse gas emission from the combustion of fuels sold (Scope 3)<sup>2, 3</sup>



#### Remarks:

- The scope of data covers the companies in Thailand in which PTT holds direct shares of more than 20% and as their major shareholder or indirectly shares of 100%.
- Scope 3 GHG emissions cover the combustion of PTT's fuel products (gasoline, diesel, jet fuel, fuel oil, liquefied petroleum gas, and kerosene). PTT manages the volume of its scope 3 GHG emissions by setting a target to reduce direct and indirect GHG emissions (Scopes 1, 2, and 3) per unit of PTT products sold, as defined by the State Enterprise Policy Office (SEPO)
- The scope of data for scope 3 GHG emissions covers PTT and OR.

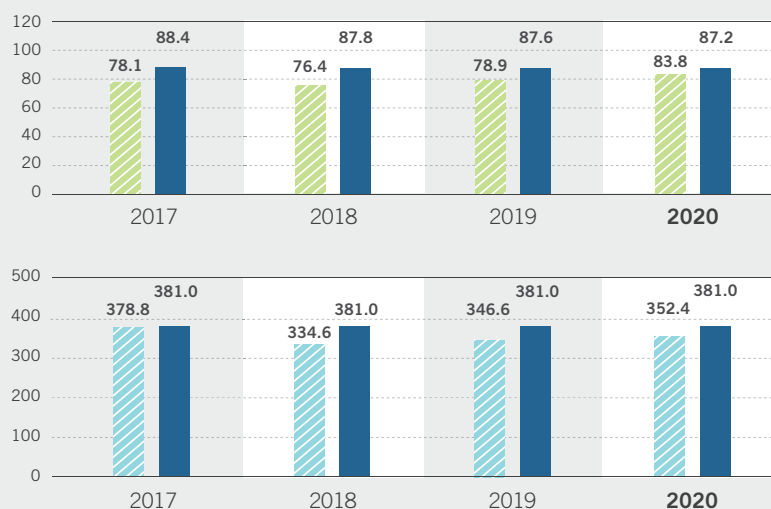


Figure 2

## Greenhouse Gas Emission Intensity

Unit: Kilogram CO<sub>2</sub> per barrel of oil equivalent

- ▨ Direct and indirect greenhouse gas emissions from PTT Group activities (Scope 1 and 2)
- Targets
- ▨ Direct and indirect greenhouse gas emissions from PTT Group activities and the combustion of fuel products sold by PTT (Scope 1, 2 and 3)
- Targets



Remark:

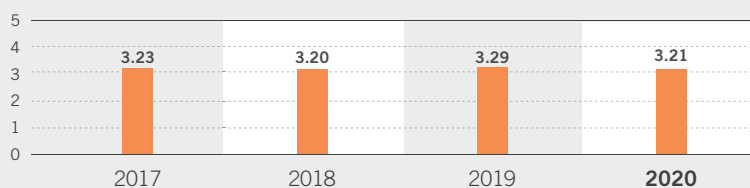
The scope of data covers the companies in Thailand which PTT hold more than 20% of their shares and as their major shareholder or indirectly hold 100% of their shares.

Figure 3

## Energy Intensity Reduction from Energy Management Projects

Unit: Gigajoule per ton of product

- energy intensity



Remarks:

- The scope of data covers PTT's Rayong Gas Separation Plant, PTTEP, TOP, GC, and IRPC.
- The energy intensity reduction in 2020 is estimated from Quarter 1 - 3 performance.

## Key Activities

Internal Carbon Price (ICP):  
Using the ICP in PTT's Capital  
Expenditure Decision Process13.1  
13.3

In 2020, PTT began to adopt the internal carbon pricing mechanism by applying the "How-to Guide to Corporate Internal Carbon Pricing: Four Dimensions to Best Practice Approaches" by Ecofys, Generation Foundation, and CDP. The approach, based on 'Shadow Price' or 'Hidden Price', is used in capital expenditure decision process on direct and indirect greenhouse gas reduction projects with

the internal carbon price of 20 USD per tonnes of CO<sub>2</sub> equivalent. This increase the opportunities to invest in greenhouse gas reduction project. The mechanism was also extended and applied to other company in PTT Group, which lead to the approval of Chiller Water System project of Energy Complex Company Limited.

## Excellent Award on Low Carbon and Sustainable Business Index (LCSI)



13.1

PTT received an Excellent Award on Low Carbon and Sustainable Business Index (LCSI), in 2020, awarded by Thailand Greenhouse Gas Management Organization (Public Organization) for the second consecutive year. The award demonstrates PTT's strong determination to move towards a low-carbon business and to response to the climate change crisis.

## Energy Efficiency and Greenhouse Gas Emission



7.3

In 2020, PTT continuously monitors the energy performance of PTT Group companies, including PTTEP, TOP, GC, IRPC and the Rayong Gas Separation Plant, to assess performance trends in accordance with the energy conservation target. PTT Group meetings were held to share their best practices of energy conservation and gathered knowledge from each company. As a result, guidelines for the maintenance of heat exchanger machine, slag formation prevention, and predictive maintenance of machinery and equipment were developed to be used in PTT Group. Key energy efficiency activities were Pinch across Plant Utilization Hot Oil from WHRS to LPG Recovery Column, which could save energy consumption of PTT's Rayong gas separation plant by around 500,000 gigajoules per year or greenhouse gas reduction by around 28,000 million tonnes of CO<sub>2</sub> equivalent per year; TOP energy optimization activity, which aimed to improve the energy efficiency of TOP refineries in Chonburi province by reducing the energy consumption of around 600,000 gigajoules per year or the reduction of greenhouse gas emission by around 46,000 million tonnes of CO<sub>2</sub> equivalent per year.

## Risk, Impact, and Opportunity Assessment based on the Task Force on Climate-related Financial Disclosures (TCFD)

13.1  
13.3

PTT has disclosed its climate change performance in accordance with the Task Force on Climate-related Financial Disclosures (TCFD) following the four categories which are Governance, Strategy, Risk Management, and Metrics and Targets. In 2020, PTT focused on improving its operation in compliance to the Strategy criteria by setting up a guideline to assess the financial impact based on three scenarios which were Business-as-Usual (BAU), Nationally Determined Contribution (NDC), and 2°C (2DC). As the result, the key financial drivers on climate change was applied to determine scenario for the strategic and business planning process in the following year, and also used as an input for financial projection and planning.



For more information, please visit [www.pttplc.com](http://www.pttplc.com) and refer to the "Sustainability" tab, "Environment" heading and "Climate Change Management" sub-heading.





## Application of the Circular Economy

### Opportunities and Challenges

As the Thai government has announced Thailand 4.0: a New Economic Model comprising three economic systems; Bio Economy, Circular Economy, and Green Economy (BCG Model), all of which emphasize on most effective resource consumption, waste minimization towards zero waste, and use of naturally based, environmentally-friendly materials. The new economic model covers four targeted industries. One of them is energy, material, and bio-chemical industry, which relates to PTT Group's business operation. Besides, Thailand have set plastic waste management plan for the year 2018 - 2030, with the target to reuse and recycle 100% of plastic waste in 2027. Consequently, PTT has brought this target as a driving force in reviewing its business strategy to find income from bio products which are naturally-based and environmentally-friendly. PTT has determined to apply the circular economy with its business operation to lower the use of natural resources, reduce waste, and limit the greenhouse gas emissions.

### Management of Material



Environmental:  
Sustainable Production and Consumption



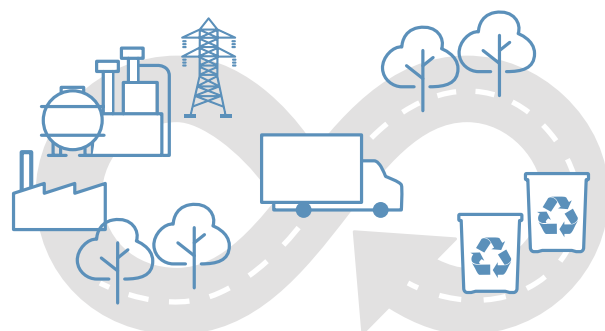
Driving Resource Utilization Based on  
the Principles of the Circular Economy

Corporate Indicators	Short/ long-term Indicators	Performance
<ul style="list-style-type: none"> <li>• Maturity Level following British standards: Framework for implementing the principles of the circular economy in organization (BS 8001 : 2017)</li> </ul>	<ul style="list-style-type: none"> <li>• Apply circular economy in business operation of PTT Group in order to upgrade to circular economy maturity level 3, according to BS 8001 : 2017, in 2030</li> </ul>	<ul style="list-style-type: none"> <li>• Developed PTT Group Circular Economy Maturity Assessment Guideline, referring to BS 8001 : 2017, for a self-assessment which maturity level was realized.</li> </ul>
<ul style="list-style-type: none"> <li>• Value creation for community and society through the application of the circular economy</li> </ul>	<ul style="list-style-type: none"> <li>• To deliver a prototype, Café Amazon, plastic- cup, receiving machine</li> </ul>	<ul style="list-style-type: none"> <li>• A prototype of Café Amazon, plastic- cup, receiving machine, to separate and collect polyethylene terephthalate (PET) plastic cups. The machine could separate and collect PET plastic cups gathered from branches of Café Amazon, which were later upcycled as tumblers.</li> </ul>

## Key Performance

PTT Group has collaborated to consider a potentiality to apply the circular economy principle to pilot projects in the operation. In 2020, the closed-loop recycling (plastic waste) project was selected according to the product life cycle assessment taking into account the supply of raw materials, production, sales, and disposal. The product design patent is granted from the Department of Intellectual Property, Ministry of Commerce for the prototype of Café Amazon plastic-cup upcycling machine which is a collaboration from PTT and OR. The machine was used to screen and collect polyethylene terephthalate (PET) plastic cups. The process promotes the participation of all sectors in environmental conservation, resource and waste reduction according to the principles of the circular economy.

To ensure that PTT Group complies to the British Standards Institution: Framework for implementing the principles of the circular economy in organizations – Guide (BS 8001 : 2017), PTT Group has established the PTT Group Circular Economy Assessment Guideline and the Circular Economy Maturity Assessment Checklist in 2020 to assess the circular economy maturity level of the processes or projects. Besides, PTT has developed the environmental and social impact assessment for project approval.



## Key Activities

### Café Amazon's Plastic Cup Waste Project



12.5



Prototype of Café Amazon  
Upcycling machine at  
Energy Complex building



In 2020, PTT found the opportunity of developing a new product, while embracing the government policy. Therefore, the company has developed the process of collecting PET plastic cup from Café Amazon and upcycle to Tumbler cup, called "Tumbler Upcycling". In this regard, PTT and OR signed an "MOU on the development of plastic waste from Café Amazon pilot project" to research and develop plastic-cup upcycling machine. The machine would screen and collect PET plastic cups from Café Amazon by applying the QR code technology. The machine retrieved PET cups from customers who get member points in return. The customers can redeem their points for souvenirs, which would encourage them to return more cups. The pilot machine was installed in the Energy Complex building which is in the vicinity of PTT Head Office.

## Coffee Chaff Compound Project, Creating Value through Turning Waste into Green Product



12.2

PTT Group has realized the benefits of upcycling waste into new product to create value and reduce waste. PTT Innovation Institute has turned coffee chaff, which is a byproduct from coffee bean roasting process, into plastic pellet compound. This bio-plastic, which is called "Biocoff", is moldable and degradable in 5 years. It can be used as a drinking glass, a coaster, a tree pot, or a tissue box. Last year, 500 kilograms of coffee chaff were used to make new products worth of about THB 1 million.



Remark:

\* Period of plastic cup collected and separated from June to December 2020



For more information, please visit [www.pttplc.com](http://www.pttplc.com) and refer to the "Sustainability" tab, "Environment" heading and "Waste Management" sub-heading



## Creating Social Value

### Opportunities and Challenges

PTT has underlined on core factors affecting macro-economy of Thailand. Therefore, the company has lifted its social activities to support and create opportunities for the communities around PTT operation sites, as well as, for the underprivileged, and other national networks. Besides, PTT has continued on investing in the society in order to enhance the country's sustainability, to drive the SDGs and to create shared value for community & society. Together with this, PTT has considered the return on investment, and increase its operational efficiency as well as adjust the operation to meet the new challenges and a rapidly changing social context.

### Management of Material Issues



Social:  
People's Well-being



Creating social values and uplifting the society's quality of life, consisting of two dimensions:

- 1) Development of human resources, community, and society
- 2) Conservation and rehabilitation of natural resources and the environment

Corporate Indicators	Short/ Long-term Indicators	Performance
<p>Value creation for the society and environment through projects operated in PTT Group focusing three projects, which are:</p> <ol style="list-style-type: none"> <li>1. Supporting job hiring for those who are learning-disabled to be barista at Café Amazon for Chance.</li> <li>2. Supporting the biomass production of the community with no incident, malfunction, or major accidents. This includes transferring the knowledge to the community, which will enable them to manage by themselves.</li> <li>3. Support distribution channels for farmers to sell their products to create more income at NGV service stations</li> </ol>	<p><b>Short-term Indicators</b></p> <ul style="list-style-type: none"> <li>• The number of people benefit from social enterprise project</li> <li>• The number of people benefit from alternative energy support</li> <li>• The number of people benefit from work creation and support of distribution channels for farm produces</li> <li>• The number of graduates from Kamnoetvidya Science Academy (KVIS) and Vidyasirimedhi Institute of Science and Technology (VISTEC)</li> <li>• The number of schools participating in educational development programs</li> <li>• The number of people benefit from sports sponsorship</li> <li>• The number of people benefit from forest and green area utilization</li> <li>• The number of visitors at three learning centers which are Sirinart Rajini Mangrove Ecosystem Learning Center, PTT Green in the City, and Wangchan Forest Learning Center</li> <li>• More green and forest areas</li> <li>• Model green area at PTT Head Office</li> <li>• The numbers of people rescued in time of natural disasters</li> </ul> <p><b>Long-term Indicators</b></p> <ul style="list-style-type: none"> <li>• More income gained from joining social enterprise project</li> <li>• More income from the use of alternative energy</li> <li>• Lower expense from the use of alternative energy</li> <li>• More income from joining community work support and community produce distribution channel programs</li> <li>• Lower greenhouse gas emission</li> <li>• The amount of greenhouse gas captured</li> <li>• VISTEC research works</li> <li>• The return on social investment</li> </ul>	<p>62 people and 200 households 1,326 households 20 farmers 127 communities 84 people</p> <p>139 schools</p> <p>4,060 people 6,647 households 83,726 people per year</p> <p>1,169,772 rai 0.74 rai 12,970 people</p> <p>THB 6,798,989 per year THB 6,982,466 per year THB 3,862,516 per year THB 7,326,519 per year</p> <p>13,861 tonnes of CO<sub>2</sub> equivalent per year 2.14 million tonnes of CO<sub>2</sub> equivalent per year Patents to be granted for 28 researches 10 - 48%</p>



## Key Performance

PTT had set strategies for creating shared value with the community and society of PTT Group, of which social investment budget was set at about 1 - 3% of the net operating profit. The expertise of the PTT group was considered to set a strategic approach to create social value and to help solving problems or building social values as a whole. In 2020, PTT's total budget for social investment was THB 620.37 million or about 4.04% of net operating profits. In all, PTT complied with the social investment strategies in two dimensions which were the development of human capital, community, and society, and the support of environmental and natural resource conservation and restoration, along with the support for community participation on community impact management around PTT Group's operation sites. PTT allocated its social investment budget as follows; 2.34% on commercial initiative, 58.36% on community investment, and 40.02% on charitable gifts. However, the donation budget exceeded its five-year target (2019 - 2023) to limit the proportion of charitable gifts at 30% and community initiative together with community investment at 70%. This was due to the special healing cases to help those impacted from the COVID-19 pandemic.

## Key Activities

### Promotion of Community and Society Participation in Community Impact Management

To uplift the quality of life of the communities around PTT operation sites, the company has worked with the community to hear their thoughts and needs to design suitable approaches and social activities for each community. The performance of activities have been monitoring to promote participation and to improve the result. Last year, the Company worked together with 17 communities, or 100% of total communities surrounding the operation sites, and worked with two communities, or 100% of the total communities around development project.

There was also the crisis management of the gas exploration of the 2<sup>nd</sup> gas pipeline, at the Preng sub-district, Bang Bo district, Samut Prakan province, on December 22, 2020. PTT swiftly controlled the situation and rushed to remediate people affected by the incident. The company worked with the rescue unit to send the injuries to the hospital. It gave healing funds to the affected people and set the coordination center with Samut Prakan province. PTT's Board of Directors, executives, and staff visited the scene to inspect the safety standards to ensure the safety of the people in the area. The rescue mission was executed such as setting temporary shelters at Preng Rad Bumrung Temple, providing food and drinking water, and other necessities, for the affected households. PTT provided accommodation for the people during the re-construction of their houses. There were also activities such as art therapy and other recreations to revive the minds of the people and the children at Preng Rad Bumrung Temple School by 1,323 PTT Volunteer Club members.



## Human Resource, Community, and Social Development

### PTT Group Educational Development

#### Support Budget on Long-term Educational Development Regarding Science And Technology through Kamnoetvidya Science Academy (KVIS) and Vidyasirimedhi Institute of Science and Technology (VISTEC)



4.1  
4.3  
4.4



In order to build a foundation for driving the country through research development and building world-class science and technology personnel, PTT Group has continually supported KVIS and VISTEC since their establishment in 2015, in accordance with the Memorandum of Understanding until 2031. Up to now, there are 216 high school graduates from Kamnoetvidya Science Academy (KVIS). In 2020, there are 72 graduates. The proportion of the cohort graduated in 2020 continued their study abroad by 40% and local by 28% with 40% majoring in science, technology, engineering, and mathematics. Currently, there are 216 students in KVIS. For the Vidyasirimedhi Institute of Science and Technology (VISTEC), in 2020, there were four graduates with Master's degrees, eight in Doctoral degrees, a total of 33 graduated students and 248 students were currently studying, consisting of 23 students in Master's degrees, and 225 students in Doctoral degrees.

#### Outstanding Researches and Collaboration from VISTEC

- The development of COVID-19 detection kit by the School of Bio-molecular Science and Engineering of VISTEC, under the collaboration with participating parties, including the Department of Medical Sciences, Ministry of Public Health; Faculty of Medicine, Siriraj Hospital;

Faculty of Science, Mahidol University; Kasikorn Bank Public Company Limited; Siam Commercial Bank Public Company Limited, and PTT have joined force on testing COVID-19 detection kit with the CRISPR technique. This COVID-19 assessment takes only one hour to generate the results. Besides, the company has coordinated with many hospitals to boost the use of the Rapid Genetic Detection Kit for COVID-19, which is currently under the evaluation of Food and Drug Administration, Ministry of Public Health.

- 5G x UAV SANDBOX project is the introduction of the 5G technology to increase the capability of using drones for a sustainable urban development in the Wangchan Valley area. Currently, the potential of 5G has been used for various cases, including UAV (Unmanned Aerial Vehicle) by VISTEC and partners, including the Civil Aviation Authority of Thailand. The Office of the National Broadcasting and Telecommunications Commission (NBTC), Advanced Info Services Public Company Limited, True Corporation Public Company Limited and Total Access Communication Public Company Limited, have co-developed the infrastructure and technology.

## STEEM+4E Model Extension



4.4

PTT has focused on the development of competencies in Science, Technology, Engineering, English And Mathematics (STEEM), along with the instillation of 4 characteristics (4E): Ethics & Growth Mindset, Entrepreneurship, Energy Literacy, and Environmental Awareness. In 2020, 139 network schools participated in the activity, of which 270 school administrators and teachers joined the development and training activities to exchange their teaching and learning approach with KVIS and VISTEC to bring back the knowledge to develop within their schools.

## Sports Skill Development



4.4

PTT collaborated with the local sports associations and clubs. The company also supported sports projects to encourage youth and those lacking opportunities in various areas across the country so that they have the opportunity to practice, develop their sports skills, and participate in sports competition. This is fundamental for developing the potential of Thai athletes to advance into the national competition and to international professional sports competition in 2020 with the following significant performance results:

### Promoting Skills and Creating Experiences

In conjunction with the Thailand Swimming Association, Swimming for Life project was organized to train swimming skill for youth all over the country including over 3,000 hearing-impaired youths to be able to help themselves. This would reduce the risk of losing young lives from drowning. Futsal clinic was organized for youth in the area of Phanat Nikhom, Chonburi province; whereas, the training activities were held for 60 online futsal trainers to further develop their coaching skills.

### Organizing Platform for Competition

PTT Tennis Championship competition was held for the 16<sup>th</sup> consecutive year, in order to support more than 1,000 youths from all over the country to compete. PTT Thailand Swimming Championships 2020 was held in the Northeastern region. Also, there was also PTT Thailand Five 2020, the futsal battle of four parties, between the Thai national team and the all-star teams.







## Social Contribution During the COVID-19 Pandemic Situation



Amid the COVID-19 infection situation, PTT Group joined force to provide reliefs which could be divided into three phases as follows:

1) Response during the pandemic period by providing and supporting medical equipment such as patient transport beds, and alcohol for medical personnel and the public. The Group provided the supports through 212 large hospitals, 4,941 sub-district health promotion hospitals, and 34 government agencies, together with supporting budget for the research of COVID-19 detection kit and purchasing of medical equipment.

2) Recovery period focusing on solving economic problems for the community. By creating a digital platform, the community can distribute its local products through online and offline channels, along with the development and promotion of work skills in the community by selling products in six categories: processed food, beverages, decorative items and souvenirs, clothing and apparel, processed herb, and fresh fruit, a total of 344 items, selected from PTT community, 3<sup>rd</sup> parties, PTT Group companies, and network of government agencies totaling 127 communities. Community products were sold through the project starting from May to December 2020, generating THB 7,140,672 of income. Next step, the Group has planned to promote the certification of community products.



Scan QR code below to see more detail of the activity.

Moreover, PTT Group took part in driving the “Restart Thailand” project to hire new graduates in order to support government policies and to support business and social development campaigns on three dimensions, including promoting youth education, developing local communities, as well as the conservation of marine resources and research in green areas throughout the country. The hiring plan will commence in 2021.

3) Creation of sustainability, through setting plan to develop leadership skills in order to promote community innovation and to develop the learning capacity of youth through digital platform linking with the PTT Group School.

## Natural Disaster Relief



PTT has been providing supports and assistance to areas surrounding the operation sites, and other areas throughout the country declared as disaster areas. PTT Group focuses on bringing the knowledge and expertise to support in form of donations and through products and services. The company also considered packing appropriate community products in the disaster-relief bag, such as rice, dry food and ready-to-eat food. Besides, PTT Group also brings their expertise and capability to help victims during crises such as drone operations.



12,970 people were rescued from drought, flood, and cold weather.



## Promoting Economic Growth, Ending Poverty, and Creating Work

### Happy Vegetable Project



PTT has supported farmers to have various distribution channels for their agricultural products. According to the Digital Agriculture Market 4.0 Promotion Plan of the Ministry of Agriculture and Cooperatives, PTT has signed a Memorandum of Understanding since 2019 to support the development of the physical market by using the Physical Platform from the network of natural gas service stations, as well as, developing digital platform at the same time. Two NGV marketplace stores in Chonburi province and Chanthaburi province were opened under the cooperation with the Ministry of Agriculture and Cooperatives, 21<sup>st</sup> Infantry Regiment, Ban Suan Municipality, Chonburi province, Community Enterprise Group Chanthaburi province, and Thailand Post Co., Ltd., to add a pick-up point for agricultural products through EMS service which could deliver products nationwide. In the first stage, there were four groups of organic farmers who received benefits. In October, the campaign was developed in the form of social enterprise, linked to the SE Sandbox project of Sarn Palung Social Enterprise Co., Ltd.



20 benefiting farmers



Increasing their income from online sales, totaling at THB 185,847



## Participatory Clean Energy Development

PTT applies its knowledge and expertise in energy to support clean energy access to communities surrounding its operation sites and expands results to networks and interested organizations, through focusing on creating participation and encouraging communities to be able to manage their own energy in the future. Currently, there have been three types of operations with significant progress as follows:



### Community Biogas System from Pig Farming



7.1



13.3

One new operation was implemented targeting 43 households in Nong Mamong, Chainat province. For the continuing operations, 800 cubic meters of biogas system was installed for 61 households and knowledge was transferred to communities to be able to manage their own biogas by themselves in the area of Payubnai sub-district in Rayong province.



5 projects in Lopburi, Khon Kaen, Chiang Mai, Chainat and Rayong provinces



826 beneficiary households



The company also supported the registration of the voluntary greenhouse gas reduction project, according to Thailand Voluntary Emission Reduction Program (T-VER) for the existing 3 project areas, which were Payubnai sub-district in Rayong province, Kham Khaen district, Khon Kaen province, and Nong Mamong sub-district, Chainat province, and certified carbon credits in three areas, namely Kham Khaen sub-district, Khon Kaen province, Tha Manao district, Lopburi province, and San Sai district, Chiang Mai province.



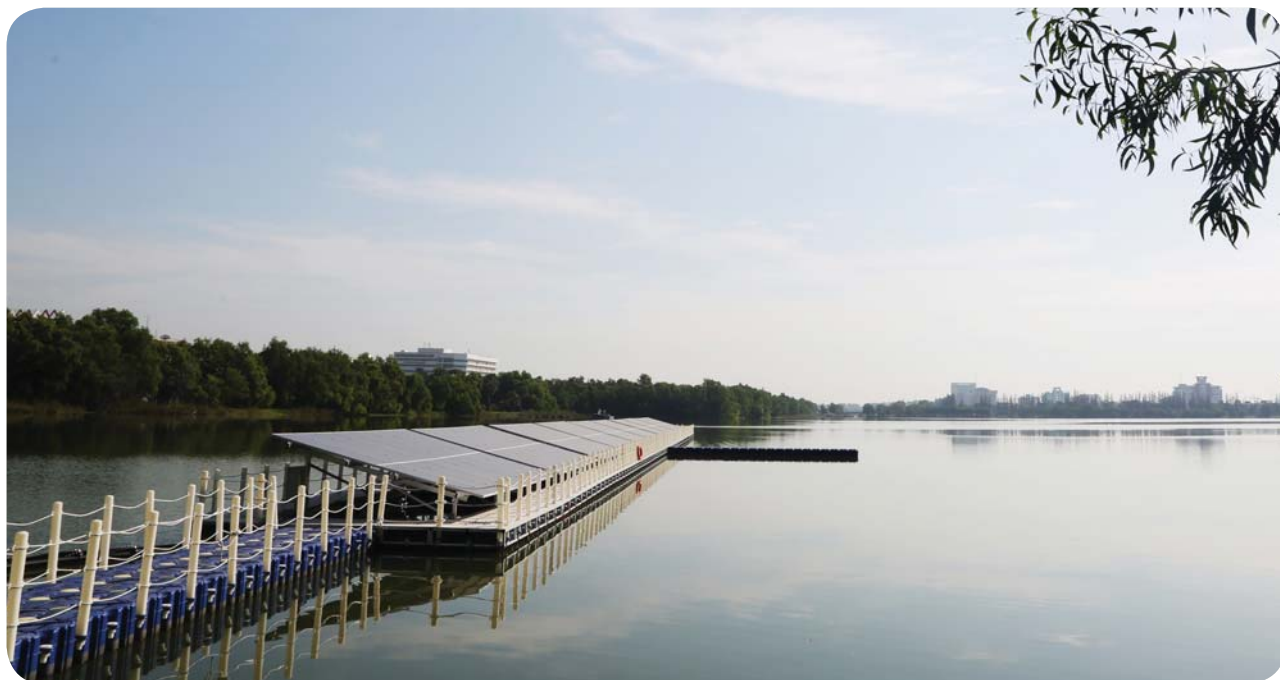
Greenhouse gas emissions reduction of 13,662 million tonnes of CO<sub>2</sub> equivalent per year



Generating income from the sale of fertilizers from the biogas production system and the sale of carbon credits totaling at THB 6,982,466 per year



Reducing energy costs of THB 2,395,312 per year



### Solar Cell System



PTT has promoted the use of solar cell systems, both on land and on water surface depending on the geography. PTT shared installation and system management know-how, and supported the provision of investment cost in partial or the whole amount as appropriate to the communities. The main focus is on building ownership and participation of the community in the management to reduce energy costs, especially for farmers.



The project covers 17 locations



500 beneficiary households



Produced 349,742 units of electricity per year



Cost reduction of THB 1,399,168 per year



Greenhouse gas emissions reduction of 199 million tonnes of CO<sub>2</sub> equivalent per year



New project area in Rama IX reservoir, royally-initiated project, in Pathum Thani province to register for the T-VER. Another T-VER certified area is Mae Tha sub-district, Chiang Mai province.

### Water Distribution Using Hydraulic Ram Pump



The project has expanded further to promote water management in the highland areas continuously. The project focuses on the household and public entities like schools for their consumption, and for conservation, such as ecological conservation, and forest fire protection.



Expanded to 3 other locations; the operating base, the Tako Pid Tong channel, Rangoon Military Regiment 1404, Ratchaburi province, farming area, Moo 1, Cha-nong sub-district, Songkhla province, and Thong Pha Phum National Park Office, Kanchanaburi province



6,803.6 cubic meters per year of raw water distribution capacity



THB 68,036 per year of water saved





## Shared Value Creation through Social Enterprise Projects

PTT Group has promoted sustainable social investment in the form of social enterprise through Sarn Palung Social Enterprise Company Limited, with the following key performance results:

### Café Amazon for Chance



In 2020, the number of new branches was increased to four branches: Ministry of Social Development and Human Security, Marine Corps Sattahip Branch, Securities and Exchange Commission Branch, and The Office @ Central World Branch.



10 branches Café Amazon for Chance



Employed 33 people who are hearing impaired, the elderly, and those injured or dismembered in battle, including their families.



Increasing income by around THB 7,000 per person per month, or THB 2,478,000 per year



10% of social return on investment (SROI)



Scan to watch VDO, interviewing our senior staff

### Community Coffee Sourcing



The campaign focuses on supporting farmers in growing and processing coffee beans that take the environment into account. Along with generating stable income for farmers by linking with the Café Amazon value chain.



200 beneficiary households



Increased incomes by THB 10,000 – 20,000 per household per year, or a total of THB 2,515,989 per year



19% of SROI








### PTT Day Care



PTT launched a day care center for children aged three months to four years for PTT employees by developing careers and creating employment opportunities for the State Railway House Wives Association of Thailand, as well as elderly.




-  37 toddlers joining the center
-  3 caregivers from the State Railway Housewives Association increased their income by approximately THB 11,000 per person per month. One elderly nurse increased her income by THB 30,000 per month. In total, the staff earned THB 756,000.
-  16% of SROI



### PTT Group Lounge



The campaign has continued to facilitate people using the Happy and Healthy Bike Lane at Suvarnabhumi Airport.





-  Hired five elderly people
-  Generating an income of THB 13,000 per person per month, or a total of THB 780,000 per year
-  15% of SROI



### Forest for Chance



The program began by extending the knowledge of forest care of the PTT Reforestation and Ecosystems Institute into a social business model. Those who lack opportunities and communities around the forest were hired to be able to add and maintain green areas. PTT is responsible for the knowledge transfer, involving seedling, cultivation, planting, until maintenance.

-  Developed a green area of 115 rai, a total of 17,250 trees
-  Additional employment of 20 people in initial phase
-  A total income of THB 269,000 generated from October to December 2020, or equal to THB 4,483 per person per month
-  48% of SROI



## Environmental and Natural Resources Conservation and Restoration



### Expansion of Urban Greenspace



15.2

Samples of greenspace was developed in the area of PTT Head Office, representing an area of approximately 0.74 rai to serve as a model area for blending greenspace with office buildings in urban areas. PTT has also promoted and preserved important green areas in the Bang Kachao area, Samut Prakan province, continuously, under the Our Khung Bangkachao project, which is a collaboration of 34 organizations from the public, private sector, civil society, educational institutes, and communities, to create sustainable growth in Khung Bangkachao area and to be a model area of national-level collaboration. PTT is primarily responsible for maintaining and developing green areas with the long-term target to maintain and develop 6,000 rai of green space by 2023.



Maintaining 400 rai of greenspace, both government-owned and private-owned area



800 beneficiary households, focus on land utilization of communities



### Expansion and Conservation of Green or Forested Areas in the Rural Area



15.2

Key activities includes:

1) Forest farming project brings the knowledge and expertise in Reforestation Project in Honor of King Bhumibol Adulyadej in 1994 to build on economic stability for farmers. Along with creating sustainability for natural resources and the country's ecosystem. PTT worked in conjunction with the Civil Forest Protection Volunteers Network and other networks.



Increased greenspace by 1,808 rai, or more than 162,000 seedlings



407 beneficiary households, in seven sub-districts of four provinces, including Nakhon Sawan, Nakhon Ratchasima, Khon Kaen, and Roi Et.





2) Strategic forest important for the ecology and conservation of the country's forests were increased. Existing forest areas in 48 provinces since 1994 to the present, equal to the total area of 1,167,563 rai, capturing greenhouse gas emission of 2.14 million tonnes of CO<sub>2</sub> equivalent per year, were preserved. These forests generate income for the community worth around THB 280 million per year (latest achievement evaluation in 2018).



350 rai of key forest areas were added, which were Phu Luang Community forest, in Phu Luang area, Pak Thong Chai district, Nakhon Ratchasima province, totaling 250 rai, 50 rai of Ban Dong Khrang Noi public utility area, and another 50 rai of Ban Non Muang Mai public utility area, Kaset Wisai district, Roi Et province



over 5,440 households or the population of 19,598 people benefited from the project

3) Network partners were expanded to be registered and certified for carbon credit through voluntary greenhouse gas reduction programs, according to the standards of Thailand on forest and green area.



T-VER registered for Rama IX reservoir, royally-initiated project, in Pathum Thani province, under the supervision of the Chaipattana Foundation, covering the area of approximately 297 rai, capturing an expected greenhouse gas emission of 281 million tonnes of CO<sub>2</sub> equivalent per year



Continuing development, planting, restoration, and maintenance, of a total area of 100 rai of Rama IX reservoir, royally-initiated project

## Promotion of Environmental Conservation Awareness



14.2



15.2

Key activities includes:

1) Promote the forest conservation awareness through three learning centers. To build confidence of tourists and upgraded to new normal tourism under health and safety measures, PTT submitted to be certified SHA or Amazing Thailand Safety & Healthy Administration standards, by the Ministry of Tourism and Sports, Ministry of Public Health, and the Tourism Authority of Thailand (TAT) to build the confidence of visitors to all three learning centers with the following key performances:

- Sirinrat Rajini Mangrove Ecology Learning Center



9,455 visitors



Generating income for the surrounding communities by THB 120,000 per year



1,000 saplings of mangrove trees provided to agencies and communities interested in increasing the green area

In 2020, the center won the Outstanding State Enterprise Award, on Outstanding Operations for Society and Environment, due to its commitment to improving the quality of life of the local communities along with the care of the environment.



- Wang Chan Forest Learning Center



6,994 visitors



Generating income for  
the surrounding community  
by THB 240,000 per year

2) Development of environmental conservation award criteria. The Green Globe Award Institute plays a pivotal role in supporting the national environmental conservation network. Through the awarding of the Green Globe in order to encourage the network and to link the national operations for more than 20 years. In 2020, the contest criteria was developed in line with The International Congress of Distinguished Awards (ICDA), and add the contest criteria for environmental conservation in urban areas to promote greater participation in conservation among urban people.

- PTT Green in the City  
Learning Center



16,351 visitors



Generating income for  
the surrounding commercial  
areas as the increasing number  
of tourists

3) Promotion of waste management awareness through the Power for Sustainable Future Foundation under the scheme "Extend the Lifespan of Straw." It was the donation of used straws to make use of 100% of the waste by forwarding the straws to Global Power Synergy Public Company Limited or GPSC to use as fuel. Some of them were cleaned to make pillows for bed-bound patients, and handed to eight hospitals, or a total of 200 pillows. The performance since 2018 has helped reduced 516,000 straws or 266 kilograms of plastic straw waste, equivalent to a reduction of 345.8 kilograms of CO<sub>2</sub> equivalent.



For more information, please visit [www.pttplc.com](http://www.pttplc.com) and refer to the "Sustainability" tab, "Social" heading and "Creating Social Value" sub-heading.



## Human Capital Development

### Opportunities and Challenges

Human capital is an important resource in PTT business operations. PTT believes that corporate growth depends on the quality of employees. Therefore, the company focuses on the development and improvement of human resource management processes and systems to be in line with the international standards and the moving trend of technological change. It aims to strengthen and develop employees to have both ethical and talented traits, as well as, taking part in the development and assistance of society, and to be the key mechanism for leading PTT to become a sustainable organization. In order to operate continuously and sustainably, PTT has a strong need to prepare human resource development to be ready and able to adapt in line with business directions and goals. However, in 2020, due to COVID-19, it was necessary to make some adjustments to the way of working, such as the Work@Home (work at home) policy, the change from classroom training to online training or virtual classroom.

### Management of Material Issues



Social:  
People's Well-being



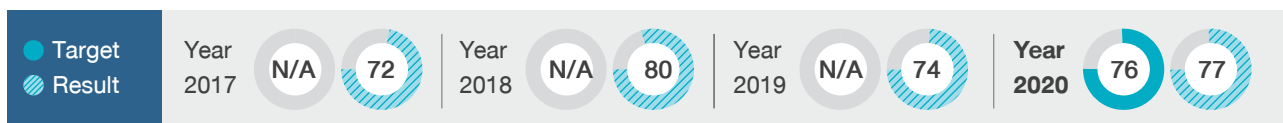
Powering the Workforce to Support  
the Business Growth in the Future

Corporate Indicators	Short/ Long-term Indicators	Performance
<ul style="list-style-type: none"> <li>Increase Human Capital Index (HCI) score by at least 1% annually</li> </ul>	<p><b>Short-term Indicator</b> Increase the HCI score by at least 1% annually</p> <p><b>Long-term Indicator</b> Maintain the HCI score within 76 - 100% to ensure that PTT has effective employee management and development mechanisms, and ready to support the long-term business goals</p>	<p>HCI was 77%, which was 3% higher than the previous year.</p>

### Key Performance

#### Human Capital Index (HCI) Score

Unit: %



### Human Resource Development and Promotion of Learning

PTT Leadership and Learning Institute (PLLI) is managing the learning management system of executives and employees with the goal to establish standards for employee capability development, through the management of the core curriculum of PTT Group.

PLLI continues to develop PTT Group's executives and employees to have "ethical and talented" traits. The development of the executives focuses on driving corporate growth, while employees are developed to support corporate core competencies in response to advanced technology, needs of stakeholders, and strategic challenges. The curriculum is divided into three main groups:

1. Leadership program are courses to prepare and accelerate the development of potential executives to have desired skills and knowledge. Their competency will be developed in both human resource management and work management through knowledge gaining, and exchange of ideas and experiences with leading national and international coaches, including learning and sharing of work experiences from senior executives, both from inside and outside the organization. The participants of this course includes executives who are selected as potential management position according to the criteria set by the organization.



2. Compulsory courses are courses to develop the capacity of all employees, according to job level, covering core and functional programs.

3. Elective courses are courses to develop employee capability according to individual needs. This is a joint consideration between supervisors and employees in selecting training courses according to the needs of employees, such as, Marketing for Crisis Management, Virtual Agile Team, Innovator Guide to downturn, and Crisis Team Management. The model has been adjusted from classroom training to virtual classroom.

PTT Learning Management System has been in line with the corporate vision and strategy. In 2020, PTT has formulated new strategies for innovation development, and creating new businesses such as Electricity Value Chain, Internet of Things (IoT), Artificial Intelligence (AI), Robotics, Life Science, Smart Medical, Bio-Economy, and Smart City to support future changes. With aforementioned new businesses, the strategy and plan to develop knowledge and expertise for PTT executives and employees in relevant career paths, including Business Development and Innovation Management, and Downstream Business Group Strategy. In 2020, following training courses were held.

- For Business Development and Innovation Management career, Introduction to Wind Technology course was introduced.
- For Downstream Business Group Strategy career, Introduction to Fund Investment, Pharma 101 Overview of Pharmaceutical Industry and Digital Transformation, were introduced.

To assess the effectiveness of learning ability, and to ensure that participants can apply the knowledge they have gained in their work, trainees are required to pass a knowledge test after attending every course. With PTT's adherence to Governance, Risk, and Compliance: GRC, it was set as performance indicators of direct-reporting manager level and above to ensure the GRC compliance and to ensure that all employees went through three e-Learning courses, which were:

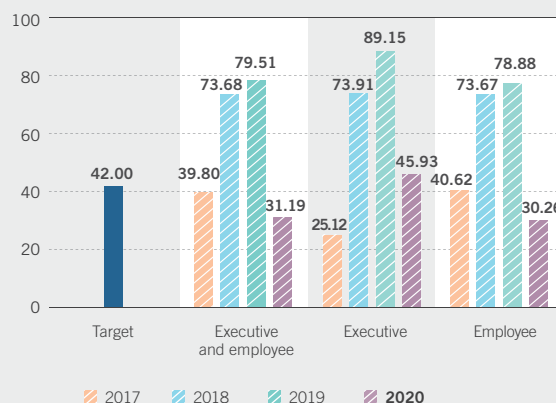
- 1) PTT Compliance Policy
- 2) Introduction to procurement process and procurement and supplies administration
- 3) PTT Corporate Governance

This was to drive and raise awareness among executives and employees to prevent corruption and misconduct and aim for zero non-compliance incident.

Figure 4

## Average Training Hours

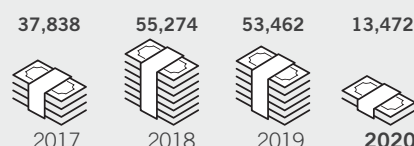
Unit: Hour/year



## Training Costs

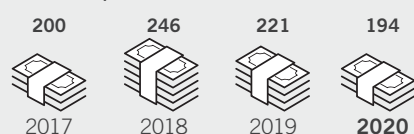
Unit: THB/person

Executive and employee



## Return on Human Capital Investment

Unit: Times



## Key Activities

## HR Share Service for New Setup Company



8.5

PTT aims to improve processes within the organization to be faster and more efficient in response to PTT's business strategies, as well as, searching for the new S-Curve, by appointing

- 1) Escalate Lean Process (ELP) working group to improve work processes to become faster, and to reduce redundancy and
- 2) Corporate Enablement Working Group to drive integration of various departments by focusing on investment consideration process and establishment of new PTT Group companies. With a working group consisting of organizational structure and human resources, a study of the model and process of the support function and best practices from leading companies to find the solutions. The approach of establishing a new company are as follows:

1. Prepare an HR package on-shelf including

- Human resource regulations in accordance with the objectives of the establishment of the company and Thai labor law.
- HR checklist/ questionnaire for the company establishment team to use in preparation and planning of employment.

As the employer of the established company, the checklist can be used in conjunction with HR shared service provider.

2. Provide a full range of HR shared service such as salary structure, design work, employee salary payments, conducted through the service of Business Services Alliance Company Limited (BSA).

## Virtual Classroom Training



8.2



With regard to the COVID-19 pandemic, PLLI leveraged the learning curriculum and the development of self-learning tools. To continuously promote the learning of employees with real-time participation in training, knowledge and idea sharing, exchanging of experiences and opinions among participants and between participants and speakers, some classroom trainings were held in a virtual classroom format to allow employees to participate in learning through VDO conferences, such as MS Teams, WebEx, while the learning management system was done through PTT Learning Management System (PTT LMS). Currently, PLLI has organized 14 training courses in virtual classroom. After a training course completes, the satisfaction score of 2020 is analysed and compared with the satisfaction score of 2019. PLLI found that overall satisfaction score of executives and employees has increased from 3.54 points in 2019 to 3.63 points in 2020 from a full score of 4, rated “very good”. In addition, PLLI assessed the suitability of virtual classroom training format in the future as it recognized the benefits of applying it to an academic curriculum or a training workshop with knowledge exchange

and shared ideas. However, for some courses which PLLI considered inappropriate for a virtual classroom, PLLI would also offer a combination of online learning and classroom training. It was also found that the executives and employees had the overall satisfaction score of the PTT LMS system and the platform of 3.63 points and 3.61 points, respectively from a full score of 4, rated “very good.” PLLI has also developed digital learning in various forms such as e-Learning, Organizational Knowledge, Online Learning, and other learning resources selected from the outside sources including business, technology, soft skill, lifestyle, and many more than 100 courses. PTT E-Library provides E-Book, E-Magazine, Magazine, and Book for employees to search, reserve, and borrow. Employees can read general books and recommended books from compulsory course groups in electronic format, podcasts, and online audio programs. The library itself acts as a channel for personal development as well as to be in line with the business direction and strategy of the organization including maximizing the benefits of employees potential development and modern management.



For more information, please visit [www.pttplc.com](http://www.pttplc.com) and refer to the “Sustainability” tab, “Social” heading and “Sustainable Human Resource Management” sub-heading.



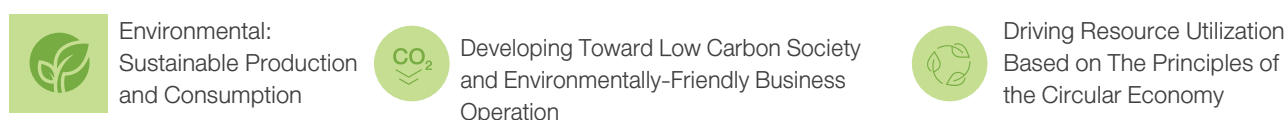


## Innovation, Technology and Product Stewardship

### Opportunities and Challenges

Due to the changing consumer behavior that puts more emphasis on the environment and society, PTT is relentless in innovating for products and services in response to the present and future life. By focusing on the adjustment and the preparation of personnel and organizational structures in order to develop management models, acquisition, and distribution of energy, to compete in the market with many players including operators and buyers, the Energy Platform has been developed to connect with the Smart Grid and Energy Storage system and to promote the faster use of renewable energy. Moreover, we have emphasized on a Life Cycle Assessment to assess PTT Group product's environmental impacts. We have also continued to develop products that are environmentally friendly to serve the customers' behavior and attitudes towards environmental protection through products that have been certified with the GREEN FOR LIFE label. In addition, PTT has innovated to enhance its operations to be more efficient, such as preventing unplanned shutdowns to reduce the impact on customers' production. Furthermore, PTT is facing new natural gas operators who are interested in importing LNG to compete in the country, in line with the government policies to promote competition in the natural gas supply market. Therefore, there is a high chance that PTT natural gas customers will also become competitors in the supply chain in the future.

### Management of Material Issues

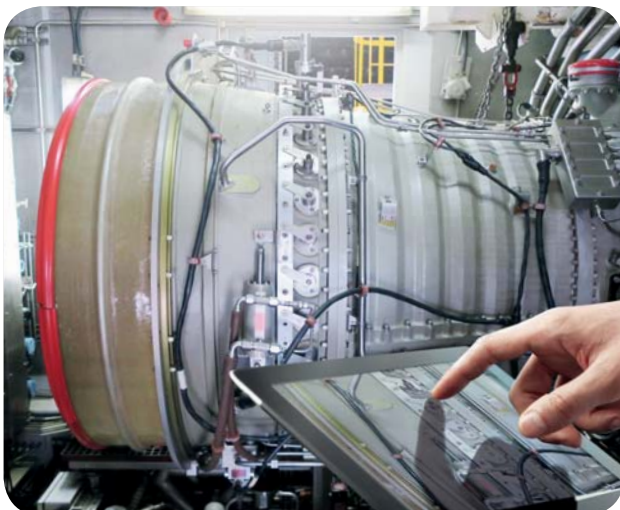


Corporate Indicators	Performance	
<ul style="list-style-type: none"> <li>New Business from Innovation</li> </ul> <div>Short/ long-term Indicators</div> <ul style="list-style-type: none"> <li>Approval of new prototype to commercialization</li> <li>More environmentally-friendly products and services certified by GREEN FOR LIFE label.</li> <li>More products to be assessed with a Life Cycle Assessment approach</li> </ul>	<ul style="list-style-type: none"> <li>An innovative predictive maintenance service called the Soothsayer is a tool used for predicting damage and anomalies in advance before it would affect machinery or equipment used in the production process of Rayong Gas Separation Plant. The tool was launched as a commercial trial in 2020 under Alpha Com Company Limited and the first customer was PTTLNG Company Limited.</li> <li>Design of LNG Storage and Regasification Mobile Unit (LNG-SRM) for transporting natural gas to remote customers located outside the natural gas pipeline network.</li> </ul>	<p>Environmentally-friendly products and services</p> <ul style="list-style-type: none"> <li>A continued distribution of bio-fuels in Thailand</li> <li>Life cycle assessment of 11 more products, consisting of:               <ul style="list-style-type: none"> <li>2 products of PTT Khanom Gas Separation Plant, Nakhon Si Thammarat province, namely, natural gasoline (NGL), and Liquefied Petroleum Gas (LPG).</li> <li>9 Café Amazon's packaging and upcycling products, including: 16 oz. and 22 oz. of coffee cups, coffee table made from coffee chaff compound, sofa coversheet, T-shirt, and aprons for coffee shop staff, and Café Amazon Tumbler made from PET plastic.</li> </ul> </li> <li>4 more products and services certified GREEN FOR LIFE were:               <ul style="list-style-type: none"> <li>2 products including plant pot made from recycled traffic cones, and automotive glass cleaning products</li> <li>1 NGV service station, PTT SMC Petroleum and 1 NGV service station, PTT Cho Samsien, was extended its certification.</li> </ul> </li> </ul>

## Key Performance

PTT has committed to deliver products and services to customers continuously. PTT has embraced with the New Normal way of life, as a result of the COVID-19 pandemic, in our operation, ranging from procurement management, production of natural gas separation, maintenance, customer service, to operation at PTT service stations. To maintain the energy stability and security of the country, PTT has developed various products and services based on the survey results of each customer group, by adopting technology and digital systems to better support customer needs, with the following important examples.

1. GSM Shipper Control Center is the center of natural gas supply management working 24 hours a day to respond to customer needs, support competition, and to ensure energy security of the country. The center consists of four systems as follows: 1) The GSM Monitoring System, which serves to display the quantity and quality of natural gas from the production area, including a real-time customer's gas usage, 2) The gas offtake and distributing system or i-Connect System is a system used to record the sequence of natural gas distribution, while tracking uncompleted sequences, which will be recorded and simultaneously informed to the producers or customers, instead of documenting it, 3) AI Assistant & BOT is a system used for managing large volumes of producer and customer data, and for increasing efficiency of operating personnel under terms and contracts; and 4) Digital Dashboard system to instantly display information critical to Shipper's decision-making to coordinate with producers and customers, and to increase efficiency in response to customer needs.



2. The Soothsayer, an innovative, predictive maintenance service, used as a tool for predicting damage and anomalies in advance before it would affect machinery or equipment used in the production process of Rayong Gas Separation Plant. The historical data of machines is processed to create an algorithm to evaluate the relationship of each parameter, and used to create statistical models, enabling the system to accurately predict abnormal activities. It can also notify for the preparation of production planning, customers alert, preparation of spare parts and personnel. The tool will help prevent an unplanned shutdown and reduce the impact on customer productivity, both for the power plants and petrochemical plants. It can be applied to machinery in other industries apart from natural gas business. Therefore, the commercial trial was available in 2020 under Alpha Com Company Limited and the first customer was PTTLNG Company Limited.

3. Energy Solution Provider, starting from an analysis of the industrial customer satisfaction survey of the past year. By applying digital technology to manage data, analytically summarize, recommend, and introduce value-added services in the application of technology. The service will help improve energy efficiency and elevates the Thai industry to become a digital society.

4. Providing comprehensive consulting services for the offtake and distribution system of compressed natural gas (CNG) and LNG. It is a consultant for the design and construction of CNG and LNG offtake and distribution systems, including the gas transportation to industrial factories outside the gas pipeline network. Instrument calibration services in natural gas service stations for automotive and industrial plants are also provided.

5. Fire Fighting Training Center at Ratchaburi province provides an emergency plan rehearsal area and various safety training courses according to the law, which is an extension of our expertise in related businesses.

6. PTT Natural Gas Business Unit continues to build relationships with all customer groups. Even during the situation of COVID-19, the meeting and contacting via online program was conducted, including continually developing online training courses to facilitate the customers to access knowledge at any time. This represented the determination of PTT Natural Gas Business Unit to create value for customers in every situation.

## Key Activities

### Liquefied Natural Gas Storage and Regasification Mobile Unit (LNG-SRM)



9.4

To be able to transport natural gas to customers in remote areas outside the natural gas pipeline network, PTT has designed the Liquefied Natural Gas Storage and Regasification Mobile Unit (LNG-SRM) to transport LNG with six times more volume than the CNG transportation, regasified and treated at major natural gas service stations. This can be done instead of CNG transportation from other major natural gas stations, resulting in lower transportation costs. It also increases the distribution capacity during the maintenance season of natural gas fields by extending the service with industrial customers for emergency use. As a result, the customers have greater confidence and satisfaction with the service.

### Life Cycle Assessment (LCA)



9.5



12.4



PTT is aware of the importance of the Life Cycle Assessment (LCA) as a tool for assessing the environmental impact that occurs throughout the product life cycle, ranging from raw material acquisition, production, usage, to disposal of the product. This includes the transportation that occurs throughout the supply chain. In 2020, there were life cycle assessment for two products from the Khanom Gas Separation Plant, Nakhon Si Thammarat province, Natural Gasoline (NGL) and Liquefied Petroleum Gas (LPG). The data from the LCA study was applied to the application for label certification of carbon footprint product by the Thailand Greenhouse Gas Management Organization (Public Organization) or TGO. In addition, there were nine LCA studies for Café Amazon packaging and Café Amazon upcycling products, including 16 oz. and 22 oz. of coffee cups, coffee table made from coffee chaff compound, sofa coversheet, T-shirt, and aprons for coffee shop staff, and Café Amazon Tumbler made from PET plastic. The assessment covered the environmental impact of the product through comparison, for example, on the production aspect, the original material used for the production was compared with the use of upcycling material in order to consider the amount of greenhouse gas reduction per product or the amount of water consumption reduction per product.

## GREEN FOR LIFE



PTT Group is committed to developing environmentally friendly products covering products and services under the PTT Group label or supplier's goods made from PTT Group products, including packaging that contains product related to the provision of service. With the research and development of innovations that reduce the environmental impact throughout the value chain, PTT has developed and revised its products and services certification guidelines that are environmentally friendly under the GREEN FOR LIFE label. In 2020, there were two products certified by GREEN FOR LIFE label, which were plant pots made from recycled traffic cones. To reduce waste caused by the used rubber cones, the plant pots were made using 100% recycled materials, of which 35% by weight of a styrene plastic cone made from natural latex. Another product was automotive glass cleaning product made from renewable materials like vegetable oils and sugars. The composition of renewable material was 6.60% by weight, in line with the resource efficiency strategy based on the principles of the circular economy.

## Environmentally-friendly NGV Service Station



PTT Natural Gas Business Unit continues to expand the project to reduce electricity consumption within the service stations by continually improving the natural gas distribution system. In 2020, one additional station, PTT MSC Petroleum, participated in the program. Another station, PTT Cho Samsien, was recertified. Both could reduce the energy consumption and the intensity of greenhouse gas emission by 23.68% and 19.41 %, respectively, enabling them to be awarded three-star certification under the GREEN FOR LIFE label, in line with the low-carbon society business development strategy while having an environmentally-friendly business operation.



Please scan the QR code to find more details on products and services which are environmentally friendly and certified by GREEN FOR LIFE label.

## Innovation and R&amp;D Performance

	2019	2020
Number of new specialty products (products)	10	13
Number of new commodity products (products)	11	11
Number of patent applications for innovation (projects)	0	2
Number of patent applications for design (projects)	10	18
Number of petty patent applications (projects)	14	29

	2020 Target	2019	2020
R&D performance index	240	236	509
R&D effectiveness	1.00	1.25	1.16

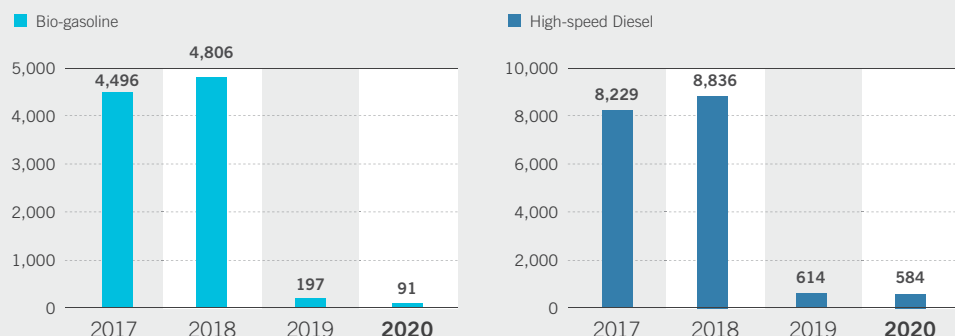
	2020 Target	2019	2020
Direct revenue (THB million)	65	57	77
Indirect revenue (THB million)	1,425	1,358	1,336
Research budget (THB million)	618	668	521



Figure 5

## Procurement of Biofuel to be distributed in Thailand

Unit: Million liters



## Remarks:

In 2017 - 2018, the data covers both PTT and OR.

In 2019 - 2020, the biofuel volume reported is from PTT only.

## PTT Group Products and Services Certified by the GREEN FOR LIFE Label

87  
201989  
2020

Products

273  
2019274  
2020

Services

Figure 6

## Customer Satisfaction Survey

Unit: %

Target 2020

2020

2019

2018

2017

## Natural Gas

Natural Gas



Power plants and Wholesale



Industrial



Petroleum and Petrochemical Products



NGV



## Trading



91.9

91.8

92.2

90.6

92.0

89.6

89.9

90.6

87.8

90.7

92.7

92.4

92.7

91.2

92.2

90.0

91.7

93.1

94.4

93.7

88.4

88.4

88.4

88.1

91.0

95.0

95.6

96.2

91.0

88.3

## Remarks:

- The result Natural Gas customer satisfaction excludes NGV customers because it is a government-controlled market.
- Power plant customers are EGAT, IPP, and SPP.
- Wholesale market customers are DCAP, NGD, and customers who have used natural gas for more than 1 year.

PTT has continued to maintain a high level of customer satisfaction despite the impact of COVID-19, as it directly affected the implementation of normal customer relationship building plans, such as local visits to each country, business discussion meeting, and participating in international trade seminars on various occasions, and annual customer seminars. Therefore, PTT adapted its relationship building model to be in line with the situation of the past year. For example, PTT worked with our suppliers in China to provide masks to aid healthcare workers and patients during the start of the epidemic in China, preparation and delivery of alcohol gel to domestic partners, and preparing and delivering cloth face masks to both domestic and international partners. This included creating and sending video clips for the lockdown period through e-mail and online messaging, joint video conferences, as well as, assisting customers who could not receive products according to the contract deal.



For more information, please visit [www.pttplc.com](http://www.pttplc.com) and refer to the "Sustainability" tab, "Economics" heading and "Innovation and Product Stewardship" sub-heading.





## Evolving the Business Model

### Opportunities and Challenges

Energy transition trend shows the increasing demand for clean energy. As a result, the energy business has to adapt by increasingly investing in clean and alternative energy, with innovations and technologies such as the development of alternative fuel-fired power plant, energy storage system, and electric vehicle. These will cause the transition from using fossil energy to renewable energy, which is a cleaner energy in the future. PTT, therefore, as the national energy company, whose main business relies on fossil energy, have adapted to respond effectively to this change. By increasing investment in infrastructure to support natural gas procurement and distribution of natural gas and products from gas separation plants to be used as a feedstock for petrochemical products, PTT also seeks to expand investment in clean energy and transportation to help create added value and be able to operate the business with stability and sustainability.

### Management of Material Issues



Governance: Corporate Governance and Performance Excellence



Adapting to changes and accelerating business growth to drive the economy

Corporate Indicators	Short/ Long-term Indicators	Performance
<ul style="list-style-type: none"> <li>• PTT Economic Profit and PTT Group Economic Profit</li> <li>• New Business from Innovation</li> </ul>	<ul style="list-style-type: none"> <li>• Value creation from business growth</li> <li>• Profit from new businesses</li> <li>• Business growth</li> </ul>	<p>Restructured the business and signed important deals on expanding into new businesses</p>

Key performances and activities can be found under key performance results from the 4R strategy in 2020 topic.

## Business Fundamental Material Issues Group

For the Business Fundamental Material Issues, consisting of Customer Relationship Management, Supply Chain Management, Governance Risk Management and Compliance, Occupational Health and Safety, Environmental Management, Integrated Water Management, Waste Management, Human Rights, and Talent Attraction and Retention, PTT is facing opportunities and challenges ranging from keeping the customers' satisfaction level amid the new normal way of living, managing risks while creating business opportunities for suppliers and partners in consistent with Governance, Risk, and Compliance. Also, the Company has to manage risk on occupational health and safety for a systematic operation in order to prevent major accidents. The reduction of the natural resources, the expectation for the business sector to operate, while strictly following human rights law, and the internal management to leverage the employee's knowledge and capacity ready for changes. For more information on these material issues, please visit [www.pttplc.com](http://www.pttplc.com) and refer to the "Sustainability" tab.



For more information regarding material issue management including the table of economic, social, and environment results can be found at [www.pttplc.com](http://www.pttplc.com) under the sustainability topic.

## Supporting SDGs Targets

Strategic Directions/ Material Issue on Sustainability	Contribution to the SDGs	Page/ Website
<b>Environmental: Sustainable Production and Consumption</b>		
<b>Developing toward low carbon society and environmentally-friendly business operation</b> <ul style="list-style-type: none"> <li>Internal Carbon Price in the Investment Decision-making Process</li> <li>Low Carbon and Sustainable Business Index (LCSi) Award</li> <li>Energy Efficiency</li> <li>Greenhouse Gas Emission Risk, Impact, and Opportunity Assessment based on the Task Force on Climate-related Financial Disclosures (TCFD)</li> <li>GREEN FOR LIFE</li> <li>Life Cycle Assessment (LCA)</li> </ul>	   	Page 131 - 134 Page 155 - 156 Website  Climate Change Management  Innovation and Product Stewardship
<b>Driving resource utilization based on the principles of the circular economy</b> <ul style="list-style-type: none"> <li>Upcycling plastic waste from Café Amazon coffee shop approach</li> <li>Coffee Chaff Compound Project, Creating Value through Turning Waste into Green Product</li> <li>GREEN FOR LIFE</li> <li>Integrated Water Management</li> </ul>	 	Page 135 - 137 Page 156 Website  Waste Management  Innovation and Product Stewardship  Integrated Water Management
<b>Social: People's Well-being</b>		
<b>Creating social values and uplifting the society's quality of life</b> <ul style="list-style-type: none"> <li>Volunteer project, economic development, poverty alleviation, health care, work creation, conservation of natural resources and the environment (increasing green areas), and raising awareness of environmental conservation</li> <li>Provision of budget for a long-term educational development, regarding science and technology through KVIS and VISTEC</li> <li>STEEM+4E Model Extension</li> <li>Sports Skill Development</li> <li>Social Contribution During the COVID-19 pandemic Situation</li> <li>Natural Disaster Relief</li> <li>Happy Vegetable Project</li> <li>Community Biogas System from Pig Farming</li> <li>Solar cell system</li> <li>Water Distribution Using Hydraulic Ram Pump</li> <li>Café Amazon for Chance</li> <li>Community Coffee Sourcing</li> <li>PTT Day Care</li> <li>PTT Group Lounge</li> <li>Forest for Chance</li> </ul>	          	Page 138 - 149 Website  Creating Social Value

Remark:



For more information, please visit [www.pttplc.com](http://www.pttplc.com)

Strategic Directions/ Material Issue on Sustainability	Contribution to the SDGs	Page/ Website
<b>Promoting safe working environment and respecting human rights</b> <ul style="list-style-type: none"> <li>Risk management and impact on human right throughout the business value chain, as well as, the complaints and healing management</li> <li>Maintaining and promoting diversity among employees including race, religion, gender, age, class, domicile, education, field of study, political opinion, without discrimination with the disabilities</li> </ul>	  	Website  Human Rights Management
<b>Powering the workforce to support the business growth in the future</b> <ul style="list-style-type: none"> <li>Setting training courses, capacity and ability development, knowledge management, and succession plan</li> <li>Talent attraction and retention</li> <li>HR share service for new setup company</li> <li>Virtual classroom training</li> </ul>		Page 150 - 152 Website  Human Resource Management
<b>Governance: Corporate Governance and Performance Excellence</b>		
<b>Operating with good corporate governance and integrity (governance, risk and compliance: GRC)</b>		Website  Corporate Governance  Fair Operating Practice
<b>Adapting to changes and accelerating business growth to drive the economy</b>	  	Page 158
<b>Enablers:</b>		
<b>Innovation and Technology</b> <ul style="list-style-type: none"> <li>Liquefied Natural Gas Storage and Regasification Mobile Unit (LNG-SRM) project</li> <li>GREEN FOR LIFE</li> <li>Products Life Cycle Assessment (LCA) program</li> </ul>		Page 153 - 157 Website  Innovation and Product Stewardship
<b>Supply Chain Management</b>		Website  Supply Chain Management
<b>Stakeholder Management</b>		Page 118 - 121 Website  PTT Stakeholder Engagement

Remark:



 For more information, please visit [www.pttplc.com](http://www.pttplc.com)

Strategic Directions/ Material Issue on Sustainability	Contribution to the SDGs	Page/ Website
<b>Related Material Issues on Sustainability</b>		
<b>Environmental Management</b> <ul style="list-style-type: none"> <li>Environmental and biodiversity management</li> </ul>	      	Website <ul style="list-style-type: none"> <li>Environmental Management</li> <li>Biodiversity</li> <li>Air Quality Control</li> <li>Spill Management</li> </ul>
<b>Integrated Water Management</b> <ul style="list-style-type: none"> <li>Efficient water consumption</li> <li>Responsible management of wastewater without the impacts on the society in the production process</li> <li>Fair water resources allocation without the impacts on the community and the society</li> </ul>	 	Website <ul style="list-style-type: none"> <li>Integrated Water Management</li> </ul>
<b>Waste Management</b> <ul style="list-style-type: none"> <li>Management of hazardous waste from production process</li> <li>Reduction of waste to landfill and waste minimization from the source of origin</li> </ul>	 	Website <ul style="list-style-type: none"> <li>Waste Management</li> </ul>
<b>Customer Relations Management</b> <ul style="list-style-type: none"> <li>Responsible for business impacts and risk management of products and services delivered to customers</li> <li>Development of products and services that meet the customers' demands</li> <li>Handling customer privacy</li> </ul>	 	Website <ul style="list-style-type: none"> <li>Innovation and Product Stewardship</li> </ul>
<b>Talent Attraction and Retention</b> <ul style="list-style-type: none"> <li>Building employee engagement</li> <li>Adherence to corporate values</li> <li>Appropriate remuneration and welfare management</li> </ul>	  	Website <ul style="list-style-type: none"> <li>Human Resource Management</li> </ul>
<b>Occupational Health and Safety</b> <ul style="list-style-type: none"> <li>Occupational health and safety management</li> <li>Process safety management</li> </ul>	 	Website <ul style="list-style-type: none"> <li>Security, Safety and Occupational Health</li> </ul>
<b>Participation in National and International Sustainability Networks</b>		Website <ul style="list-style-type: none"> <li>Sustainability Network</li> </ul>

Remark:

 For more information, please visit [www.pttplc.com](http://www.pttplc.com)

## 4. Management's Discussion and Analysis (MD&A)

In reading Management's Discussion and Analysis (MD&A), investors are advised to study the supporting documents including the consolidated financial statements, revised financial information, overall past or revised performance, together with note to financial statements and this document .

### 4.1 Management's Discussion and Analysis (MD&A) and Operating Results for Year Ended December 31, 2020

#### Overall Performance of PTT Group

Unit: THB million

	2019	2020	% Inc. (Dec.)
Sales Revenue	2,219,739	1,615,665	(27.2)
EBITDA	288,972	225,672	(21.9)
<b>Net Profit</b>	<b>92,951</b>	<b>37,766</b>	<b>(59.4)</b>
Earnings per share (THB/share)	3.20	1.32	(58.8)

In 2020, sales revenue of PTT Group was reported at THB 1,615,665 million, decreasing by THB 604,074 million or 27.2% from most of business groups. This resulted from the decrease in both selling prices and sales volume except Technology and Engineering business according to GPSC's acquisition of GLOW since March 2019.



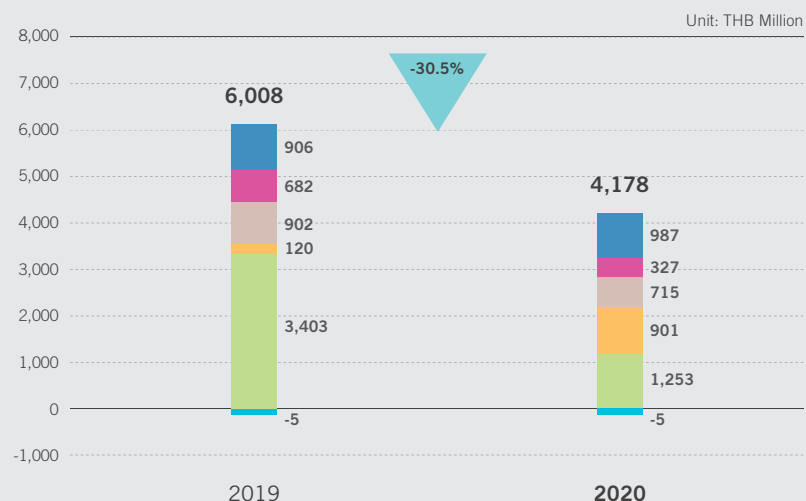
EBITDA in 2020 was THB 225,672 million, dropped by THB 63,300 million or 21.9%. This was primarily due to Exploration and Production business from its lower average selling prices, despite the increase in average sales volume from the Malaysia project and the Partex group after the business acquisition in the second half of 2019. Likewise, performance of Petrochemical and Refining businesses significantly decreased from their stock loss in 2020 in an approximate amount of THB 19,000 million due to the sharp drop of crude oil price from the end of 2019 at USD 67.3 per barrel to the end of 2020 at USD 51.1 per barrel according to oil price war, the crude oil oversupply together with the drop on demand of both petroleum and petrochemical products from the economic activity slowdown amid COVID-19 pandemic. Nonetheless, there was stock gain in 2019 in an approximate amount of THB 2,800 million. Moreover, the dropped Market GRM from USD 2.7 per barrel in 2019 to USD 0.8 per barrel in 2020, was caused by lower spreads of almost all petroleum products resulted in the Accounting GRM sharply declined from USD 3.0 per barrel in 2019 to USD (0.8) per barrel in 2020. Also most of olefins and aromatics spreads reduced. The performance of Gas business group decreased mainly from the GSP's lower petrochemical referenced selling prices and lower sales volume due to the impact of COVID-19 together with the optimization of maintenance shutdown and production turndown according to lower customer demand in 2020. Furthermore, soften S&M business's performance was due to lower natural gas prices and fuel oil referenced selling prices as well as lower sales volume. However, performance of Technology and Engineering business improved particularly from GPSC's performance from the acquisition of GLOW at the end of 1Q2019.

The depreciation and amortization expenses was THB 139,880 million in 2020, rose by THB 6,676 million or 5.0%, from 2019 of THB 133,204 million. This was mainly from the increase in depreciation and amortization of Exploration and Production Business from Malaysia project and the Partex group including Technology and Engineering business from the acquisition of GLOW by GPSC.

Figure 1

Share of net income from investments in joint ventures and associates

Technology & Engineering  
Gas  
Oil  
Exploration and Production  
Petrochemical & Refining  
Others



In 2020, the share of net income from investments in joint ventures and associates was THB 4,178 million, decreased by THB 1,830 million or 30.5% from THB 6,008 million in 2019. This was primarily from soften performance of joint ventures in Petrochemical and Refining business due to lower product spreads.

Gain on derivatives in 2020 was THB 2,266 million, increased by THB 2,683 million, versus loss on derivatives of THB 417 million in 2019, mainly due to gain on oil price hedging transactions of PTTT and PTTEP offset by loss on financial instruments transactions of PTT.

Gain on foreign exchange in 2020 was THB 9,270 million, decreased by THB 6,043 million or 39.5% from gain on foreign exchange in 2019 of THB 15,313 million. This was mainly due to the lower unrealized gain of US Dollar loan as a resulted of the lower appreciation of Thai THB against US Dollar compared with 2019. (Thai THB appreciation in 2020 of THB 0.12 per dollar, Thai THB appreciation in 2019 of THB 2.28 per dollar).

In 2020, there were non-recurring items (PTT's portion) from the impairment loss (net tax) on assets amounting to THB 9,478 million mainly from coal business approximately by THB 7,700 million, Exploration and Production business approximately by THB 1,600 million and Petrochemical and Refining businesses approximately by THB 180 million. In 2019, there were an additional labor compensation expenses according to the Announcement of the State Enterprise Labor Relations Committee and the new Labor Protection Act of PTT Group, amounting to THB 2,841 million and recognition of expense in accordance with the Civil Court's judgement amounting to THB 2,105 million, the allowance for impairment of the pipelines transmission amounting to THB 498 million, despite IRPC's recognition on reversal of assets impairment (net tax) and warranty claim on project construction amounting to THB 366 and 130 million, respectively.

Finance costs in 2020 was THB 28,536 million, increased by THB 565 million or 2.0% from THB 27,971 million in 2019 according to higher average outstanding of the net loan from long term borrowing and the net issuance of debentures of PTT Group during 2020 approximetly of THB 140,000 million.

The corporate income taxes in 2020 was THB 25,166 million, decreasing by THB 7,823 million or 23.7% from THB 32,989 million in 2019, mainly from lower tax expenses from Petrochemical and Refining business, PTT, and PTTEP due to soften performance.

Therefore, PTT Group reported net profit in 2020 amounting to THB 37,766 million, decreased by THB 55,185 million or 59.4% from the net profit in 2019 amounting to THB 92,951 million.



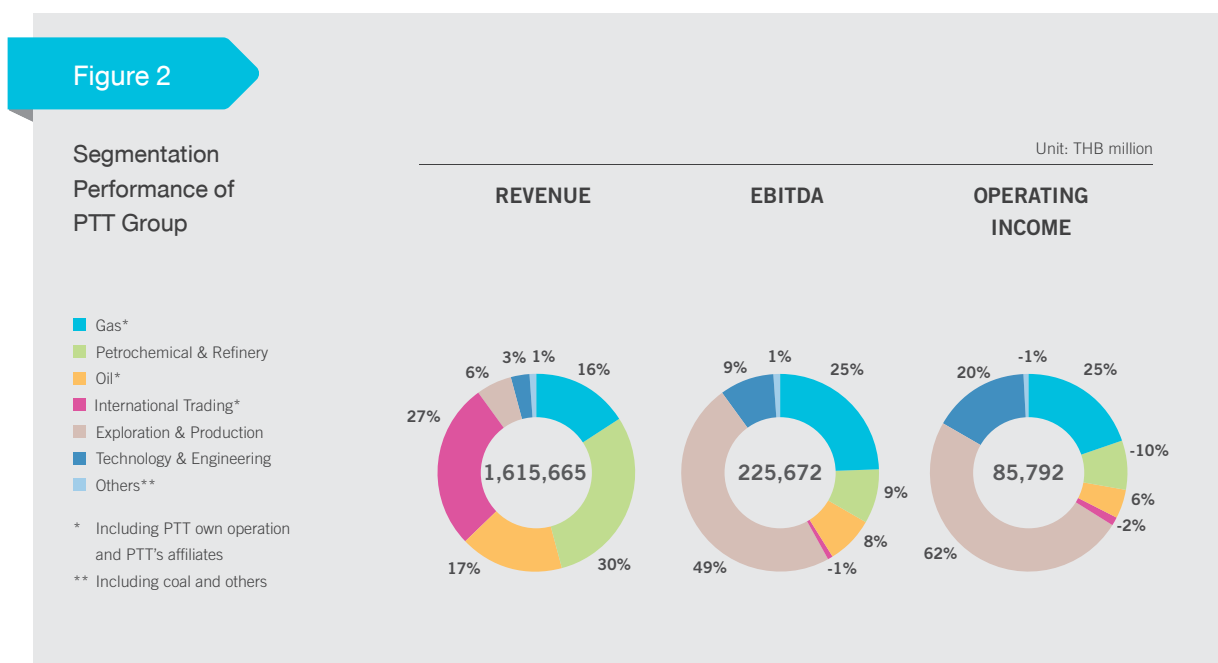
## Financial Results of PTT Group by Business

Unit: THB million	2019	2020	% Inc. (Dec.)
<b>Sales revenue</b>	<b>2,219,739</b>	<b>1,615,665</b>	<b>(27.2)</b>
: Exploration & Production	191,053	160,401	(16.0)
: Gas	502,110	403,626	(19.6)
: Coal	15,380	10,779	(29.9)
: Oil	579,668	430,605	(25.7)
: International trading	1,085,029	656,218	(39.5)
: Petrochemical & Refining	976,150	728,568	(25.4)
: Technology and Engineering Business	72,685	76,226	4.9
: Others	3,403	3,439	1.1
<b>EBITDA</b>	<b>288,972</b>	<b>225,672</b>	<b>(21.9)</b>
: Exploration & Production	136,853	110,044	(19.6)
: Gas	71,407	54,942	(23.1)
: Coal	3,732	3,176	(14.9)
: Oil	17,894	18,098	1.1
: International trading			
- Excluding effect of FX and derivatives	(136)	(766)	<(100.0)
- Including effect of FX and derivatives	2,130	3,024	42.0
Petrochemical & Refining	45,282	20,638	(54.4)
Technology and Engineering Business	18,489	22,160	19.9
Others	(3,004)	(2,669)	11.2
<b>Depreciation and amortization expenses</b>	<b>133,204</b>	<b>139,880</b>	<b>5.0</b>

Unit: THB million	2019	2020	% Inc. (Dec.)
<b>Operating Income</b>	<b>155,768</b>	<b>85,792</b>	<b>(44.9)</b>
: Exploration & Production	74,043	45,035	(39.2)
: Gas	52,483	35,696	(32.0)
: Coal	1,294	1,303	0.7
: Oil	13,784	12,713	(7.8)
: International trading			
- Excluding effect of FX and derivatives	(254)	(1,054)	<(100.0)
- Including effect of FX and derivatives	2,012	2,736	36.0
Petrochemical & Refining	10,060	(16,554)	<(100.0)
Technology and Engineering Business	9,260	11,703	26.4
Others	(3,357)	(3,099)	7.7
<b>Share of net income from investments in joint ventures and associates</b>	<b>6,008</b>	<b>4,178</b>	<b>(30.5)</b>
<b>Loss on impairment of assets (reversal)</b>	<b>(143)</b>	<b>11,917</b>	<b>&gt;100.0</b>
<b>Gain (loss) on derivatives</b>	<b>(417)</b>	<b>2,266</b>	<b>&gt;100.0</b>
<b>Gain (loss) on foreign exchange</b>	<b>15,313</b>	<b>9,270</b>	<b>(39.5)</b>
<b>EBIT</b>	<b>183,052</b>	<b>93,652</b>	<b>(48.8)</b>
<b>Finance costs</b>	<b>27,971</b>	<b>28,536</b>	<b>2.0</b>
<b>Income taxes</b>	<b>32,989</b>	<b>25,166</b>	<b>(23.7)</b>
<b>Net income</b>	<b>92,951</b>	<b>37,766</b>	<b>(59.4)</b>
<b>Earnings per share (THB/share)</b>	<b>3.20</b>	<b>1.32</b>	<b>(58.8)</b>

## Segmentation Performance of PTT Group

The details of revenue, Earnings before Interest, Tax, Depreciation and Amortization (EBITDA) and operating income by segmentation of 2020 are as follows;



## Upstream Petroleum and Gas Business Group

Petroleum Exploration and Production Business: PTT Exploration and Production Public Co., Ltd. (PTTEP)

	2019	2020	% Inc. (Dec.)
Average selling price (USD/BOE)	47.2	38.9	(17.6)
Average sales volume (BOED)	350,651	354,052	1.0



In 2020, sales revenue of PTTEP was THB 160,401 million, decreasing by THB 30,652 million or 16.0% from 2019. This was resulted mainly from the decrease in average selling price by 17.6% from USD 47.2 per BOE in 2019 to USD 38.9 per BOE in 2020. However, average sales volume increased by 1.0% from 350,651 BOED in 2019 to 354,052 BOED in 2020. The increase was primarily sales volume of Malaysia project and Partex group according to full year recognition after business acquisition in the second half of 2019, offset with a decrease in sales volume from Contract 4 and Bongkot projects due to lower gas nomination from buyer.

EBITDA in 2020 was THB 110,044 million, decreasing by THB 26,809 million or 19.6% from 2019 mainly due to lower sales revenue as aforementioned, together with higher operating expenses of THB 1,450 million. Meanwhile, petroleum royalties decreased by THB 4,147 million from lower domestic sales revenue. Additionally, administration expenses and other expenses decreased by THB 1,247 million. However, depreciation and amortization expenses increased by THB 2,199 million according to full year recognition of Malaysia project and Partex group after the business acquisition as aforementioned. As a result, operating income in 2020 was THB 45,035 million, decreasing by THB 29,008 million or 39.2%.

The overall performance of Petroleum Exploration and Production business decreased by THB 26,139 million or 54% primarily due to impairment loss on assets of THB 2,807 million from Yetagun and Mariana Oil Sands projects in 2020, while there was no impairment loss on assets in 2019. Additionally, gain on foreign exchange rate decreased by THB 2,546 million. However, there was gain on financial instruments of THB 3,213 million in 2020 while there was loss on financial instruments by THB 3,406 million in 2019. In addition, tax expenses decreased by THB 2,187 million from lower performance offset with the effects from change of corporate income tax and petroleum income tax calculation currency.

## Gas Business Group

The details of all product sales volume from GSPs are as follows:

Unit: Ton	2019	2020	% Inc. (Dec.)
LPG	3,594,017	2,947,307	(18.0)
Ethane	2,397,704	2,198,542	(8.3)
Propane	891,923	853,025	(4.4)
NGL	674,179	603,433	(10.5)
Pentane	50,871	37,161	27.0
<b>Total</b>	<b>7,608,694</b>	<b>6,639,468</b>	<b>(12.7)</b>

**The details of reference product prices of GSPs are as follows:**

Unit: USD per Ton	2019	2020	% Inc. (Dec.)
LPG <sup>1/</sup>	438	400	(8.7)
LDPE <sup>2/, 4/</sup>	1,019	1,010	(0.9)
LLDPE <sup>2/, 4/</sup>	952	867	(8.9)
HDPE <sup>2/, 4/</sup>	991	880	(11.2)
Propane <sup>5/</sup>	435	397	(8.7)
Naphtha <sup>3/</sup>	474	337	(28.9)

**Remarks:**

- 1/ Global LPG Price (Contract Price Saudi Aramco) as a reference for selling prices of petrochemical customers, calculated from the proportion of Propane and Butane by 50:50
- 2/ South East Asia - Spot Price
- 3/ MOP Singapore (MOP'S)
- 4/ GSP had agreed to new sale and purchase product agreements with GC: The petrochemical reference prices of Ethane selling prices was amended from HDPE in 2019 to HDPE, LDPE and LLDPE effective since January 1, 2020
- 5/ GSP had agreed to new sale and purchase product agreements with GC: The petrochemical referenced prices of Propane selling prices was amended from PP in 2019 to global Propane Price (Contract Price Saudi Aramco) effective since January 1, 2020

In 2020, gas business reported sales revenue of THB 403,626 million, decreasing by THB 98,484 million or 19.6%. It resulted mainly from S&M business's lower average selling prices from the drop in fuel oil referenced selling price and pool gas price mainly from liquefied natural gas: LNG imports and Myanmar gas fields. In addition, average sales volume (calculated at heating value of 1,000 BTU per cubic feet) decreased by 402 MMSCFD from 4,796 MMSCFD in 2019 to 4,394 MMSCFD in 2020 according to COVID-19 pandemic and the economic slowdown as aforementioned. Therefore, sales volume to power producer customers and GSP decreased.

The sales revenue of GSP business decreased due to the drop in average selling prices following lower petrochemical referenced price resulting from the fluctuating of global product prices. Additionally, the average sales volume (including NGL derived from Dew Point Control units) decreased from 7,608,694 tons in 2019 to 6,639,468 tons in 2020 or decreased by 12.7% in all products especially LPG and Ethane as a result of lower domestic demand due to the economic slowdown and drought situation in 2020, leading to GSP's adjusted their production to maintain level of inventory.

In 2020, EBITDA and operating income of gas business was reported at THB 54,942 million and THB 35,696 million, decreasing by THB 16,465 million and THB 16,787 million respectively. These were mainly from lower gross profit of GSP and S&M according to lower average selling prices and sales volume as aforementioned.

However, the NGV business had lower losses primarily from the decrease in sales volume by 1,414 tons per day or 26.3% from 5,373 tons per day in 2019 to 3,959 tons per day in 2020. The decrease in sales volume was due to the customer switching from NGV to gasoline and diesel due to the drop in gasoline and diesel prices in line with global oil prices together with the lower demand on transportation activities during COVID-19 lockdown measure.

## Coal Business

	2019	2020	% Inc. (Dec.)
Newcastle index price (USD per ton)	77.8	60.5	(22.2)
Average selling price (USD per ton)	63.4	53.8	(15.1)
Cash cost (USD per ton)	53.7	42.9	(20.1)
Sales volume (million tons)	7.8	6.4	(17.9)

Sales revenue of coal business in 2020 was THB 10,779 million, decreasing by THB 4,601 million or 29.9% compared with 2019. This was mainly due to the decrease in sales volume by 1.4 million tons or 17.9% from 7.8 million tons in 4Q2019 to 6.4 million tons in 2020 according to the shifting of sales plan in accordance with the market conditions. In addition, the average selling prices decreased by USD 9.6 per ton or 15.1% from USD 63.4 per ton in 2019 to USD 53.8 per ton in 2020 regarding the decrease in referenced Newcastle prices by 22.2%, causing by soften demand from global economic slowdown and shifting to alternative energy such as natural gas and renewable energy.

EBITDA in 2020 was THB 3,176 million, decreasing by THB 556 million or 14.9% from 2019 mainly due to the decrease in gross profit due to lower sales volume and selling prices as aforementioned. However, operating income in 2020 was THB 1,303 million, increasing by THB 9 million due to the decrease in depreciation and amortization expenses in line with lower production as planned. There was impairment loss on coal assets of THB 8,773 and payback of past tax lawsuit case in an amount of approximately THB 239 million in 2020, while there was payback of past tax lawsuit case in an amount of approximately THB 937 million in 2019, leading to the decrease in the overall performance in 2020.

## Downstream Petroleum Business Group

### Oil Business Group

	2019	2020	% Inc. (Dec.)
<b>Average sales volume*</b> (Unit: Million Liter)	<b>27,627</b>	<b>24,400</b>	<b>(11.7)</b>
<b>Average selling prices</b> (Unit: USD per barrel)			
Gasoline	72.5	46.6	(35.7)
Aviation	77.2	44.7	(42.1)
Diesel	77.2	48.4	(37.3)
HSFO	58.6	39.2	(33.1)

\* Only the average sales volume of domestic oil segment

Sales revenue of oil business group in 2020 was THB 430,605 million, decreasing by THB 149,063 million or 25.7% mainly from lower product selling prices in all products in line with global oil prices. Moreover, sales volume decreased by 3,227 million liters or 11.7%, from 27,627 million liters or equivalent to 476,092 barrels per day in 2019 to 24,400 million liters or equivalent to 420,478 barrels per day in 2020 mainly from aviation fuel, LPG and fuel oil products due to pressure on demand from the impact of COVID-19. Eventhough, sales volume of diesel and gasoline increased due to the change of consumer behavior to travel by private vehicles rather than public transportations.

EBITDA in 2020 was THB 18,098 million, increasing by THB 204 million or 1.1% due to stock gain in 2020 compared to stock loss in 2019, despite lower sales revenue as aforementioned. In addition, gross profit of non-oil business increased from higher sales volume due to the increase in number of Café Amazon outlets' expansion. The operating income in 2020 was THB 12,713 million, decreasing by THB 1,071 million or 7.8% from higher depreciation and amortization expenses due to the expansion of service station and Café Amazon.

## International Trading Business Group

Unit: Million Litre	2019	2020	% Inc. (Dec.)
Average sales volume	82,912	75,527	(8.9)

In 2020, sales revenue of international trading business was THB 656,218 million, decreasing by THB 428,811 million or 39.5% in line with the decline in product selling prices with referenced to global crude oil price due to oil price war in 1Q2020 and COVID-19 pandemic, which affects global oil demand. As a result, sales volume decreased by 7,385 million liters, or 8.9%, from 82,912 million liters or equivalent to 1,428,799 barrels per day in 2019 to 75,527 million liters or equivalent to 1,297,979 barrels per day in 2020, mainly from lower sales volume of crude import (out-in trading) due to lower demand of domestic refinery and crude out-out trading.

EBITDA, adjusted by the impact from foreign exchange rate and derivatives, in 2020 was THB 3,024 million, increasing by THB 894 million or 42.0% mainly from derivatives gain and making more profit from the ability to trade at the right moment with the use of excellent risks management and the ability to generate profit and increase cross-continent and cross-regional trade opportunities in a favorable market environment (Arbitrage Opportunity) and higher margin of domestic condensate. Beside, selling and administrative expenses decreased according to the "Decrease-Discard-Defer" policy. The operating income, adjusted by the impact from foreign exchange rate and derivatives in 2020 was THB 2,736 million, increasing by THB 724 million or 36.0% due to the increase in EBITDA.

## Petrochemical and Refinery Business Group

Unit: USD per barrel	2019	2020	% Inc. (Dec.)
Market GRM	2.67	0.78	(70.8)
Inventory Gain (loss) excl. NRV	0.21	(1.76)	<(100.0)
Hedging Gain (loss)	0.13	0.23	76.9
Accounting GRM	3.01	(0.75)	<(100.0)
Refinery Utilization Rate (%)	97.1	96.2	(0.9)

\* From 3 Refineries: TOP, GC and IRPC

Unit: USD per Ton	2019	2020	% Inc. (Dec.)
<b>Olefins</b>			
Naphtha (MOPJ)	523	380	(27.3)
HDPE	991	880	(11.2)
LDPE	1,019	1,010	(0.9)
LLDPE	952	867	(8.9)
PP	1,101	992	(9.9)
<b>Aromatics</b>			
Condensate	544	350	(35.7)
PX (TW)	901	577	(36.0)
PX (TW) – Condensate	357	227	(36.4)
BZ	641	485	(24.3)
BZ – Condensate	97	135	40.2

In 2020, sales revenue of petrochemical and refining business was THB 728,568 million, decreasing by THB 247,582 million or 25.4% primarily due to the decrease in sales revenue of refinery business from the decrease in average selling prices of refined products according to the drop in crude oil prices due to the significantly lower demand caused by COVID-19 pandemic, especially aviation fuel. Overall sales volume of refined product in 2020 also decreased. Therefore, PTT Group refineries' business utilization rates decreased from 97.1% in 2019 to 96.2% in 2020.

Overall sales revenue of petrochemical business also decreased mainly due to declined sales revenue of aromatics as the lower PX and BZ's selling price due to the soften downstream product's demand, despite higher sales volume according to lower maintenance shutdown compared with previous year. Additionally, Olefins' sales revenue also declined resulting from lower selling prices caused by COVID-19 pandemic and sales volume decreased mainly from GC's planned maintenance shutdown of Olefins Plant 2/1, 2/2 and Oleflex for 39 days, 35 days and 37 days, respectively.



EBITDA of petrochemical and refining business in 2020 was THB 20,638 million, decreasing by THB 24,644 million from 2019. Therefore, there was loss in operating income in 2020 amounting to THB 16,554 million, higher loss by THB 26,614 million when compared to gain on operating income in 2019, details as follows;

- **Refinery performance** decreased as reported by the lower Accounting GRM from USD 3.0 per bbl in 2019 to loss of USD 0.8 per bbl in 2020 as there was stock loss of USD 1.8 per bbl in 2020 versus stock gain of USD 0.2 per bbl in 2019. Additionally, Market GRM decreased from USD 2.7 per bbl in 2019 to USD 0.8 per bbl in 2020 from the drop in most of petroleum product spreads.
- Overall **petrochemical performance** decreased mainly from the performance of the olefins business due to lower average selling prices and sales volume as aforementioned. Conversely, the performance of the aromatics business slightly increased because of higher BZ spread and sales volume increased mainly from GC's planned maintenance shutdown of Aromatics #2 totaling 19 days in 2020 compared with planned maintenance shutdown of Aromatics #1 totaling 53 days in 2019.

## Technology and Engineering Business Group

	2019	2020	% Inc. (Dec.)
Power Sales Volume (GWh)	17,564	19,667	12.0
Steam Sales Volume (Thousand tons)	12,821	13,871	8.2

In 2020, sales revenue of Technology and Engineering business was THB 76,226 million, increasing by THB 3,541 million or 4.9% mainly from full year recognition of revenue from GLOW in 2020 (while in 2019, the recognition was from revenue incurred during March 19 to December 31, 2019). However, sales revenue of Sriracha Power Plant decreased from lower dispatch volume to EGAT.

EBITDA in 2020 was THB 22,160 million, increasing by THB 3,671 million or 19.9%. This was mainly from higher gross profit according to higher sales revenue as aforementioned. In 2020, operating income was THB 11,703 million, rose by THB 2,443 million or 26.4% according to higher EBITDA. However, there was an increase in depreciation and amortization expenses due to GPSC's acquisition of GLOW. As a result, the overall performance of Technology and Engineering business group increased from GPSC's performance of THB 7,508 million in 2020, increasing by THB 3,447 million. The increased was resulted from the full year recognition of GLOW's performance in 2020 and lower finance cost due to the repayment of bridge loan as well as higher dividend received from Ratchaburi Power Company Limited.

The analysis of PTT Group consolidated financial position as of December 31, 2020 compared with December 31, 2019

Figure 3

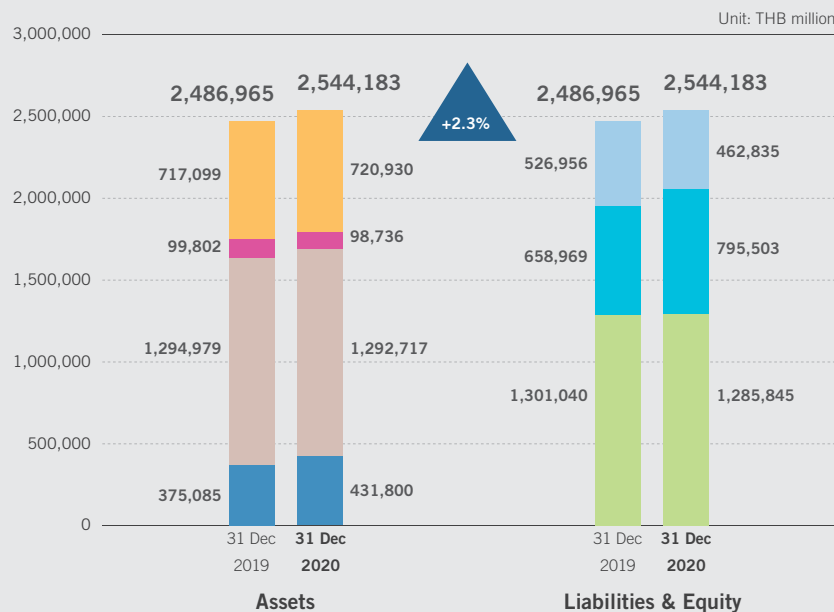
The analysis of PTT Group consolidated financial position

**Assets**

- Current assets
- Long-term investments
- Property, plant and equipment
- Other non-current assets

**Liabilities & Equity**

- Other liabilities
- Interest-bearing debt (including current portion)
- Equity



## Assets

As of December 31, 2020, total assets of PTT Group were THB 2,544,183 million, increasing by THB 57,218 million or 2.3% compared with December 31, 2019 mainly from the net effect of the followings:

- Current assets increased by THB 3,831 million or 0.5% mainly from the followings:
  - Cash and cash equivalents and current investments increased by THB 86,115 million mainly due to the increase in current investments by THB 46,625 million from fixed deposits of PTT TOP and GC.
  - Trade accounts receivables decreased by THB 57,113 million mainly from the decrease in selling prices and overall trade volume of PTT, PTTT, OR, PTTT LDN and TOP.
  - Inventories decreased by THB 24,220 million primarily due to lower crude oil prices and refined product prices of TOP, PTTT, IRPC, GC and OR.
- Property, plant and equipment (PPE) decreased by THB 2,262 million or 0.2% mainly from reclassification to right-of-use assets of PTT and the depreciation in the period of PTT PTTEP and IRPC. In addition, PTTGM recognized impairment loss on assets. However, there were additional construction in progress of PTT Group, for instance, TOP's Clean Fuel Project, GC's Olefins Reconfiguration, Propylene Oxide and Polyols Projects, PTTLNG's Nong Fab Receiving Terminal Project.
- Other non-current assets increased by THB 56,715 million or 15.1% mainly from the increase in right-of-use assets by THB 70,831 million according to the adoption of Thai Financial Reporting Standard – Leases in 2020.

## Liabilities

As of December 31, 2020, PTT Group had total liabilities of THB 1,258,338 million, increasing by THB 72,413 million or 6.1% from December 31, 2019, mainly from the followings;

- Other liabilities decreased by THB 64,121 million or 12.2% mainly due to the decrease in trade accounts payables from the decrease in overall purchase prices and trade volume of PTT, PTTT, PTTT LDN, OR and TOP.
- Interest-bearing debt increased by THB 136,534 million or 20.7% primarily due to the increase in long-term loans and bonds amounting to THB 133,052 million mainly from GC, TOP, GPSC, PTT TCC, IRPC, PTT and PTTEP. Additionally, there was the increase in lease liabilities amounting to THB 43,700 million according to the adoption of Thai Financial Reporting Standard – Leases in 2020. On the other hand, short-term loans decreased by THB 40,218 million from GPSC PTTT and IRPC's short-term loan repayment.

## Equity

As of December 31, 2020, PTT Group had total shareholders' equity of THB 1,285,845 million, decreasing by THB 15,195 million or 1.2% from the year ended 2019. PTT Group reported 2020 net income amounting to THB 37,766 million. Additionally, PTT's paid dividend from 2H2019 performance at THB 1.10 per share totalling THB 31,418 million and from 1H2020 the performance at THB 0.18 per share totalling THB 5,142 million. However, non-controlling interests decreased by THB 18,631 million from dividend payments and losses of subsidiaries.

## Liquidity

For the year ended December 31, 2020 PTT Group had net increase in cash and cash equivalents amounting to THB 39,606 million. However, there was cash and cash equivalents classified as assets held for sales of THB -116 million. As a result, cash and cash equivalents at the end of the period was THB 332,032 million (cash and cash equivalents at the beginning of the period was THB 292,542 million). Details of cash flow by activities are as follows:

Unit: THB million

	Consolidated financial statement
Net cash provided by operating activities	218,592
Net cash used in investing activities	(188,584)
Net cash provided by financing activities	8,060
Effects of exchange rates on cash and cash equivalents	1,433
Exchange differences on translation	105
Net increase in cash and cash equivalents during the period	39,606
Cash and cash equivalents classified as assets held for sales	(116)
Cash and cash equivalents at the beginning of the period	292,542
<b>Cash and cash equivalents at the end of the period</b>	<b>332,032</b>

Net cash provided by operating activities of THB 218,592 million was derived from THB 65,116 million of profit before income taxes, adjusted to net cash provided by (used in) operating activities. The increase in net cash flow from operating activities mainly resulted from THB 139,880 million of depreciation and amortization expenses, THB 28,536 million of finance costs, THB 11,908 million of loss on impairment. The decrease in net cash flow from operating activities mainly resulted from THB 4,178 million of share of profit from investments in joint ventures and associates and THB 3,933 million of interest income together with the change in net operating assets resulting in the increase in cash flow of THB 19,156 million and income taxes paid of THB 43,853 million.

Net cash used in investing activities was THB 188,584 million mainly resulted from the followings:

- The cash outflow of investments in property, plant and equipment, investment property, intangible assets, and exploration and evaluation assets amounting to THB 150,086 million, mainly due to additional investment of TOP's Clean Fuel Project and Jetty 7- 8 expansion , additional investment in exploration and production assets in S1 and Mozambique Area 1 of PTTEP, additional investment of GC's projects; Olefins Reconfiguration, Propylene Oxide and Polyols, and PTT's the 5th transmission pipeline project, and Wangchan Valley (Eastern Economic Corridor of Innovation: EECi), investment in expansion of gas stations and retail stores of OR, LNG receiving terminal at Nong Fab of PTTLNG and floating solar and RCDD catalyst cooler of IRPC.
- The cash outflow from short-term investment in financial assets totalling THB 53,765 million, mainly from the investment in fixed deposits; PTT, TOP and GC which were amounting to THB 35,849 million, THB 17,221 million and THB 9,549 million respectively,

Net cash provided by financing activities was THB 8,060 million, mainly from the followings:

- The net cash inflow of long-term loans amounting to THB 129,924 million mainly from GC, TOP, PTT TCC, GPSC, IRPC and PTT.
- Dividends payment amounting to THB 51,624 million mainly from PTT, PTTEP, GC, GPSC, IRPC and TOP.
- The cash outflow of short-term loans repayment of THB 41,493 million mainly from the repayment GPSC PTTT and IRPC's Loans.
- Finance costs paid amounting to THB 26,939 million mainly from TOP, PTT, PTTEP, GC, GPSC and IRPC.

## Management of the Novel COVID-19 Pandemic Situation

PTT Group set up PTT Group Vital Center to manage the crisis in both short and long terms, as well as sustaining competitiveness and strength of PTT Group in the midst of uncontrollable external circumstances. The operations covered the following:

1. Workforce Protection: Set up PTT Group Vital Center to manage the situation of PTT Group on the whole by formulating the Work from Home Policy for all employees as deemed appropriate and supporting the use of digital equipment for operational efficiency.
2. Strategic Moves: Strategically cooperated with companies in PTT Group productivity improvement as well as monitoring results and implementation approaches in reducing more expense of each company to maintain financial strength of PTT Group.
3. Cash & Credit Securement: Focused on maintaining cash and liquidity for PTT Group through funding plans for both short-and-long-term together with credit risk management and close follow-up of financial risk factors to ensure that PTT can keep the credit rating at the Investment Grade.
4. Supply Chain Management: Collaborated within PTT Group in jointly operating petroleum and petrochemical businesses, aiming to develop and improve management processes throughout the supply chain for optimum efficiency and benefits.
5. Customer Engagement: Improved communication methods with customers e.g. electronic meetings via video conference and developing online video training programs.

"PTT Group Vital Center" or "Crisis Management and Business Continuity Plan Center for COVID-19" has specified measures in taking care of, protecting employees and operations areas, and monitoring situations that may affect employees and businesses. Announcements on COVID-19 Prevention and Control Measures were issued, including precautions for employees traveling back and forth the pandemic areas to consider, monitor, control and safeguard these risky groups according to the announcements of the Department of Disease Control, Ministry of Public Health. Practices were recommended in case of necessity and unavoidability, aiming for PTT to continuously uphold Thailand's energy security. The Center, with Executive Vice President, Sustainability Management as Director, regularly reported in the Management Meeting chaired by President and Chief Executive Officer.

## 4.2 Factors That May Impact Future Operations

### 4.2.1 Factors on Environmental and Social Trends and Impacts

PTT identified and assessed significant sustainability factors that may affect organizational operations and stakeholders by analyzing both internal and external aspects, as well as positive and negative consequences on all groups of stakeholders, including environmental, social and governance (ESG) trends, directions and impact. These key issues were integrated in corporate strategic planning and risk assessment procedures. In 2020, climate change remained a crucial sustainability concern, thereby being analyzed as an input in charting strategic and risk management directions through scenario planning to formulate measures and provide technology for risk reduction and control whilst seeking business opportunities from climate change.

PTT Group has been relentlessly determined to drive our sustainability operations in line with our strategic direction. In terms of environment, PTT Group cares for the Planet Earth by focusing on low-carbon business development along with environmentally friendly business operations thru “PTT Group Clean and Green Strategy”. The strategy is comprised of 3 directions starting from controlling operational greenhouse gas emission, increasing clean and low-carbon product portfolio and defining clean and low-carbon in new businesses.

Further details can be found in “Driving Business for Sustainability in subheadings Sustainability Materiality Assessment and Climate Change”.



## 4.2.2 Financial Support to Affiliated Companies

As of December 31, 2020, PTT provided the following financial support to affiliated companies.

### Shareholder's loan in short-term and long-term

Unit: THB million/USD

Company	Currency	Amount	Outstanding Balance		Available Balance
			Shareholder Loan	Others	
Companies with lower than 100% shares					
Trans Thai-Malaysia (Thailand) Co., Ltd. (TTM(T))	USD	17 <sup>1/</sup>	-	-	17
Energy Complex Co., Ltd. (EnCo)	THB	1,250	468	-	-
Total	USD	17	-	-	17
	THB	1,250	468	-	-
Wholly-owned Company					
PTT Treasury Center Co., Ltd. (PTT TCC)	USD	67 <sup>2/</sup>	59	-	-
	THB	104,390 <sup>3/</sup>	47,235	-	53,808
Total	USD	67	59	-	-
	THB	104,390	47,235	-	53,808
Total	USD	84	59	-	17
	THB	104,390	47,703	-	53,808

**Remarks:**

<sup>1/</sup> According to Construction Cost Undertaking memo among PTT, Petronas and Trans Thai-Malaysia (Thailand) Co., Ltd. (TTM(T)) dated November 3, 2010, PTT and Petronas as shareholders must provide financial support pursuant to 50:50 shareholding structure in case TTM(T) cannot pay claims filed by project contractor.

<sup>2/</sup> According to Shareholder Loan Contract between PTT and PTT TCC dated December 13, 2019, a total of USD 67 million was to support the investment of PTT Group companies.

<sup>3/</sup> According to Shareholder Loan Contract between PTT and PTT TCC dated September 26, 2019, October 25, 2019, November 14, 2019, December 18, 2019 and December 4, 2020, a total of THB 104,390 million was to support the investment of PTT Group companies.

PTT will consider providing financial support in the form of loan, capital and/or trade credit as necessary and for long-term benefits of PTT and PTT Group. Such a policy and practice are believed to strengthen PTT Group.



**Inter-Company Borrowing and Lending: ICBL**

Unit: THB million

Company	Credit lines PTT can lend to affiliated companies	Credit lines PTT can borrow from affiliated companies	Supported	
			Outstanding balance from PTT	Outstanding balance to PTT
PTT Exploration and Production Public Company Limited	5,000	5,000	-	-
PTT Global Chemical Public Company Limited	10,000	5,000	-	-
Thai Oil Public Company Limited	2,000	2,000	-	-
IRPC Public Company Limited	10,000	1,500	-	-
Global Power Synergy Public Company Limited	1,500	500	-	-
PTT Oil and Retail Public Company Limited	2,000	500	-	-
<b>Total</b>	<b>30,500</b>	<b>14,500</b>	-	-

As for affiliated companies which PTT has stake holding less than 100%, PTT has managed short-term liquidity in form of Inter-Company Borrowing and Lending (ICBL) either in THB and/or US dollar currency under Uncommitted & Unsecured Short Term Loan. On June 15, 2020, PTT entered into ICBL contract with Global Power Synergy Public Company Limited. The contract started from June 15, 2020 til December 19, 2020 in order to enhance liquidity management and financial collaboration within PTT Group. In addition, in December 20, 2020, PTT extended ICBL contracts with its 6 affiliates, namely PTT Exploration and Production Public Company Limited, PTT Global Chemical Public Company Limited, Thai Oil Public Company Limited, IRPC Public Company Limited, PTT Oil and Retail Business Public Company Limited, and Global Power Synergy Public Company Limited. The period of all contracts are 1 year from December 20, 2020 and will be expired on December 19, 2021

**4.2.3 Policy and Term of Trade Credit**

Credit management policy of PTT is stipulated with credit criteria and procedures of each business unit that are competitive and comparable to competitors with compatible collection and payment periods and no impact on financial liquidity. Also, cost and financial risks from foreign exchange are taken into account.

Financial ratios related to trade credit period during the past 3 years are as follows:

Unit: Day

Financial Ratio	2018	2019	2020	3-year Average
AR days	27.42	28.26	31.77	29.15
AP days	28.53	29.15	33.45	30.45

#### 4.2.4 Future Investment Plans

The 5-year (2021 - 2025) investment plan of PTT and its wholly owned subsidiaries in an aggregate amount of THB 179,072 million, details are as follows:

Unit: THB million

Business	2021	2022	2023	2024	2025	Total
Gas	8,051	13,403	5,238	3,827	33	30,552
Transmissions	6,770	4,524	1,159	348	252	13,053
International Trading and Downstream	630	376	620	371	193	2,190
Technology & Engineering and Head office	4,063	2,250	797	493	452	8,055
JV and Wholly Owned Subsidiaries	56,885	28,761	13,700	13,512	12,364	125,222
<b>Total</b>	<b>76,399</b>	<b>49,314</b>	<b>21,514</b>	<b>18,551</b>	<b>13,294</b>	<b>179,072</b>

PTT's investment plan focus in core businesses mainly in Gas business group in both PTT own operation (Gas business and Gas Transmissions) i.e. the Gas Separation Plant (GSP) unit 7 to replace GSP unit 1, the 5<sup>th</sup> pipeline and the investment through its wholly owned subsidiaries in the proportion of 70% of PTT's total 5-year investment plan, which are the investment in gas and gas related businesses approximately 14% of PTT's total 5-year investment plan i.e. the Liquefied Natural Gas (LNG) receiving terminal 2 (Nong Fab), and Map Ta Phut Industrial Port Development Phase 3, the investment in oil and non-oil businesses together with its new businesses both in Thailand and overseas approximately 42% of PTT's total five-year investment plan, and other businesses approximately 14% of PTT's total 5-year investment plan.

Additionally, PTT has set provisional capital expenditure for the next 5 years (year 2021 - 2025) amounting to THB 331,524 million to create value added and synergy among PTT Group from core businesses' expertise i.e. the Southern LNG terminal project and gas pipeline project which are subjected to the Power Development Plan 2018, the investment in LNG value chain both in Thailand and overseas, the Gas to Power project, and the investment in the potential growth businesses which are aligned with the change of New normal and New Ecosystem Business Model in accordance with government policy and global trends i.e. Electricity Value Chain project, the investment in Life science (Pharmaceutical, Nutrition, and Medical device). Furthermore, the provisional capital expenditure include investment in renewable energy and clean energy to achieve PTT group's renewable energy power plant target of 8,000 megawatts within year 2030 according to our strategic plan to be a leader in renewable energy business.

PTT's sources of fund include net cash flow from operation, debenture issuance or long-term loan. The above mentioned investment plans belong to PTT and its wholly owned subsidiaries. The investment plan of PTT's flagship companies are presented in Section 1.2 Nature of Business Operation/ Procurement/ Distribution.

## 4.2.5 PTT's Future Major Projects

### Gas Transmission Pipeline Projects

- The 5<sup>th</sup> Transmission Pipeline (Rayong - Sai Noi - North/South Bangkok power plants)
  - Total Project Progress as of December 2020: 92.42%
  - COD: Year 2021
- The Ratchaburi transmission pipeline project
  - Total Project Progress as of December 2020: 99.70%
  - COD: Year 2021



## LNG Receiving Facilities for LNG Procurement/ Import

Currently, PTT have long term LNG contracts with Qatargas, Shell, BP, and Petronas at 5.2 MTA and has a capability to procure LNG in order to fulfill the country demand growth in the future.

- LNG Receiving Terminal #2:  
Total Project progress as of December 2020: 65.67%
  - Total Capacity of 7.5 MTA, approved by the Cabinet meeting on April 11, 2017
  - COD: Year 2022
- Other LNG Receiving Terminal Project:
  - On September 24, 2019, the Cabinet approved the private entity selection, negotiations and the draft of the contract between Public Private Partnership (PPP) and the Industrial Estate Authority of Thailand (“IEAT”) on the development of Map Ta Phut seaport phase III (Section 1) as proposed by the Eastern Economic Corridor Office. Gulf MTP LNG Terminal Company Limited, a new joint venture company between PTT Tank Terminal Company Limited (“PTT Tank”) and Gulf Energy Development Public Company Limited (“GULF”) with shareholding of 30%, and 70%, respectively, is to proceed land reclamation with the investment cost of approximately THB 12,900 million which is expected to be completed by 2023, as well as having the right to construct LNG terminal 3 phase 1 with the capacity not less than 5 million tons per annum. The LNG terminal 3 phase 1 has an investment cost approximately THB 28,000 million which is expected to be completed by the year 2025.

## NGV Plans

NGV business has continuous absorb losses due to the government controls on the retail price of NGV which does not fully cover actual cost, and a discount of the retail price of NGV for public transportation vehicles according to government policy. Therefore, PTT is currently coordinating with the Ministry of Energy in reviewing the NGV retail price structure. On June 15, 2020, Committee on Energy Policy Administration (CEPA) passed a resolution on the price structure by referencing 75% of NGV retail price to the standard grade diesel fuel (Diesel B10) and will submit this structure to National Energy Policy Council (NEPC) for their approval.

Regarding the retail price of NGV for public transportation vehicles, PTT extended NGV price supporting period for public vehicles at THB 13.62 per kilogram until December 31, 2020 as the Ministry of Energy’s request in order to lessen the suffering and reduce the cost of the living during the COVID-19 outbreak impacting economic. However, PTT submitted the official letter to Ministry of Energy to discontinue the discount of the retail price of NGV for public transportation vehicles from January 1, 2021 onwards.

## Gas Separation Plant Maintenance Plans in 2020

### Summary Planned Shutdown for Gas Separation Plants in 2020

Plant	1Q2020	2Q2020	3Q2020	4Q2020
GSP #1	<b>SD</b> (1 - 2 Jan: 2 days)	<b>TD 50%</b> (8 Apr - 15 May: 38 days) <b>Major SD</b> (16 May - 30 Jun.: 46 days)	<b>Major SD</b> (1 Jul - 15 Aug: 46 days)	
GSP #2				<b>SD</b> (24 - 31 Dec : 8 days)
GSP #5	<b>Major SD</b> (20 Jan - 8 Feb: 20 days) <b>TD 50%</b> (9 - 17 Feb: 9 days)	<b>TD 50%</b> (7 Apr - 5 May: 29 days) (16 - 31 May: 16 days) <b>SD</b> (6 - 15 May: 10 days)		<b>TD 50%</b> (22 Oct - 1 Dec: 41 days) <b>TD 30%</b> (2 - 31 Dec: 30 days)
GSP #6		<b>TD 12.5%</b> (29 May - 21 Jun: 24 days)	<b>TD 12.5%</b> (11 Jul - 14 Aug: 35 days) (1 - 30 Sep: 30 days)	<b>TD 12.5%</b> (1 - 4 Oct: 4 days)
ESP		<b>TD 10%</b> (14 - 31 May: 18 days)		<b>TD 40%</b> (24 - 31 Dec: 8 days)

### Summary Planned Shutdown for Gas Separation Plants in 2021

Plant	1Q2021	2Q2021	3Q2021	4Q2021
GSP #3			<b>Major SD</b> (24 - 30 Sep: 7 days)	<b>Major SD</b> (1 - 16 Oct: 16 days)
ESP			<b>Major SD</b> (24 - 30 Sep: 7 days)	<b>Major SD</b> (1 - 16 Oct: 16 days) <b>TD 60%</b> (17 - 31 Oct: 15 days)
GSP #6			<b>Major SD</b> (1 - 26 Sep: 26 days)	

Remarks:

\* TD: Turn down

\*\* SD: Shut down

## Eastern Economic Corridor of Innovation Project (EECi)

The cabinet on June 28, 2016 approved in principle the Eastern Economic Corridor Development Project (EEC) to be ASEAN leading economic zone in order to promote 10 targeted industries as new growth engines in 3 eastern provinces i.e. Chonburi, Rayong and Chachoengsao. The Ministry of Science and Technology proposed the direction to develop the EEC through technology and innovation with suitable innovation ecosystem for research and development collaboration among the public sector, the private sector, universities as well as local communities to elevate existing industries and develop new ones in the EEC and other zones nationwide, thereby making Thailand the country of innovation along with better livelihood of local people through technology and innovation for sustainable development in the future.

The 3,450-rai Eastern Economic Corridor of Innovation Project (EECi) at the Wangchan Valley has embraced 1,000-rai area for Kamnoetvidya Science Academy (KVIS), Vidyasirimedhi Institute of Science and Technology (VISTEC) and the Wangchan Reforestation Project another 2,450 rai for joint development project between the Ministry of Science and Technology and PTT. Designed to be equipped with science, technology and innovation infrastructure, the Wangchan Valley is prepared to welcome all research, development and innovation in the EECi i.e. Startups and Innovation Center, National Quality Infrastructure, Translational Research Infrastructure e.g. Pilot Plant, Demonstration Plant, Living Lab. To be Thailand's innovation development zone, the Wangchan Valley also contains residential areas, recreational areas, workout areas, hotels and other facilities including international/bi-lingual schools, green areas to accommodate innovators, Thai and expatriate experts, private sector and other target groups.

PTT's Board of Directors on June 15, 2018 approved the investment in infrastructure development project. The project as of December 2020 was 99.14% completed and is expected to be in full service by March 2021.





## 4.3 Important Financial Information

Presented financial position and performance consist of financial performance for the year ended December 31, 2020 audited by certified public accountant, EY Office Limited, compared with financial position and performance from financial statements for the year ended December 31, 2019 and 2018.

### Cumulative Effects of Changes in Accounting Policies

During the year, the Group has adopted the revised (revised 2019) and new financial reporting standards and interpretations which are effective for fiscal years beginning on or after January 1, 2020. The management of the Group has assessed impacts of the amended financial reporting standards and interpretations and it is believed that deploying the amended standards has no significant impact on the consolidated financial statements and the separate financial statements, except where the new standard involves changes to key principles. The financial reporting standards are summarised below:

The TFRSs related to financial instruments establish principles for classification and measurement of financial instruments at fair value or amortized cost, with determination made based on the type of financial instrument, the contractual cash flow characteristics, and the business model. They also establish principles for calculating asset impairment, using the expected credit loss concept, and for hedge accounting, as well as presentation and disclosures related to financial instruments.



The adoption of these standards has the impact on the Group's financial statements to result in the following adjustments.

- Classification and measurement of non-listed equity investments - The Group has decided to measure these investments at fair value and classify them as financial assets at fair value through other comprehensive income.
- Classification and measurement of investments in available-for-sale equity securities - The Group has elected to irrevocably classify some of these investments as financial assets at fair value through other comprehensive income and some of them as financial assets at fair value through profit or loss.
- Classification and measurement of investments in available-for-sale debt securities - The Group has decided to classify some of these investments as financial assets at amortized cost or fair value through other comprehensive income or fair value through profit or loss based on their characteristics of the contractual cash flows and the Group's business model on the TFRS 9 transition date.
- Recognition of expected credit losses - The Group recognizes an allowance for expected credit losses on its debt instruments measured at amortized cost or fair value through other comprehensive income, and it is no longer necessary for a credit-impaired event to have occurred.
- Recognition of derivatives - The Group initially recognizes derivatives at their fair value on the contract date and subsequently measures them at fair value at the end of each reporting period. Changes in the fair value of derivatives are recognized in profit or loss. However, the Group applies hedge accounting for certain derivatives.

- Hedge accounting - All of the Group's hedging relationships existing before TFRS 9 adoption, that are eligible under TFRS 9 requirements, remain eligible to be treated as hedging relationships. The Group has designated certain derivatives under cash flow hedge. Changes in the fair value of these derivatives are recognized in other comprehensive income. Gains and losses arising on cash flow hedges are eligible to be subsequently reclassified to profit or loss or incorporated into the initial carrying amounts of the non-financial assets.

TFRS 16 establishes principles for the identification, recognition, measurement, presentation and disclosure of leases for both lessees and lessors. It significantly changes the guidance on leases, cancelling the requirement for lessees to classify leases as operating leases and financial leases as specified in TAS 17 and requiring them to recognize right-of-use assets and lease liabilities at the commencement date for all leases, except short-term leases and leases for which the underlying asset is of low value. Lessors are still required to classify leases as operating or finance leases, on the same basis as under TAS 17.

The Group adopted these financial reporting standards using the modified retrospective method of initial adoption, whereby the cumulative effect was recognized as an adjustment to retained earnings as at January 1, 2020, and the comparative information was not restated.

### 4.3.1 Statement of Financial Position

Unit: THB million

Statement of financial position	2018 (Restated)	2019 (Audited)	2020 (Audited)
<b>Assets</b>			
<b>Current assets</b>			
Cash and cash equivalents	292,184.32	292,542.46	332,032.07
Short-term investments in financial assets	-	-	84,888.67
Current investments	142,420.73	38,263.31	-
Trade accounts receivable	174,604.70	167,641.02	110,527.81
Other accounts receivable	78,827.07	49,611.75	51,698.64
Short-term lending	1,782.92	2,669.22	1,718.43
Inventories	125,279.81	117,746.96	93,526.88
Supplies	28,871.65	34,379.14	36,252.19
Current derivative assets	5,097.69	3,686.31	1,629.00
Other current financial assets	-	6,680.69	1,216.11
Other current assets	7,894.47	3,877.85	4,677.56
Assets held for sale	-	-	2,763.08
<b>Total current assets</b>	<b>856,963.36</b>	<b>717,098.71</b>	<b>720,930.44</b>
<b>Non-current assets</b>			
Other long-term investments in financial assets	-	-	23,055.49
Available-for-sale investments	10,875.93	6,687.35	-
Investments in joint ventures	41,317.06	49,512.82	48,931.85
Investments in associates	24,368.26	25,670.17	26,748.63
Other long-term investments	26,970.81	17,931.83	-
Long-term lending	13,862.71	12,474.41	9,631.51
Investment properties	6,583.17	7,987.23	8,026.08
Property, plant and equipment	1,120,513.02	1,294,979.08	1,292,716.83
Right-of-use assets	-	-	70,830.83
Goodwill	53,896.30	107,197.34	106,994.15
Other intangible assets	34,200.40	79,967.67	68,473.14
Exploration and evaluation assets	100,360.33	87,530.42	86,945.40
Deferred tax assets	28,498.93	47,611.10	54,694.33
Non-current derivative assets	2,079.49	3,810.60	3,514.92
Other non-current financial assets	-	6,616.48	7,949.89
Other non-current assets	33,192.56	21,889.75	14,739.39
<b>Total non-current assets</b>	<b>1,496,718.97</b>	<b>1,769,866.25</b>	<b>1,823,252.44</b>
<b>Total assets</b>	<b>2,353,682.33</b>	<b>2,486,964.96</b>	<b>2,544,182.88</b>

Unit: THB million

Statement of financial position (Continued)	2018 (Restated)	2019 (Audited)	2020 (Audited)
<b><u>Liabilities and shareholders' equity</u></b>			
<b>Current liabilities</b>			
Bank overdrafts and short-term loans from financial institutions	25,561.80	44,440.53	4,222.87
Trade accounts payable	160,323.07	160,669.13	108,188.92
Other accounts payable	98,429.48	78,396.76	66,684.10
Current portion of long-term borrowings	63,108.60	50,439.93	73,777.91
Current portion of lease liabilities	-	1,342.43	7,652.91
Income tax payable	46,487.81	30,136.90	19,229.93
Short-term provision for decommissioning costs	1,090.30	1,289.37	1,890.06
Current derivative liabilities	2,545.87	2,522.08	3,718.84
Other current financial liabilities	-	4,163.33	3,863.74
Other current liabilities	10,801.97	6,384.85	7,221.35
Liabilities directly associated with assets held for sale	-	-	1,575.60
<b>Total current liabilities</b>	<b>408,348.90</b>	<b>379,785.31</b>	<b>298,026.23</b>
<b>Non-current liabilities</b>			
Long-term borrowings	454,964.32	555,018.26	664,732.46
Lease liabilities	-	7,727.51	45,117.01
Deferred tax liabilities	30,527.62	59,199.83	57,904.38
Provisions for employee benefits	23,921.03	32,590.21	34,198.99
Long-term provision for decommissioning costs	73,632.22	90,599.92	96,770.50
Deposits on LPG cylinders	11,082.66	11,656.78	11,873.80
Non-current derivative liabilities	668.92	2,702.43	5,428.85
Other non-current financial liabilities	-	18,948.81	20,073.35
Other non-current liabilities	32,971.05	27,696.28	24,212.22
<b>Total non-current liabilities</b>	<b>627,767.82</b>	<b>806,140.03</b>	<b>960,311.56</b>
<b>Total liabilities</b>	<b>1,036,116.72</b>	<b>1,185,925.34</b>	<b>1,258,337.79</b>

Unit: THB million

Statement of financial position (Continued)	2018 (Restated)	2019 (Audited)	2020 (Audited)
<b>Shareholders' equity</b>			
Share capital			
Registered share capital			
28,562,996,250 ordinary shares of THB 1 each	28,563.00	28,563.00	28,563.00
Issued and fully paid-up share capital			
28,562,996,250 ordinary shares of THB 1 each	28,563.00	28,563.00	28,563.00
Share premium	29,211.13	29,211.13	29,211.13
Deficit from the change in the ownership interests in subsidiaries	(28,483.97)	(36,250.86)	(31,517.93)
Retained earnings			
Appropriated - legal reserve	2,857.25	2,857.25	2,857.25
Appropriated - self-insurance fund reserve	1,222.68	1,243.65	1,265.21
Unappropriated	837,421.99	869,016.09	869,260.27
Other components of shareholders' equity	3,533.17	(16,036.15)	(17,598.53)
Equity attributable to owners of the Company	874,325.25	878,604.11	882,040.40
Non-controlling interests of the subsidiaries	443,240.36	422,435.51	403,804.69
<b>Total shareholders' equity</b>	<b>1,317,565.61</b>	<b>1,301,039.62</b>	<b>1,285,845.09</b>
<b>Total liabilities and shareholders' equity</b>	<b>2,353,682.33</b>	<b>2,486,964.96</b>	<b>2,544,182.88</b>

### 4.3.2 Statement of Income

Unit: THB million

Statement of income	2018 (Restated)	2019 (Audited)	2020 (Audited)
Sales and service income	2,336,154.91	2,219,738.67	1,615,664.66
Cost of sales and services	2,023,038.55	1,967,529.01	1,446,649.07
<b>Gross profit</b>	<b>313,116.36</b>	<b>252,209.66</b>	<b>169,015.59</b>
Other income	19,304.29	20,397.36	18,312.51
Gain (loss) on derivatives	(2,369.19)	(417.40)	2,266.48
Gain on foreign exchange rates	6,353.51	15,312.83	9,269.53
<b>Profit before expenses</b>	<b>336,404.97</b>	<b>287,502.45</b>	<b>198,864.11</b>
Selling and distribution expenses	26,653.50	27,573.73	27,199.41
Administrative expenses	55,183.57	65,002.29	68,791.39
Petroleum royalties	16,435.23	17,882.47	13,398.30
<b>Operating profit</b>	<b>238,132.67</b>	<b>177,043.96</b>	<b>89,475.01</b>
Share of profit from investments in joint ventures and associates	8,515.02	6,007.99	4,177.72
<b>Profit before finance costs and income taxes</b>	<b>246,647.69</b>	<b>183,051.95</b>	<b>93,652.73</b>
Finance costs	27,627.59	27,971.47	28,536.47
<b>Profit before income taxes</b>	<b>219,020.10</b>	<b>155,080.48</b>	<b>65,116.26</b>
Income tax expenses	53,646.55	32,988.88	25,166.50
<b>Profit for the year</b>	<b>165,373.55</b>	<b>122,091.60</b>	<b>39,949.76</b>
<b>Profit attributable to</b>			
Equity holders of the Company	119,647.25	92,950.60	37,765.81
Non-controlling interests of the subsidiaries	45,726.30	29,141.00	2,183.95
	<b>165,373.55</b>	<b>122,091.60</b>	<b>39,949.76</b>
<b>Basic earnings per share</b>	<b>4.15</b>	<b>3.20</b>	<b>1.32</b>



### 4.3.3 Statement of Comprehensive Income

Unit: THB million

Statement of comprehensive income	2018 (Restated)	2019 (Audited)	2020 (Audited)
Profit for the year	165,373.55	122,091.60	39,949.76
Other comprehensive income			
Other comprehensive income to be reclassified to profit or loss in subsequent periods			
Exchange differences on translation of financial statements in foreign currency	(2,588.22)	(27,899.83)	(828.45)
Gain (loss) on measurements of available-for-sale investments	(881.07)	43.16	-
Income taxes related to available-for-sale investments	410.46	(21.43)	-
Loss on debt investments measured at fair value through other comprehensive income	-	-	(22.00)
Income taxes related to debt investments measured at fair value through other comprehensive income	-	-	4.40
Gain (loss) on cash flow hedges	684.96	(1,182.55)	(1,487.88)
Income taxes related to cash flow hedges	(3.03)	(92.55)	447.47
Share of other comprehensive income (loss) of joint ventures and associates	(380.45)	(503.11)	757.89
Other comprehensive income not to be reclassified to profit or loss in subsequent periods			
Gain (loss) on remeasurements of defined benefits plans	946.68	(1,095.55)	(629.88)
Income taxes related to remeasurements of defined benefits plans	(183.16)	408.80	115.58
Gain (loss) on equity investments designated at fair value through other comprehensive income	-	-	(2,906.54)
Income taxes related to equity investments designated at fair value through other comprehensive income	-	-	66.77
Share of other comprehensive income (loss) from joint ventures and associates	27.57	(97.64)	(225.87)
Other comprehensive loss for the years, net of income taxes	(1,966.26)	(30,440.70)	(4,708.50)
<b>Total comprehensive income for the year</b>	<b>163,407.29</b>	<b>91,650.90</b>	<b>35,241.25</b>
<b>Total comprehensive income attributable to</b>			
Equity holders of the Company	118,782.05	73,509.92	34,485.35
Non-controlling interests of the subsidiaries	44,625.24	18,140.98	755.90
	<b>163,407.29</b>	<b>91,650.90</b>	<b>35,241.25</b>

### 4.3.4 Statement of Cash Flows

Unit: THB million

Statement of cash flows	2018 (Restated)	2019 (Audited)	2020 (Audited)
<b>Cash flows from operating activities</b>			
Profit before income taxes	219,020.11	155,080.48	65,116.26
Adjustment of profit before income taxes to net cash provided by (used in) operating activities:			
Depreciation and amortization expenses	123,592.96	133,204.18	139,879.64
Loss on disposal of assets	2,154.90	31.18	318.04
(Gain) loss on disposal of investments	(0.30)	221.28	(1.96)
Gain on bargain purchase	(1,354.90)	(31.48)	(125.06)
Allowance for impairment/Expected credit losses of assets	16.83	291.12	11,907.83
(Reversal of) allowance for impairment/ Expected credit losses of investments	-	(434.02)	9.45
Share of profit from investments in joint ventures and associates	(8,515.02)	(6,007.99)	(4,177.72)
Provision for employee benefits	2,487.98	7,063.16	2,554.02
Gain on exchange rates	(809.18)	(8,259.06)	(3,682.98)
(Gain) loss on derivatives	(4,032.10)	3,123.61	3,605.66
Unrealized (gain) loss on fair value of commodity contracts	-	-	837.92
Loss on investments measured at fair value through profit and loss	-	-	156.28
(Reversal of) allowance for doubtful accounts/Expected credit loss of accounts receivable	2,320.29	(77.02)	600.05
Write-off exploration assets	21.47	2,368.68	1,943.21
(Reversal of) allowance for changes in value of inventories	4,217.02	(3,079.36)	(468.65)
Allowance for obsolete supplies	157.22	453.01	610.67
Dividend income	(347.32)	(383.03)	(620.39)
Interest income	(9,435.82)	(7,836.97)	(3,933.50)
Finance costs	27,627.59	27,971.47	28,536.47
Others	93.33	4.46	223.81
Profit from operating activities before changes in operating assets and liabilities	357,215.06	303,703.70	243,289.05
Net operating assets (increase) decrease	(42,438.96)	26,662.91	19,155.94
Cash received from operating activities	314,776.10	330,366.61	262,444.99
Income taxes paid	(45,370.81)	(65,259.23)	(43,853.24)
Net cash provided by operating activities	269,405.29	265,107.38	218,591.75

Unit: THB million

Statement of cash flows (continued)	2018 (Restated)	2019 (Audited)	2020 (Audited)
<b>Cash flows from investing activities</b>			
Cash payment of property, plant and equipment and investment properties	(108,747.41)	(144,336.35)	(143,343.98)
Cash payment of intangible assets	(2,398.01)	(2,861.37)	(3,608.60)
Cash payment of exploration and evaluation assets	(1,962.67)	(3,700.25)	(2,929.00)
Cash payment of right-of-use assets	-	-	(457.41)
Cash payment for other long-term investments in financial assets	-	-	(7,292.63)
Cash payment for available-for-sale investments	(540.51)	(241.11)	-
Net cash payment for business acquisition	(36,464.07)	(164,377.95)	(1,615.03)
Cash payment of investments in joint ventures and associates	(1,523.43)	(4,856.29)	(2,569.73)
Cash payment of long-term lending	(118.54)	(837.25)	(3.48)
Cash payment of other long-term investments	(5,226.94)	(2,855.86)	-
Cash payment for derivatives	-	-	(773.69)
Payment of long-term rental contracts on land and building	(105.00)	-	-
Cash proceeds from disposals of property, plant and equipment, intangible assets, investment properties and right-of-use assets	4,646.91	929.64	253.15
Cash proceeds from disposals of other long-term investments in financial assets	-	-	15,185.63
Cash proceeds from disposals of available-for-sale investments	2,944.67	10,693.13	-
Cash proceeds from disposals and capital reduction of investments in joint ventures and investment in associates	33.87	488.93	1,182.30
Cash proceeds from long-term lending	4,294.18	3,490.28	2,274.76
Cash proceeds from disposal of other long-term investments	2,741.00	28.29	-
Cash proceeds from derivatives	-	-	729.98
Cash proceeds from cancellation of leasehold in gas stations	4.71	16.68	1.72
Decrease (increase) in short-term lendings	(324.66)	269.91	-
Decrease in current investments	93,820.52	108,719.16	-
Increase in short-term investments in financial assets	-	-	(53,764.92)
Interests received	8,358.99	6,424.63	2,864.81
Dividends received	4,814.11	4,787.57	5,282.51
Net cash provided by (used in) investing activities	(35,752.28)	(188,218.21)	(188,583.61)

Unit: THB million

Statement of cash flows (continued)	2018 (Restated)	2019 (Audited)	2020 (Audited)
<b>Cash flows from financing activities</b>			
Cash proceeds from issuance of ordinary shares of subsidiaries	92.81	18,346.18	267.65
Cash proceeds from long-term borrowings	143,626.65	174,649.44	210,692.85
Cash proceeds from change in ownership in subsidiaries	4,670.96	3.96	-
Cash payment for treasury shares	-	(1,187.60)	-
Cash repayment of long-term borrowings	(136,795.44)	(101,517.72)	(73,027.21)
Cash payment for lease installments	(974.56)	(1,358.24)	(8,371.81)
Cash payment for derivatives	-	-	(481.27)
Cash payment for redemption of subordinated capital debentures	-	(30,750.89)	(964.92)
Cash payment for change in ownership in subsidiaries	(13,872.69)	(40,806.27)	-
Decrease in short-term borrowings	-	(701.55)	(1,124.55)
Increase (decrease) in bank overdrafts and short-term loans from financial institutions	4,967.93	19,910.18	(40,368.11)
Finance costs paid	(28,147.86)	(25,462.32)	(26,938.73)
Dividends paid	(85,035.35)	(81,350.83)	(51,624.22)
Net cash provided by (used in) financing activities	(111,467.55)	(70,225.66)	8,059.68
Effects of exchange rates on cash and cash equivalents	636.63	(3,075.30)	1,432.81
Exchange differences on translation	3,173.21	(3,230.07)	105.04
Cash and cash equivalents classified as held for sale	-	-	(116.06)
Net increase (decrease) in cash and cash equivalents	125,995.30	358.14	39,489.61
Cash and cash equivalents at the beginning of year	166,189.02	292,184.32	292,542.46
<b>Cash and cash equivalents at the end of year</b>	<b>292,184.32</b>	<b>292,542.46</b>	<b>332,032.07</b>

### 4.3.5 Financial Results by Business Group: EBITDA and Operating Profit (loss) by Segment

Unit: THB million

Earnings before interest expenses, tax, depreciation and amortization expenses, and operating profit (loss) by segment	2018 (Restated)	2019 (Audited)	2020 (Audited)
<b><u>Gas business group</u></b>			
<b><u>Natural gas procurement, gas transmission and distribution, and gas separation businesses</u></b>			
Sales and service income	489,548.81	502,110.73	403,626.39
Cost of sales and services	383,524.51	419,035.09	340,201.60
Gross profit	106,024.30	83,075.64	63,424.79
Selling and administrative expenses	13,465.20	12,822.34	9,338.53
Other operating income	1,524.65	1,153.35	855.33
Earnings before depreciation and amortization expenses, finance costs and tax expenses (EBITDA)	94,083.75	71,406.65	54,941.59
Depreciation and amortization expenses	18,032.99	18,923.61	19,246.05
Total segment operating profit	76,050.76	52,483.04	35,695.54
<b><u>Petroleum exploration and production business group</u></b>			
Sales and service income	171,809.16	191,052.73	160,400.68
Cost of sales and services	21,982.60	24,756.76	26,151.93
Gross profit	149,826.56	166,295.97	134,248.75
Selling and administrative expenses	9,426.04	14,210.27	12,577.00
Petroleum royalties	15,204.94	16,944.73	12,798.16
Other operating income	1,647.05	1,712.66	1,170.85
Earnings before depreciation and amortization expenses, finance costs and tax expenses (EBITDA)	126,842.63	136,853.63	110,044.44
Depreciation and amortization expenses	60,141.43	62,810.84	65,009.14
Total segment operating profit	66,701.20	74,042.79	45,035.30

Unit: THB million

Earnings before interest expenses, tax, depreciation and amortization expenses, and operating profit (loss) by segment (continued)	2018 (Restated)	2019 (Audited)	2020 (Audited)
<b>Coal business group</b>			
Sales and service income	20,527.20	15,379.95	10,779.10
Cost of sales and services	11,344.98	10,335.08	6,680.75
Gross profit	9,182.22	5,044.87	4,098.35
Selling and administrative expenses	513.28	472.66	378.83
Petroleum royalties	1,230.29	937.73	600.14
Other operating income	6.15	96.98	57.60
Earnings before depreciation and amortization expenses, finance costs and tax expenses (EBITDA)	7,444.80	3,731.46	3,176.98
Depreciation and amortization expenses	1,928.95	2,437.48	1,873.50
Total segment operating profit	5,515.85	1,293.98	1,303.48
Total segment operating profit of upstream petroleum and gas business group	148,267.81	127,819.81	82,034.32
<b>Oil business group</b>			
Sales and service income	601,063.75	579,667.46	430,604.52
Cost of sales and services	567,391.49	542,164.17	395,239.07
Gross profit	33,672.26	37,503.29	35,365.45
Selling and administrative expenses	21,768.25	23,244.82	19,729.63
Other operating income	3,366.92	3,635.34	2,461.94
Earnings before depreciation and amortization expenses, finance costs and tax expenses (EBITDA)	15,270.93	17,893.81	18,097.76
Depreciation and amortization expenses	4,316.17	4,109.28	5,384.88
Total segment operating profit	10,954.76	13,784.53	12,712.88



Unit: THB million

Earnings before interest expenses, tax, depreciation and amortization expenses, and operating profit (loss) by segment (continued)	2018 (Restated)	2019 (Audited)	2020 (Audited)
<b>International trading business group</b>			
Sales and service income	1,239,121.09	1,085,029.50	656,217.84
Cost of sales and services	1,233,799.00	1,082,185.13	655,525.75
Gross profit	5,322.09	2,844.37	692.09
Selling and administrative expenses	7,425.67	9,557.08	11,611.90
Other operating income	4,805.04	6,576.62	10,154.01
Earnings before depreciation and amortization expenses, finance costs and tax expenses (EBITDA)	2,701.46	(136.09)	(765.80)
Depreciation and amortization expenses	110.21	118.00	288.39
Total segment operating profit (loss)	2,591.25	(254.09)	(1,054.19)
<b>Petrochemicals and refining business group</b>			
Sales and service income	1,132,080.04	976,149.70	728,567.95
Cost of sales and services	1,013,756.79	908,814.95	688,340.67
Gross profit	118,323.25	67,334.75	40,227.28
Selling and administrative expenses	22,928.80	24,589.89	22,621.98
Other operating income	2,426.47	2,537.72	3,032.96
Earnings before depreciation and amortization expenses, finance costs and tax expenses (EBITDA)	97,820.92	45,282.58	20,638.26
Depreciation and amortization expenses	34,898.87	35,222.68	37,191.67
Total segment operating profit (loss)	62,922.05	10,059.90	(16,553.41)
Total segment operating profit (loss) of downstream petroleum business group	76,468.06	23,590.34	(4,894.72)

Unit: THB million

Earnings before interest expenses, tax, depreciation and amortization expenses, and operating profit (loss) by segment (continued)	2018 (Restated)	2019 (Audited)	2020 (Audited)
<b>Technology and engineering business group</b>			
Sales and service income	30,023.83	72,685.21	76,226.03
Cost of sales and services	22,675.39	52,586.33	52,442.56
Gross profit	7,348.44	20,098.88	23,783.47
Selling and administrative expenses	(102.76)	2,344.04	2,665.69
Other operating income	427.05	734.44	1,041.67
Earnings before depreciation and amortization expenses, finance costs and tax expenses (EBITDA)	7,878.25	18,489.28	22,159.45
Depreciation and amortization expenses	3,861.00	9,229.25	10,456.43
Total segment operating profit	4,017.25	9,260.03	11,703.02
<b>Other businesses group</b>			
Sales and service income	2,867.90	3,403.53	3,439.21
Cost of sales and services	3,266.50	3,569.68	3,422.74
Gross profit	(398.60)	(166.15)	16.47
Selling and administrative expenses	3,395.36	4,824.38	4,170.07
Other operating income	1,568.80	1,986.68	1,484.18
Earnings before depreciation and amortization expenses, finance costs and tax expenses (EBITDA)	(2,225.16)	(3,003.85)	(2,669.42)
Depreciation and amortization expenses	303.35	353.04	429.58
Total segment operating loss	(2,528.51)	(3,356.89)	(3,099.00)
Total segment operating profit before unallocated income (expenses) and intercompany elimination	226,224.61	157,313.29	85,743.62
Add (less) intercompany elimination	1,578.32	(1,545.27)	48.59
Total operating profit by segment	227,802.93	155,768.02	85,792.21

### 4.3.6 Financial Ratios

Financial Ratios and earnings per share	Unit	2018	2019	2020
<b><u>Liquidity Ratios</u></b>				
Current ratio	Times	2.10	1.89	2.42
Quick ratio	Times	1.49	1.31	1.77
Accounts receivable turnover	Times	13.13	12.74	11.33
Collection period	Days	27.42	28.26	31.77
Accounts payable turnover	Times	12.62	12.26	10.76
Payment period	Days	28.53	29.37	33.45
<b><u>Profitability Ratios</u></b>				
Gross profit margin	%	13.40	11.36	10.46
Net profit margin	%	7.08	5.50	2.47
Return on equity	%	14.14	10.61	4.29
<b><u>Activity Ratios</u></b>				
Return on asset	%	7.21	5.04	1.59
Return on fixed assets	%	15.01	10.11	3.09
Total asset turnover	Times	1.02	0.92	0.64
<b><u>Solvency Ratios</u></b>				
Debt to equity <sup>1/</sup>	Times	0.41	0.51	0.62
Interest coverage	Times	11.18	12.97	9.74
<b><u>Earnings per share</u></b>				
Earnings per share <sup>2/</sup>	THB/share	4.15	3.20	1.32

Remarks:

<sup>1/</sup> Debt to equity = Interest bearing debt divided by Total shareholder's equity

<sup>2/</sup> Calculated by the weighted average number of ordinary shares as of December 31, 2018, December 31, 2019 and December 31, 2020 amounting to 28,563.00 million shares

## 5. General Information and Other Important Information

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### 5.1 Other Important Information

Juristic persons whose shares are held by the Company: Details as specified under 1.3 PTT Group's Shareholding Structure

### 5.2 Legal Disputes

As of December 31, 2020, the legal disputes in which PTT is a party in the court cases or arbitration which are lawsuits or disputes that have not been finalized and may have material impacts on the businesses of PTT and which did not arise from the ordinary course of business are as detailed below.

#### **5.2.1 Rayong Purifier Plc. Filed a Statement of Claim with Thai Arbitration Center and Filed a Court Case with the Civil Court Against PTT Plc. and PTT Aromatics and Refining Plc., Demanding Compliance with the Contract or Joint Liability for Damages**

PTT Aromatics and Refining Plc. had entered into a condensate residue sales contract (CR) with PTT to resell it to Rayong Purifier Plc. (currently RPCG Plc.). The term of the contract is 15 years, ending in January 31, 2012. The sales contracts were back-to-back contracts. When PTT Aromatics and Refining Plc. had given PTT a notice of non-renewal of the contract, PTT gave Rayong Purifier Plc. a notice of non-renewal of the contract as well. However, Rayong Purifier Plc. noticed such contract did not specify an expiry date and so Rayong Purifier Plc. submitted a statement of claim with the Thai Arbitration Center and filed a lawsuit with the Civil Court to demand that PTT and PTT Aromatics and Refining Plc. comply with the contract by continuing to sell condensate residue to Rayong Purifier Plc. If the compliance with the contract could not be performed, the two parties are to be jointly liable for damages. PTT filed a statement of defence with the Thai Arbitration Center and submitted an answer with the Civil Court. Then the Civil Court ordered the temporary dismissal of the case, pending the arbitral award. Subsequently, the tribunal rendered the award that PTT to make partial payment of damages. However, PTT viewed that such arbitral award was erroneous both on factual and legal grounds, and so PTT by the public prosecutor filed a motion to set aside the arbitral award with the Civil Court. On December 16, 2016, Rayong Purifier Plc. filed a motion to enforce the arbitral award with the Civil Court and PTT by the public prosecutor filed an objection with the Civil Court. On September 19, 2019, the Civil Court rendered a judgment to enforce the arbitral award. On March 13, 2020, PTT filed an appeal with the Supreme Court to appeal the judgment of the Civil Court. At present, the case is under the consideration of the Supreme Court.

### 5.2.2 NACAP Asia Pacific (Thailand) Co., Ltd. Exercised Its Rights under the Contract by Submitting a Statement of Claim in the Arbitration Process in Relation to the Sai Noi – North/South Bangkok Power Plant Gas Transmission Pipeline Contract

NACAP Asia Pacific (Thailand) Co., Ltd. filed claims with the Thai Arbitration Center demanding damages from PTT on the grounds of change orders, additional work, and others under the Sai Noi - North/South Bangkok Power Plant Gas Transmission Pipeline Contract. PTT viewed that such claims were incompliant the contract but also involved assignment of the rights that had not been settled. Then NACAP Asia Pacific (Thailand) Co., Ltd. was ordered by the Central Bankruptcy Court to be under absolute receivership and adjudged bankrupt. The official receiver then assumed the proceeding of the arbitral dispute on behalf of NACAP Asia Pacific (Thailand) Co., Ltd. In such bankruptcy case, PTT as a creditor has filed an application for debt repayment. Regarding the arbitral dispute, PTT filed a statement of defence to completely deny all claims made by NACAP Asia Pacific (Thailand) Co., Ltd. together with a counterclaim for damages from NACAP Asia Pacific (Thailand) Co., Ltd. Subsequently, the arbitral tribunal rendered an award that PTT to make partial payment of damages to NACAP Asia Pacific (Thailand) Co., Ltd. However, PTT viewed that such arbitral award was erroneous both on factual and legal grounds, and accordingly PTT filed a motion to set aside the arbitral award. NACAP Asia Pacific (Thailand) Co., Ltd. then filed a motion to enforce the arbitral award with the Civil Court. On October 17, 2017, the Civil Court issued an order to enforce the arbitral award with a reduction of the amount to be paid. Nevertheless, PTT filed an appeal with the Supreme Court to appeal the order of the Civil Court. On December 18, 2019, the Supreme Court issued an order not to accept the appeal of PTT. As a consequence, the case became final and PTT therefore was required to pay for damages under the order of the Civil Court. On January 8, 2020, PTT deposited THB 4,543.5 million with the Civil Court for payment of debt under the court's judgment.

### 5.2.3 Official Receiver NACAP Asia Pacific (Thailand) Co., Ltd. Submitted a Statement of Claim to Arbitration Process in Relation to the Third Onshore Gas Transmission Pipeline Laying Project

As a result of NACAP Asia Pacific (Thailand) Co., Ltd. being ordered by the Central Bankruptcy Court to be under absolute receivership and adjudged bankrupt as specified in 5.2.2, the official receiver filed a statement of claim with the Thai Arbitration Center demanding that PTT to make payment for wages and damages on the ground of breaches of contract under the contract of the Third Onshore Gas Transmission Pipeline Laying Project. PTT viewed that such claims were incompliant with the contract but also involved assignment of the rights that had not been settled and PTT had contentions and claims against NACAP Asia Pacific (Thailand) Co., Ltd. Accordingly, PTT filed a statement of defence to completely deny all claims made by NACAP Asia Pacific (Thailand) Co., Ltd. together with a counterclaim for damages from NACAP Asia Pacific (Thailand) Co., Ltd. Subsequently, on November 30, 2018, the arbitral tribunal rendered an award to dismiss the statement of claim filed by NACAP Asia Pacific (Thailand) Co., Ltd. and to dismiss the counterclaim of PTT. The parties to the dispute had the right to file a motion to set aside the arbitral award with a competent court within 90 days from the date of receipt of a copy of the arbitral award. As for the bankruptcy case, PTT has filed an application for debt repayment which is under the process of the bankruptcy case. On March 8, 2019, the official receiver of NACAP Asia Pacific (Thailand) Co., Ltd. filed a motion to set aside the arbitral award with the Civil Court and PTT filed an objection. Then on October 6, 2020, the Civil Court rendered a judgment to dismiss the motion to set aside filed by the official receiver of NACAP Asia Pacific (Thailand) Co., Ltd. On January 6, 2021, the official receiver of NACAP Asia Pacific (Thailand) Co., Ltd. filed an appeal with the Supreme Court to appeal the judgment of the Civil Court. At present, PTT by the public prosecutor is in preparation of the defence to the appeal for filing with the Supreme Court.

#### Remarks:

1. The amounts in dispute are THB 6,576,076,914 and USD 42,574,820.
2. The debt for which PTT is seeking repayment in the bankruptcy case under this contract is THB 643,544,641.

#### 5.2.4 Punj Lloyd Ltd. Filed a Lawsuit Against PTT with the Civil Court on the Grounds of Termination of the Contract of the Fourth Gas Transmission Pipeline Project

On February 25, 2014, Punj Lloyd Ltd., the construction contractor of the Fourth Gas Transmission Pipeline Project, as a plaintiff, filed a lawsuit against PTT as a defendant with the Civil Court, alleging that PTT had wrongfully terminated the contract and was in breach of the contract, and demanding that PTT pay outstanding wages and damages. PTT viewed that all of its actions had been in compliance with the contract and therefore forwarded the case to the Office of The Attorney General for consideration to arguing the case for PTT and the public prosecutor filed an answer with the Civil Court. Subsequently, the Civil Court issued an order to transfer the case to the Central Administrative Court for consideration and judgment because the Civil Court and the Central Administrative Court jointly agreed that this case was an administrative case. The Civil Court has already transferred the case to the Central Administrative Court. At present, the case is under the consideration of the Central Administrative Court. Should the Central Administrative Court rule that PTT was not liable as alleged in the complaint of Punj Lloyd Ltd., the Central Administrative Court shall render a judgment to dismiss the case. On the contrary, should PTT be found liable, the court shall render a judgment that PTT to make payment for outstanding wages and/or wages for additional works and/or damages, the amount of which are within the discretion of the Central Administrative Court.

#### 5.2.5 PTT filed a Lawsuit Against Punj Lloyd Ltd. with the Central Administrative Court to Claim Damages under Contract of the Fourth Gas Transmission Pipeline Project

After PTT had terminated the contract with Punj Lloyd Ltd., PTT continued the construction of the Fourth Gas Transmission Pipeline Project until the completion. On June 20, 2018, PTT, represented by the public prosecutor, filed a lawsuit with the Central Administrative Court to demand that Punj Lloyd Ltd. pay damages for breach of contract and abandonment of work under the Contract of the Fourth Gas Transmission Pipeline Project. Then on October 15, 2020, the Central Administrative Court issued an order of joinder that this case to be tried together with the case filed by Punj Lloyd Ltd. (specified in 5.3.4). At present, the case is under the consideration of the Central Administrative Court.

On September 25, 2019, Punj Lloyd Ltd. filed a statement of fact with the Central Administrative Court that on March 8, 2019, the National Company Law Tribunal of India had ordered that Punj Lloyd Ltd. to be under the Corporate Insolvency Resolution Process and appointed the Resolution Professional of Punj Lloyd Ltd. in accordance with India Law. PTT conducted an investigation and found that such statement was true. Subsequently, on November 26, 2019, PTT filed an application for debt repayment with the Resolution Professional in India. At present, the case is pending consideration by the resolution professional of PTT's application for debt repayment. Currently, the Resolution Professional is in consideration of the Company's petition. With regard to the Central Administrative Court's case, the Court is in consideration of the proceedings of the case.





### 5.2.6 The Office of the Ombudsman Filed a Lawsuit Against the Ministry of Finance, Ministry of Energy, and PTT with the Central Administrative Court Regarding Division and Transfer of Properties of the Petroleum Authority of Thailand to the Ministry of Finance under the Judgment of the Supreme Administrative Court

On April 4, 2016, the Office of the Ombudsman filed a lawsuit against the Ministry of Finance, Ministry of Energy, PTT and other defendants with the Central Administrative Court as the black case No. 510/2559 requesting the Central Administrative Court as follows:

- 1) To revoke the Cabinet Resolution on December 18, 2007 and the Cabinet Resolution on August 10, 2010.
- 2) To order the Minister of Finance, the Minister of Energy and PTT to conduct a separation and transfer of net assets according to the plaintiff's allegation as of September 30, 2001 amounting to THB 68,570 million, including other compensations and benefits.
- 3) To revoke the separation of public assets and the preferential rights to establish the gas pipeline system according to the plaintiff's allegation.

On May 26, 2016, the Central Administrative Court ordered PTT to submit an answer to clarify the issues relating to the separation of the assets of the Petroleum Authority of Thailand in the part that were public assets to the 1<sup>st</sup> respondent (Ministry of Finance) in order to confirm whether it has duly complied with the Cabinet Resolution on December 18, 2007 and to what extent. The public prosecutor then submitted the answer and the additional answer with the Central Administrative Court. The court issued an order that the period for fact-finding had ended. On February 25, 2021, The Central Administrative Court rendered the judgment to dismiss the case. The parties have the right to appeal the judgment with the Supreme Administrative Court within 30 days from the judgment date.

However, the Supreme Administrative Court in Exit Case No. For. 35/2550, issued an order on December 26, 2008, that PTT and related agencies had duly complied with the judgment.

## 5.3 Secondary Market

-None-

## 5.4 Regularly Contacted Financial Institutions

### **Bangkok Bank Plc.**

333 Silom Road, Silom Subdistrict,  
Silom District, Bangkok 10500

### **Krungthai Bank Plc.**

35 Sukhumvit Road, Klong Toei Nuea Subdistrict,  
Watthana District, Bangkok 10110

### **Kasikornthai Bank Plc.**

1 Soi Rat Burana 27/1, Rat Burana Road,  
Rat Burana Subdistrict, Rat Burana District,  
Bangkok 10140

### **Siam Commercial Bank Plc.**

9 Ratchadaphisek Road, Chatuchak District,  
Bangkok 10900

### **Bank of Ayudhya Plc.**

1222 Rama III Road, Bang Phongphang Subdistrict,  
Yannawa District, Bangkok 10120



## 6. Corporate Governance



### 6.1 Overview on CG Policy and Guidelines

As the national energy company with a state-owned enterprise and a listed company on the Stock Exchange of Thailand (SET), PTT recognizes its vital mission of good management with transparency, establishing equitability among all stakeholders while striving to develop itself into a corporate governance (CG) role model. It is convinced that CG under good management will lead to fairness and investors' confidence, create a long-term value for shareholders, boost stakeholders' confidence, and give the corporation a most suitable, efficient, and effective management system while enhancing its competitiveness for sustainable growth.

Ever since its privatization into PTT Plc. and distribution of its shares on SET in late 2001, the Board of Directors has adopted CG as its guiding principles. The Articles of Association of PTT stated: "The Company must have and implement a policy on its business ethics, including the ethics of its Board of Directors, senior executives, management, and employees in compliance with good CG practices as its code of conduct for the organization with a high standard". PTT has issued its CG code in 2001, reviewed and revised it. In 2003, PTT has published the first CG Handbook and delivered to each director, management and employees to sign, acknowledge and comply with. The handbook was regularly revised to improve the standard of operations to comply with SEC and SET's CG for listed companies

(CG Code) as well as comments and recommendations from IOD's CG Assessment Report, including The Organization for Economic Cooperation and Development, the ASEAN Corporate Governance Scorecard (ASEAN CG Scorecard), and the Dow Jones Sustainability Indices (DJSI) together with best practices of leading international companies. The handbook in its 4<sup>th</sup> revision was renamed "Corporate Governance, Ethical Standards and Code of Business Ethics Handbook" or CG Handbook.

PTT has integrated CG in its vision, mission, and core values as part of its sustainable growth strategy, to become a Thai Premier Multinational Energy Company as our vision to drive the nation forward, overcome all challenges, apply technology and innovation to all sectors of operations, enhance national competitiveness, develop society and the well-being of the Thai people based on the Corporate Governance (CG).

## Corporate Governance Policy

PTT duly reviewed its CG Policy and handbook to suit prevailing laws and good practices, economic and social circumstances and requires all directors, management and employees to acknowledge it in writing and observe all policies in the course of their work to illustrate the commitment to practical application of such policy and code of conduct to their jobs. The Board's policy on CG is as follows:

1. The Board of directors, management, and all employees shall commit themselves to PTT's six good corporate governance principles, namely, Accountability, Responsibility, Equitable Treatment, Transparency, Vision to Create Long-Term Value, and Ethics, with PTT's organizational structure shall fairly balance the roles of the Board, management and shareholders.
2. The Board shall perform its duties with dedication, a sense of responsibility and independence, and there shall be a clear segregation between the roles and responsibilities of the Chairman and the President & CEO.
3. The Board shall play a vital role in formulating PTT's vision, strategies, policies, and plans while taking into consideration risk factors and establishing appropriate risk management, as well as ensuring that the accounting systems, financial reports, and accounting audits are all reliable.
4. The Board shall be the role model for ethics and shall perform their duties in accordance with PTT's good corporate governance guidelines, as well as overseeing and resolving conflicts of interest and connected transactions.
5. The Board may appoint specific committees, as deemed appropriate, to assist in reviewing critical matters.
6. The Board shall perform an annual self-assessment to be used as a framework for reviewing the Board's performance.
7. The Board shall establish the PTT code of ethics, which the Board, management and employees as well as all contract employees must adhere to in conjunction with PTT's rules and regulations.
8. Disclosure of PTT's information, both financial and non-financial, shall be adequate, reliable and timely, so that PTT's shareholders and other stakeholders receive such information in a fair and equitable manner. The Corporate Communications Department and The Investor Relations Department responsible for providing the information to general public and investors.
9. PTT's shareholders shall receive equitable treatment and have equal rights to access PTT information and appropriate communication channels with PTT
10. There shall be an appropriate system for the selection and appointment of key management positions at all levels with a transparent and fair nomination process.
11. There shall be the anti-corruption principle in PTT's corporate governance policy to ensure that the management is aware of and pays attention to anti-corruption practices and implementation.

PTT has published the latest version of "Corporate Governance, Ethical Standards, and Code of Business Ethics Handbook" on its intranet and website in Thai and English for the benefit of and reference for Thai and foreign investors and interested parties together with stakeholders.

## Policy and Guidelines for the Board

PTT's Board of Director shall comprise the person who has knowledge, expertise, and experience considered beneficial to the company. They shall devote their time to their duties and endeavor to perform them well. The Board is appointed by shareholders to oversee the company's operations. The Board in turn appoints a management team responsible for business operations; the specific committees to oversee the delegated specific matters; the company's auditor; and shall assign the Company Secretary to manage meetings and compliance with laws and regulations. The policy and guidelines for the Board are as follows:

### 1. Composition, Qualifications and Appointment of the Board

The board of Director, led by the Chairman of the Board, shall direct and control management to ensure the effectiveness and efficiency of operations, achieving of the company's targets and adding value for shareholders, the government, the public and other stakeholders.

### 2. Independence of the Board

The board shall consider, express opinions on, and vote for activities under their authority. If a decision is made under pressure from work, family, or any conflict of interest, it may be made in bias to benefit the directors in question, their family, or other contacts. The independence of the Board must be emphasized in order to protect the shareholders and the company's benefit. Therefore any director who is not entirely independent shall not make decisions.

### 3. Role, Responsibilities, and Authority of the Board

The board shall act professionally on behalf of the shareholders with high responsibility and accountability in order to steer the company in the right directions, make decisions on important matters with care and loyalty, and protect the benefits of all stakeholders. Therefore, the Board must perform their duties independently from management. Responsibilities of the board also include, but are not limited to, overseeing management's operations and results, managing risks and determining remuneration.

### 4. Role and Duties of the Chairman

- The chairman is independent from the management and has not involved in routine management with

clear segregation of roles between the Chairman and the management.

- The chairman shall regulate the board for ensuring high efficient operations. Also, the chairman shall support and provide assistance to the management's operations as under the authority delegated by the board.
- The chairman shall determine, together with the President and Chief Executive Officer, the board meeting agenda.
- The chairman shall serve as an effective chairman of the board's meetings and the shareholders' meetings.
- The chairman shall encourage the directors to perform their duty with responsibility to shareholders and stakeholders, and adhere to PTT's Corporate Governance, Ethical Standards and Code of Business Ethics.

### 5. Establishment of Specific Committees

To ensure thorough and efficient examination of key operation, the Board has established the following five specific committees, namely the Audit Committee, Nominating Committee, Remuneration Committee, Corporate Governance Committee, and Enterprise Risk Management Committee.

### 6. Board Meetings and Receipt of Relevant Documents and Information

Every board member should attend board meetings on a regular basis. The Office of the President is responsible for coordinating the meetings, arranging the venue, and preparing appropriate documents. Each director shall be informed in advance of the date and agenda of each meeting and receive supporting information.

### 7. Company Secretary

The board appoints a Company Secretary, responsible for arranging board meetings and the shareholder's meeting to ensure that they are organized in a transparent way and in compliance with applicable law and regulations.

### 8. Evaluation of the Performance of the Board

The board shall evaluate its performance annually to be used as a framework for evaluating the board's performance, and consider, review and analyze its performance for further improvement.

## 9. Remuneration of Directors and the President & CEO

The board and the president & CEO shall not remunerate themselves due to a conflict of interest. However, the Board through the Remuneration Committee shall be responsible for determining the remuneration. The Remuneration of Directors shall propose to the Shareholder for approval. (Details on remuneration for directors and management are reported under Section 2: “**7.4.2 Policy on Remuneration for Management**” and “**8.1.2 (2) Remuneration for the Board**”)

## 10. Succession Plan

The Board must ensure that PTT has an appropriate nomination process for key management positions at all levels. The President and Chief Executive Officer will be selected through a nomination process that will consider both internal and external candidates which follow the Standard Qualifications of Directors and State Enterprise Officer Act. PTT has taken steps to develop its executives and set up Group Leader Development to lay down a succession plan for personnel when the time comes for assuming higher positions that become vacant, namely: the President and Chief Executive Officer, Senior Executive Vice President or equivalent, Executive Vice President or equivalent, and Vice President or equivalent.

## 11. Directors' Development

For new directors, PTT arranges an orientation program and provides each director with a Directors' handbook, documents and useful information. Furthermore, the lectures on introduction to PTT's business operations, including policies and practices of good corporate governance, are provided in order to create knowledge and good understanding of the company. The directors are also required to enhance their knowledge, capability and skills in terms of business operation, good corporate governance and other courses that are beneficial to their operations. Accordingly, PTT shall support and encourage their training with Institute of Directors Association (IOD) as well as other institutions in all relevant courses throughout the year. In addition, PTT supports their training with regular in-house briefing by experts and consultant companies with helpful business data.

## 12. The Criteria for Serving in Various Positions of PTT Group's Executives

The principles for PTT Group executives when taking the positions as committee, advisor, professional or other positions in other companies or other juristic persons, effective from January 31, 2014, shall be as follows:

- (1) In case the chief executives of PTT Group are appointed by the royal command or by the cabinet, according to any jurisdiction, to take other positions apart from working for PTT Group, the chief executives shall notify the board, which they are working for, of such appointment.
- (2) In case the chief executives of PTT Group are appointed by government units, state-enterprises, NGO or public education institutes to take the position as committee, member of a working group, specialist, professional, advisor or other positions apart from working for PTT Group, the chief executives shall notify the board, which they are working for, of such appointment for their consideration and acknowledgement.
- (3) In case the chief executives of PTT Group are about to take the position as committee, member of a working group, specialist, professional, advisor, or other positions in other companies or other juristic persons apart from those provided in item (2) and not working for PTT Group, the chief executives shall notify the board, which they are working for, before accepting such appointment.
- (4) The executives and the employees who are not the chief executives of PTT Group but subjected to item (1), (2) and (3) above shall notify the chief executives of PTT Group for recognition and consideration, before accepting such appointment.
- (5) In case the taking of other positions as the Chief Executives in item (1), (2), or (3) and other positions as the executives and the employees, who are not the chief executives in item (4) occur before this principles is being approved and these persons are still working in the positions at present, these persons shall notify the board or the chief executives of PTT Group for recognition.

Details of the policy and guidelines for PTT Board of Directors are as shown in PTT's Corporate Governance, Ethical Standards and Code of Business Ethics Handbook, in Thai and English, on PTT Intranet and website.



## • Governance of Subsidiaries and Associated Companies

### Governance Mechanisms

PTT defined a CG policy for PTT Group by preparing the “PTT Way” handbook and the “PTT Way of Conduct” guidelines, which compile work procedures in various aspects of PTT Group so that their work procedures may be in conformity and unity as a governance tool for PTT and affiliates. All are required to practice and drive toward the same standard across PTT Group through PTT’s representative(s) assigned as directors, management, and officers. This way, PTT Group commands unity in action, leading to synergy, enhanced capability and strength in international competition for PTT Group to in turn lead to joint growth in a transparent and sustainable way.

Below is the scope of PTT Group management, which consists of five governance principles:

1. **Definition of Key Strategic Positions** for PTT’s executives and employees, based on the joint agreement of PTT Group or other business terms.
2. **Rules, Regulations and Policy**, including directives which form part of the governance designed to drive linkages between PTT Group’s policy governance and its successful implementation. Such rules, regulations, policy and directives are to be put into practice and driven toward a uniform standard throughout the group by PTT’s representatives assigned to serve in these companies as directors, top executives, management, and officers.
3. **Reporting Line and Performance Management:** PTT Group must report implementation updates under assorted policies to PTT management and/or the Board.
4. **Multi-Level Governance:** This is to proceed through governance transfer (PTT Group Way of Conduct) from PTT direct to subsidiaries. PTT authorizes this governance through its executives serving as the top executives there. To this end, such companies must develop their own group governance to convey the PTT Group Way of Conduct concept to its affiliates so that a single standard may govern the entire PTT Group.

5. **Management Committee:** PTTGMC and other policy committees play a key role in driving the efficiency of PTT Group governance since they represent a forum for consultation and joint definition of business directions. In place is regular performance reporting under the PTT Group Way of Conduct by PTT Group to PTTGMC to track business efficiency and effectiveness.

PTT also defined the key roles and duties under the PTT Group Way of Conduct as follows:

#### Roles of the Shareholder:

- Appointing the Board to work on their behalf.
- Defining the Company’s business direction or decide on matters of significant impacts through shareholders’ meetings.
- Attending to exercise their voting rights at shareholders’ meetings to appoint or remove directors, appoint the external auditor, and consider matters affecting the company, including dividend payout allocation, definition or amendment of the articles of association or memorandum of association, capital increase or decrease, and approval of extraordinary items.
- Auditing the board’s performance.

#### Roles of the Board:

- Steering the company for sound management by defining objectives and goals, strategies, and policies, and allocating key resources for objective and goal achievement, including monitoring, assessing, and ensuring performance reporting.
- Creating sustainable value for the business, leading to competitiveness and outstanding performance outcomes with due regard for long-term impacts. Engaging in business with ethics and a respect for rights while exercising responsibility for shareholders and stakeholders, among others.



- Ensuring that all directors and management execute their duties of care, loyalty, obedience (compliance with the law, corporate objectives and articles of associations, resolutions of the Board and shareholders' meetings), and of disclosure (of accurate, complete, transparent and timely information).
- Assigning explicit scopes of duty to the President and management and monitoring execution as assigned.

#### **Roles of Top Management:**

- Managing the company as assigned by the board, specifically by strictly managing the Company under the plan and budgets approved by the board with integrity and honesty, and prudently while acting in the company's and shareholders' best interests.
- Providing linkage of strategies and policies between the company and PTT Group through concrete implementation.
- Executing duties of care, loyalty, obedience compliance with the law, corporate objectives and articles of associations, resolutions of the Board and shareholders' meetings), and of disclosure (of accurate, complete, transparent and timely information).
- Executing Governance, Risk, and Compliance (GRC) and Providing Cooperation to Internal Audit.

### **Policy on Serving as Directors in Other Companies of Directors and Management**

This year PTT had 34 affiliated companies, five of which are SET-listed flagships. PTT therefore adopted the PTT Group management structure for synergy and alignment of policies. To achieve this, The Board of Directors appointed directors or management team members as directors in these companies to supervise policies and business management which aligned with PTT's policies for the benefit and value addition for all stakeholders. The objectives of such appointments are:

- 1) To ensure that the management of a given company aligns with the policies of PTT Group, monitor its overall business performance to align with PTT's policy, and institute comparable standards.
- 2) To establish synergy for the business of PTT Group and add value to all related parties, including Thailand as a whole.
- 3) To apply specific expertise in support of business, including financial know-how to improve accounting and financial processes to enable a given company to grow robustly. This includes assistance to companies outside PTT Group. The resulting application of the knowledge and expertise gained from serving in such leading companies will enhance the benefit to PTT and foster cordial relations and business alliance with PTT.
- 4) This is part and parcel of the responsibility of the directors and management of PTT.

PTT ensures its consideration of executives or outsiders from the Ministry of Finance's Director's Pool for appointment within PTT Group, regarded as a state enterprise, based on the pertinent act on standard qualifications of state enterprise directors and employees. Chosen directors from the pool must make up no less than one-third of other directors of a given state enterprise. As of December 31, 2020, PTT had 28 members who belonged to the Director's Pool. It also ensures that PTT executives and such outsiders who serve as directors of PTT affiliates serve on no more than three PTT affiliates or other state enterprise affiliates. This is designed to lower risks of conflicts of interest and ensure conformance to applicable laws, as well as conformance to a Cabinet resolution of January 24, 2011, on fraud preventive measures at state enterprises, entitled "The appointment of senior government officials or persons as directors on multiple state enterprises", as proposed by NACC.

In addition, the Board defined guidelines and criteria for serving in various positions by PTT Group's executives. In 2015, the Board decided to adopt them as part of the CG Handbook.

## Policy and Guidelines Related to Shareholders and Stakeholders

### 1) Shareholders' Rights

As the owners, shareholders are entitled to determine PTT's business direction or decide on matters of significant impacts. Shareholders' meetings therefore serve as their key forums for the expression of views, questioning, and voting apart from the election of directors to supervise PTT's operations on their behalf. Shareholders are entitled to attend shareholders' meetings, take adequate deliberation time, and acknowledge meeting minutes.

#### Shareholder's Meeting

PTT schedules an Annual General Meeting (AGM) within four months of the annual closing date of its accounting books. For urgent matters that affect or involve shareholders' interests or involve conditions, regulations, or laws that require shareholders' approval, however, it can call an extraordinary meeting of the shareholders (EGM).

This year, The AGM was scheduled for April 10, 2020 at the Bangkok Convention Center, 5<sup>th</sup> floor, Central Plaza Lardprao, 1695 Paholyothin Road, Chatuchak District, Bangkok, 10900. However, due to the outbreak of the Coronavirus Disease 2019 (COVID-19), the government has announced a state of emergency declared in all area of the Kingdom of Thailand on March 25, 2020. PTT closely monitoring in this situations and the Board had finally decided to postpone the AGM and rescheduled it on Friday July 3, 2020. The meeting held at PTT Auditorium, 2<sup>nd</sup> Floor, PTT Public Company Limited, 555 Vibhavadi Rangsit Road, Chatuchak, Bangkok, 10900, Thailand.

Even the outbreak of the Coronavirus Disease 2019 (COVID-19) situation, the meeting was organized in accordance with the AGM Checklist, prepared by the Thai Investors Association (TIA), Thai Listed Companies Association (TLCA), and Securities and Exchange Commission (SEC). In 2020, PTT received a full score of 100 points on the AGM Checklist for the eighth consecutive year.

### Delivering Meeting Notices

For this year's AGM, the special meeting of the board No. 2/2563 (2020) of April 30, 2020, decided to call a meeting on July 3, 2020. Its decision, meeting date, and meeting agenda were disclosed in detail ahead of time by announcing on SET's website to notify shareholders before sending meeting notices. PTT assigned Thailand Securities Depository Co., Ltd. (TSD), its securities registrar, to mail the notices together with agenda details and accompanying documents, supplementary and supporting information for decision-making, opinions of the Board, complete minutes of the last meeting, the annual report, meeting documents, and proxy forms with complete instruction for shareholders more than 14 days before the meeting date. The meeting notices were sent on June 2, 2020, and three days before the meeting, the invitation was announced through one Thai and one English newspaper, each for three consecutive days (June 27-29), to allow shareholders enough time to prepare themselves for the meeting.

The AGM meeting notice and supporting documents were made available at PTT's website ([www.pttplc.com](http://www.pttplc.com)) 30 days before the meeting date (starting on June 2).

### On the Meeting Date

Before the meeting, the Chairman of the meeting introduced the directors, management, the external auditor, and the legal advisers who served as a neutral party and witnesses. The Chairman then elaborated on the voting and ballot counting for individual agenda items under PTT's Articles of Association as well as voting procedures for each item. Once information had been provided on each item, the Chairman gave a chance for all attendees to comment or provide recommendations and ask questions, allowing adequate time for debate. This year, for good public hygiene, PTT provided paper and question form online for shareholders instead of using microphones. The Chairman and management answered all questions clearly and precisely, treating all questions with due respect. For the election of directors, individual votes were required.

The Chairman ensured that the meeting proceeded by the order of the agenda and did not add any item without notifying shareholders in advance. If the meeting should decide to change the order of the agenda, it would need, under PTT's Articles of Association, at least two-thirds of the votes of the shareholders in attendance. Alternatively, the shareholders with at least one-third of all subscribed shares may ask the meeting to consider other matters not mentioned in the meeting notice. At the 2020 AGM, the order of the agenda was not changed, and there was no request to consider any other matter.

At every meeting, the minutes must be completely and accurately recorded with the vote tally on each applicable agenda item. As a rule, a shareholders' meeting lasts 3 - 4 hours. The 2020 AGM began at 1:30 p.m., with registration beginning at 11:00 a.m. At the meeting's opening, a total of 2,081 shareholders registered, of whom 261 were shareholders and 1,820 were proxy holders, holding a total of 21,663,766,756 shares, or 75.8456 % of the total, which exceeded one-third of all PTT's subscribed shares of 28,562,996,250. Below is a description of meeting attendants and those responsible for issue clarification:

- All 14 PTT directors attended the meeting. The Chairman presided as the Chairman of the meeting with the specific committee chairmen, members, the President & CEO, Chief Operating Officer, Upstream Petroleum and Gas Business Group, Chief Operating Officer, Downstream Petroleum Business Group, Chief Technology and Engineering Officer, and Chief Financial Officer together provided supporting information on stage. The Senior Executive Vice Presidents, Executive Vice Presidents, and Management of PTT Group were attended at the front rows to provide information for relevant questions. Independent directors served as proxies for minor shareholders.
- The external auditors from the State Audit Office of the Kingdom of Thailand were Ms. Mayuree Juntamat (Bureau Director) and Ms. Phakawan Sueblao.
- Legal advisers from Weerawong, Chinnavat and Partners Co., Ltd. (witnesses in charge of the examination of voting disputes throughout the meeting): Mrs. Veeranuch Thammavaranucupt and Ms. Patcharaporn Pootranon.

#### Shareholder Count (as the AGM adjourned at 4:00 p.m.)

A total of 3,094 shareholders, 315 shareholders and 2,779 proxy holders, attended the AGM, representing a total of 23,615,980,317 shares or 82.6803% of the total shares.

#### Practical Guidelines for Reporting Conflicts of Interest

As specified in the PTT CG Handbook, all directors, management, and employees must prepare reports on conflicts of interest, consisting of annual reporting forms and a new interim reporting format in case of changes. At a given meeting, those with vested interests or conflicts of interest with PTT must inform the meeting to excuse themselves and abstain from voting on each such matter.

At each shareholders' meeting, any director with vested interests or involvement on any agenda item must inform the meeting to excuse themselves and abstain from voting on each applicable agenda item.

#### Disclosure of Shareholders' Meeting Outcomes

For the 2020 AGM, PTT submitted a summary of AGM resolutions to SET and SEC on the evening of the meeting date (July 3, 2020). It also submitted the minutes of the AGM (each agenda clearly separated, the number of directors in attendance/absence, questions raised by shareholders and answers from directors, together with the voting tallies of each agenda item) to SET and SEC within 14 days of the meeting. Meeting information, video-recording, photos, and audio-recording are accessible through PTT's website.

## 2) Equitable Treatment of Shareholders

PTT treats all shareholders fairly despite their different shareholding proportions and corresponding voting power. Shareholders' fundamental rights are conserved regardless of their gender, age, race, nationality, religion, belief, social status, physical impairment, or political inclination. Information on the shareholders' meeting was announced ahead of the meeting in Thai and English. Directors with vested interests on any agenda item must excuse themselves from the meeting on that item. All shareholders has equal rights to take part in PTT's activities.

## Proposing Additional Meeting Agenda Items and Nominating Directors

To enable minor shareholders to take part in business oversight, for the 2020 AGM, PTT has defined the criteria and consideration process for entitling them to propose meeting agenda items or nominate directors in advance, or both, so as to deliberate agenda items that could prove useful to PTT, including the selection of qualified directors to perform their duties efficiently in the best interests of PTT, shareholders, and stakeholders. In practice, shareholders with a combined holding of at least 5% of the total eligible votes or at least 1 million shares held uninterrupted at least one year could propose agenda items or nominate directors before the AGM from September to November 2019, in case the nomination of directors needed the approval of the State Enterprise Policy Committee (SEPC), under the guidelines for the appointment of state enterprise directors under the resolution of the Cabinet of August 6, 2019.

For this year's AGM, PTT posted such criteria on its website and an announcement on SET's website from September 1 to November 30, 2019. However, this attracted no recommendation of such agenda items or nomination of directors, and the Company Secretary duly informed the Board meeting on the matter.

## Facilitating Shareholders at the Meeting

Though the AGM was convened under the COVID-19 pandemic, where the safety and health of attendees was crucial, PTT did its best to facilitate all shareholders by manning officers to welcome and take care of them, and provided adequate convenience under social distancing measures, back-up meeting rooms were arranged, as was a signal relay system between meeting rooms. Security precautions and emergency contingency plans were in hand. Examination of registration credentials was available seven days in advance. Officers provided photocopying services and verified documents. On the meeting day, registration opened two and a half hours early and extended until the period before the last meeting agenda. A barcode system facilitated registration and voting.

Since most shareholders at the AGM were Thais, it was conducted in Thai. However, for the benefit of foreign shareholders, PTT commissioned the translation of shareholders' meetings, supplementary documents, and relevant documents into English. Its website is also bilingual. It also provided officers with a good command of

English on hand at meetings to facilitate foreign shareholders. If shareholders cannot communicate in Thai but want to pose queries or discuss topics at the meeting, PTT arranges for suitable communication and provides translation into Thai both queries and answers for the benefit of other shareholders to preserve their rights and ease communication needs for foreign shareholders.

## Appointing Proxies

To maintain the rights of those who could not attend the 2020 AGM in person, they could appoint proxies or delegate their votes to any independent director in attendance. To this end, PTT has specified these independent directors' names on proxy forms defined by the Ministry of Commerce for voting on behalf of shareholders without conditions. PTT treats proxies as if they were shareholders. As a rule, 30 days before each meeting, PTT discloses the proxy form, attached with details and procedures, on its website. Shareholders may make further inquiries about this by phone or through other channels such as PTT's website and e-mail.

## 3) Roles Toward Stakeholders

As the national energy company, PTT accounts for all stakeholders' rights and interests by establishing guidelines for addressing the needs of each group in and outside the corporation, as well as its own responsibility for society and the environment. Stakeholders fall into six groups with a different mission targeted for each group in response to their different needs:

**Public Sectors:** Ensuring long-term energy security by providing adequate high-quality energy supply at fair prices to support economic growth.

**Communities and Societies:** Maintaining an excellent corporate standing in Thai society by exercising environmental stewardship of internationally standards and improving the quality of life for communities and societies.

**Investors:** Operating profitable businesses that lead to sustainable growth while generating optimal returns

<b>Customers:</b>	Ensuring customers satisfaction and loyalty by delivering world-class quality products and services at fair prices.
<b>Supplies and Partners:</b>	Conducting fair business practice with all partners while promoting trust, good relationship, and cooperation to expand business capability and increase efficiency in long-term business partnerships
<b>Employees:</b>	Promoting capability building professionally and ensuring that employees' well-being is level with other leading companies in order to strengthen employee engagement

## Treatment of Six Main Stakeholder Groups

### 1. Public Sectors

As the national energy entity with a crucial mission to drive Thailand under the national strategies and tasked with a mission to achieve long-term energy security through supply of energy of sufficient volumes, standard quality, at fair prices, and in support of public policy to promote national economic growth, PTT conducts major operations as listed below.

- 1) Energy security:** PTT leverages its investment budget to relentlessly develop energy infrastructure to accommodate rising energy consumption, including growth in gas transmission systems and capacities, LNG-receiving terminals, power plant investment, and pursuit of an ASEAN LNG trading hub together with investment in emerging businesses, including the battery and renewable energy businesses. In sourcing energy supplies to meet domestic demand, PTT executes risk management plans for supplies from various sources to ensure adequate volumes, quality, and standards including sourcing of natural gas to embrace indigenous deposits, imports from neighboring countries, or power-business growth both domestic and international to satisfy national energy demand.
- 2) Public policy support for economic growth and mitigation of COVID-19 impacts** along with support for the national grassroots economy closely with the public sectors. The key actions of 2020 are as follows:

- **Restart Thailand:** In supporting public policy, PTT and PTT Group prepared to recruit more than 25,000 new graduates and workers to stimulate the Thai economy and develop society through the Restart Thailand Project, as well as supporting domestic tourism through seminars outside and employees' domestic travel.
- **State welfare card project - LPG for low-income earners:** Support of partial LPG subsidy, a project under the Ministry of Energy and the Ministry of Finance, was extended to the low-income earners, hawker groups, and food stalls with state welfare cards to reduce their living costs, stimulate the grassroots economy, and promote low-income earners' businesses.
- **Discount retail NGV prices for public transportation:** Support of discounts of retail NGV prices was extended to operators of public transportation including taxi drivers, mini-buses, BMTA's joint-venture mini-buses and regular buses, the Transport Co., Ltd.'s joint-venture mini-buses and passenger buses, other mini-buses and tuk tuks, to help reduce economic impacts of COVID-19.

### 2. Communities and Societies

PTT is committed to driving Thailand through enhanced national energy security and economic growth in parallel with a better quality of life for society and communities by applying the Sustainable Development Goals (SDGs) of the United Nations, the 2018 - 2037 National Strategies, the result of surveys of PTT Group stakeholders', society's and communities' needs, information on significant economic, social and environmental directions, including anticipated impacts after COVID-19, and PTT Group's skills as guidelines for social development endeavor. PTT emphasized implementation **in two aspects: human resources, community and social development** through educational development in sciences and technology fields, including the 21<sup>st</sup> Century essential skills to support smooth transition into the future as well as skill development to elevate the life quality of the community to self-reliance through occupational promotion of community projects and businesses, and the promotion

of green energy; and **Natural resource and environmental conservation** through increasing and conserving of rural and urban green space and forests with emphasis on community participation in the designing process to maintaining process to reduce impacts of climate change and conserve the eco-system.

Details are as shown in Section 1: Business Operations and Performance “**3. Driving Business for Sustainability**”.

### 3. Investors

PTT remains committed to being an organization that contributes to the economic growth. Enhancing the competitiveness of the country, developing society and improving the quality of life. Moreover, creating innovation and implementing technology in all sectors as well as being a driving force in people's way of life, society, community, environment to move through change Under vision “Powering Life with Future Energy and Beyond” and taking into account the three aspects of balance (ESG): Environmental, Social and business operations under good Governance as well as implementing 4R strategies (Resilience, Restart, Reimagination and Reform). To be assure for the investor that PTT will be a company that operating profitable business, leads to sustainable growth while generating optimum returns.

#### Investors' Activities (common shareholders)

Since 2006, PTT has arranged ongoing trips for minor investors to visit its operations, update information, and meet management as well as participating in PTT's CSR activities in Rayong.

This year, due to the outbreak of the Coronavirus Disease 2019 (COVID-19), PTT decided to halt the company site visit to prevent the spread of COVID-19.

Shareholders are interested in taking part in the visits next year (2021) can follow project updates and details on PTT's website. PTT reserves the rights to invite only those that have never taken part in this activity.

#### Investors' Activities (debenture/bond holders)

PTT has issued and offered debentures to shareholders since 2003. This year, PTT issued new Baht-denominated debentures of THB 35 billion and redeemed other debentures totalling THB 26.118 billion. At this year-end, PTT's Baht-denominated debentures holders numbered 22,700. Since 2010, PTT has staged ongoing debenture holders' activities to serve as a channel for maintaining cordial relations with them and repay them for the confidence in PTT bonds over the long term. This year's activities were diverse to meet the needs of debenture holders. As a precautionary measure, PTT stressed social distancing to comply with the government's policy for maximum safety and confidence of the participants, and advanced technology were used in the activities. This year activities included:

- Two visits to PTT's business operations. The first was a trip to gas separation plants (GSPs) and the HRH Princess Maha Chakri Sirindhorn Herb Garden in Rayong in October; the second, to the Kamnoetvidya Science Academy (KVIS), Vidyasirimedhi Institute of Science and Technology (VISTEC), and Wangchan Forest Learning Center, Wang Chan district, Rayong in November.
- Relationship activities, including seminars, workshops, and annual concerts, the latter via live streaming for debenture holders' convenience and less risk from overcrowding and COVID-19.
- The “happiness” quarterly journal, which communicates corporate data, provides energy knowledge, and edutainment articles, was found to be highly suitable and satisfactory by target debenture holders.

PTT has organized a new activity, Happiness at Home (Online), for debenture holders to participate in the video clips of their interests via PTT Debenture Line Chatbot, such as yoga, singing and cooking.

PTT is committed to raising its efficiency and satisfaction of debenture holders by adding the PTT Debenture Line Chatbot channel for them to access data of the PTT Debenture Club, including application and verification of the rights to attend activities, personal data, activity participation via live streaming, video on Happiness at Home, and online magazine subscription



### Activities for Institutional Investors

This year, due to COVID-19, PTT modified the activities for institutional investors by applying digital technology to their communication via online and as a new communication channel for all global investors. The format of the activities was redesigned to comply with the government's measures on social distancing; advanced technology was applied to organizing the activities, including Webex and Facebook live, both Thai and English. As a result, the number of roadshows and conferences held was close to that of the previous year despite COVID-19. In addition, PTT has developed its digital technology regularly, with more functions added such as information service for analysts and institutional investors, and automatic query answering via PTTIR Line Chatbot, updates on AGM schedule and analyst meetings of PTT Group, which have been included into the calendar, and updates of dividend payment, all designed to facilitate and enhance the efficiency of access to information by analysts and institutional investors.

## 4. Customers

PTT divides its market into domestic and overseas with two major groups of customers: Business to Business (B2B), which consists of customers in gas, international trading and infrastructure businesses, and Business to Customer (B2C), with customers in the vehicles and gas business, where the core products are natural gas, crude oil, petroleum products, petrochemicals, and chemicals.

PTT listens to customer needs and expectations to analyze them through assorted channels, including customer visits, seminars, opinion surveys and customers information via online channels which also provide information on competitors, state of competition and technology, customers' behavioral trends and lifestyles, market environment, and future needs of customers. All input is reviewed together with other information, namely situations and trends of energy economics, public policies, regulations, technological innovations, financial and economic data for the design of products and services that match the needs and expectations of current and future customers.

Constantly, PTT developed supporting systems to facilitate and ensure customers' accurate, timely and correct transactions with PTT, including Robotic Process Automation (RPA) in the e-Billing and e-Payment, SMART Deal Recap to support trading processes, and added a new communication channel (LINE Official) to ease contact. In addition, training and seminars were held online as well as communication with customers to provide useful information, knowledge, and forge good relations during the virus spread.

PTT also developed a service standard manual and procedure manual that are comprehensive, including manuals on service station standards, gas customers, pipeline emergency response plans, gas pipelines for industrial factories, and procedures for gas metering. It provided its services in compliance with the standard controlled by the Energy Regulatory Commission of Thailand and regularly reported its operations to the commission as required or, in the case of violation of the standard, within the specified period.

PTT developed means to foster relations with customers suiting each life-cycle of customers, designed to lead to repurchase and "word of mouth" to others, which form the ultimate goal. In place is PTT satisfaction, dissatisfaction and engagement assessment versus competitors via the annual satisfaction survey, featuring constant query development. To this end, PTT considers the outcomes directly with customers' purchasing behavior to allow survey outcomes to reflect current operations while extending future businesses more clearly. Customers' satisfaction and dissatisfaction have been regularly compiled and analyzed so that PTT may know trouble indicators and promptly resolve problems, thus preventing losses of customers or competitors' intervention.

PTT Group complaints by severity of impact, with defined service level agreements for different complaints, concerning which relevant units must resolve problems within given periods. All complaints must be addressed within 24 hours and after problem resolution, an inquiry will be made to customers to determine their satisfaction with PTT's problem-solving. At the same time, customers will learn about PTT's long-term problem-solving plans. This ensures that customers are satisfied and will continue to buy PTT's products and services.

Constantly valuing customers' convenience and safety, PTT launched projects like the PTT Tune-up Project, under which free engine checks and tune-ups are given.

	Natural Gas					International Trading
	Natural Gas	Power Plant and Wholesale Market Industry	Industry	Petroleum and Petro chemicals	NGV	
2020	91.8	89.9	92.4	91.7	88.4	95.6
2019	92.2	90.6	92.7	93.1	88.4	96.2
2018	90.6	87.8	91.2	94.4	88.1	91.0

## 5. Supplies and Partners

Since Supplies and Partners are key to business success through mutual support, PTT values and treats them fairly through fair competition, mutual respect, and good cooperation. PTT strictly complies with contracts and procurement processes since they are vital to the determination of expenses and the quality of PTT products and services. A clear procurement procedure is in place to ensure transparency, accountability, and maximum benefit.

To achieve its resolution, PTT is committed to do business for sustainable growth in parallel with good governance for communities, society, and the environment. It therefore values supply chain management such that it is clearly in place by developing risk management processes and mitigation of impacts arising from business partners' conduct to support the success of supply chain management. The key factors for the drive are as follows:

### 1. Clear business policy and directions

This means PTT's policies and strategies are key factors for forging awareness among employees and society of PTT's commitment and business directions. Therefore, PTT issued a PTT Group policy on **procurement and sustainable business partner management** in 2015 so that PTT's business partners' conduct guidelines may be more in line with, and more suitable for, the sustainable organizational management concept. The company revised the PTT **Supplier Sustainable Code of Conduct** (SSCoC) and announced its third edition on August 3, 2015, defining the contents and scope under applicable regulations and laws, together with the aspects taken seriously by PTT, consisting of 4 main topics:

1. Business Ethics
2. Social Responsibility
3. Safety
4. Environmental Management.

## 2. Sustainable business partner selection and management process development

To align supply chain management with corporate directions, PTT manages its business partners with due regard for ESG (Environmental, Social, and Governance) impacts. Assessing risks and impacts from the perspectives of the environment, society, and oversight of goods and services groups, PTT divides business partner management into critical, key, and managed (in order of potential severity of impacts) levels. For those in the critical group, management actions will be more intensified than the other groups. Besides, formally acknowledging the guidelines for sustainable treatment of PTT's business partners, they must respond to the Sustainability Performance Assessment Form. After self-assessment, if they fail, they will need to formulate ESG Corrective Action Plans. PTT reserves the right to audit business partners' self-assessment outcomes. In 2020, PTT team in conjunction with a third-party agency conducted sustainability assessment of 12 "Critical" business partners. Overall, their scores passed the criteria set by PTT. A project designed to develop business partners' sustainable operation caliber was launched, under which PTT selected major business partners whose operations involved ESG for training on sustainability capability development of business partners and practices on sustainability capability self-assessment for development planning in line with PTT's policy. In addition, PTT commands a policy on green procurement conforming to the public sector. A system was developed in support of green procurement through the PTT Vendor Management System, which compiles green spending data. Vendors who won price bidding can report their choices of green products in serving PTT. As of the year-end, 39 tasks were related to such green spending and green products, valued at some THB 68 million.

PTT and PTT Group seriously take the reduction of risks in product/service supply, boosting of confidence in supplier services, and sustainable procurement of international standards of PTT Group. This year, PTT passed the audit on the implementation under the standard criteria of ISO 20400:2017 Sustainable Procurement from the Management System Certification Institute (Thailand) (MASCI) for the joint product/service procurement of PTT Group, and started applying this standard in joint procurement with three groups among PTT Group. It planned to extend this practice to cover all business groups in 2021.

In addition, to illustrate PTT's "Pride" action in being a transparent company, it joined public agencies in preventing and suppressing corrupt practices by signing a memorandum of cooperation on driving such actions with the Office of the National Anti-Corruption Commission (NACC), State Enterprise Policy Office (SEPO), and state enterprises to ensure that the national strategy on prevention and suppression of corrupt practices, relevant measures, relevant government policies, and action plans are successfully driven to implementation in state enterprises under CG. To this end, for the provision and disclosure of information on procurement, PTT disclosed related data in compliance with the announcement of the Official Information Commission on the requirement that information on the outcomes of procurement deliberation of public agencies must be open to the public under Section 9 (8) of the Public Information Act of B.E. 2540 (1997). Disclosure is to be done monthly through [www.pttplc.com](http://www.pttplc.com) for public examination. Note that PTT's procurement information disclosure is subject to annual assessment through a project on State Enterprise Integrity and Transparency Assessment (ITA), sponsored by NACC. This year's score for PTT was 100% on procurement information disclosure, based on the assessment of visual evidence inspection.

Since August 24, 2017, PTT has complied with the Public Procurement and Supplies Administration Act, B.E. 2560 (2017). It amended its own processes by requiring the disclosure of its annual procurement plan for interested parties to join price bidding contests at PTT and manage their bidding readiness. PTT has disclosed its 2020 annual procurement plan via three channels: [www.pttplc.com](http://www.pttplc.com), e-Government Procurement (e-GP) of the Comptroller General's Department, and bulletin boards at PTT offices. It has appointed a Procurement Governance and Audit Committee to ensure transparency of procurement, both those requiring compliance with Public Procurement and Supplies Administration laws and those direct commercial procurement requiring compliance with PTT regulations already approved by the Public Procurement and Supplies Administration Policy Committee. The committee consists of executives from procurement and legal units and the Office of Corporate Audit, charged with roles and responsibility for governing and audit procurement processes to ensure compliance with laws, regulations, criteria and relevant processes. Annually, the committee inspects procurement processes randomly to detect deficiencies,

causes, and preventive measures. In 2020, management, committed to the vision of being a transparent organization, requested each department to set KPIs for procurement compliance to ensure that each such procurement is worth the value, transparent, fair, efficient, effective, and auditable.

PTT puts in place a system called Material Received (MR) on the web, through which user units assess business partners in assorted aspects, including quality, delivery, service, performance, SSHE, and sustainability. Initially, assessment outcomes will be released to register business partners for further improvement.

### 3. Capacity-building of relevant parties

Since the mastery and caliber of relevant parties represent another key factor driving the success of this matter, PTT values **capacity-building on procurement and management of business partners** by PTT's own executives and staffs in a systematic and suitable way. This is achieved through training, communication, and Knowledge Management (KM), so to achieve the sustainability objectives of business partner management. In addition, PTT establishes business partners' readiness and communicates with them in parallel, so that they may prepare themselves for developing their own businesses along the sustainability approach (PTT Supplier Sustainable Code of Conduct).

To promote the sharing of data and knowledge between PTT and business partners while nurturing their caliber to support PTT's success, business continuity, and social responsibility, this year PTT staged **Supplier Relationship Management Seminars (SRMs)** to communicate PTT's business direction under Governance, Risk and Compliance (GRC) for transparency, fraud-free execution of tasks, suitable complaint channels, and communication of human rights in the supply chain. This year PTT communicated and educated suppliers on the new procurement system under the Digital Procurement Project, where technology is applied to the procurement process, on the Procurement Website, which compiles business opportunities on [www.pttplc.com](http://www.pttplc.com) and the PTT Vendor Management System to facilitate trade partners and interested parties, including premises's overview of PTT Head Office, the Rayong GSP, Gas Transmission, and NGV for Vehicles (a total of three exercises) via online using teleconference technology in parallel with arrangement with proper social distancing.

PTT requires price bidders to strictly conform to the rules of work safety and handling of tools, as well as other regulations, particularly the types of work affecting health, safety and the surroundings. PTT visits business partners' sites to assess their capabilities, particularly those on the QSHE side. In addition, business partners' employees must undergo the do's and don'ts on PTT's sites in addition to conforming to the requirements for entering sites to work, as described for each.

PTT Approved **Vendor List (PTT AVL)** is prepared for the benefit of procurement through bidding to ensure that, under the process to determine business groups and procedures or methods of selecting business partners to register for PTT AVL, business partners are efficient and deliver products/services that meet PTT's requirements and foster sustainable partnership with PTT. This year the PTT AVL consisted of 253 companies from 19 business groups.

To ensure efficient preparation of PTT AVL, PTT considers the criteria, conditions, qualifications of business partners who apply to PTT AVL in each business group. The initial qualifications of the business partners must meet the following requirements:

1. Business partners must never have abandoned the work of PTT, the public sector, state enterprises, and government agencies.
2. If business partners were removed from the Vendor List, they would have no rights to apply for registration in that particular business group for three years. An exception applies if the removal was the result of abandoning the work of PTT, state enterprises, and public agencies, in which case PTT will not accept them to PTT AVL until PTT receives a letter proving the cancelation of such removal.
3. Business partners must understand and acknowledge PTT Suppliers' Sustainable Code of Conduct (SSCoC).

Apart from these initial criteria, PTT assesses business partners' operations and sustainable implementation in parallel.

After business partners deliver products/ services in each allotment, PTT will assess and notify them of the strengths/ improvements to make in operation for future supplier development.

Moreover, PTT supports Thai suppliers of goods and services and gives them the top priority. Past procurement information reveals that PTT has procured about 97% of local products, generating cash flow in the Thai economic system, promoting procurement of products from the areas where PTT sites are located, and promoting jobs and generating income for people in the communities.

## 6. Employees

**Employee** data are reported under Section 7: “7.5 Employees”.

### Respect for Universal Human Rights Principles (Code)

PTT requires that all directors, management, and employees observe laws, customs, and cultures which differ in each country where PTT invests and strictly respect universal human rights principles under the Universal Declaration of Human Rights. This is the minimum requirement of its business operations.

In 2017, to ensure complete and proper compliance by PTT with laws and regulations, PTT was established a Compliance Department under the Office of General Counsel to compile laws and regulations, assess risks, support corporate units in proceeding with defined approaches, monitor and inspect, and report on compliance outcomes to the top management and relevant committees.

With the rollout of the human rights management system in 2017, PTT has reviewed risk aspects on human rights covering PTT Group’s business operations under the PTT Group Way of Conduct of 15 group companies in 14 countries, or a total of 30 areas. What the group found were aspects that represented core operational risks: safety and occupational health, migrated labor, security, suppliers’ workplace conditions, standard of living of communities, and the rights of natives. Control measures have been developed and applied along with human rights management plans to keep risks manageable. As assurance of maximum effectiveness, implementation of this plan is to be monitored every quarter. This year no human rights complaints arose. Constantly, PTT disclosed operating information under the 10 Principles of the United Nations Global Compact. Finally, PTT enrolled in the effectiveness assessment of operating outcomes on human rights organized by Corporate Human Rights Benchmark, with the outcomes also encouraging.

## Significant Disputes with Stakeholders

This appears under “Section 1: Business Operations and Performance, 5.2 Legal Disputes”.

## Disclosure of Information and Transparency

Disclosure of information is a key index of operating transparency, a crucial factor for confidence among investors and stakeholders. PTT values accurate, precise disclosure of assorted information and creates numerous channels of disclosure so that all stakeholders can gain easy access to information. It promotes awareness among directors, management, and employees of the importance of information disclosure and transparent operations, and creates appropriate avenues for complaints while providing fair treatment to whistleblowers and those complained against as follows:

## Financial and Non-financial Reports

PTT disclosed its sustainability reports and performance, taking into consideration all stakeholders’ interests, covering environmental, social and governance (ESG) aspects, through the annual information disclosure form/annual report (Form 56-1 One Report) under ‘Driving Business for Sustainability’ and included information on the outcomes of sustainability implementation in risk management, management’s discussion and analysis (MD&A), and CG, based on Global Reporting Initiative (GRI) Sustainability Reporting Standard 2016, and Sustainability Reporting Guidelines and Oil and Gas Sector Disclosure (OGSD). It presented data under the Integrated Reporting (IR) model of the International Integrated Reporting Council (IIRC) along with reporting progress on the 10 Principles of The United Nations Global Compact : UNGC and illustrating PTT’s commitment to supporting the UN SDGs. Further, PTT applied the Recommendation of the Task Force on Climate-related Financial Disclosures (TCFD) to report performance on climate change. There also was a report review to validate the information by an external party regularly. Form 56-1 One Report were delivered to the shareholders this year and are accessible to those interested via [www.pttplc.com](http://www.pttplc.com), GRI and UNGC.

## Investor Relations

Ever since PTT's privatization and share trading on SET in October 2001, Investor Relations has centralized essential information to investors and shareholders, with financial data like the quarterly performance and financial statements, quarterly MD&A, corporate strategies, and outlooks of PTT, which are regularly, fairly and thoroughly disclosed. Investors may call Investor Relations at 0-2537-3518-9, e-mail: [ptt-ir@pttplc.com](mailto:ptt-ir@pttplc.com), and log on to the PTT website at [www.pttplc.com](http://www.pttplc.com), which is regularly updated, for information in Thai and English, which includes:

- Company information
- Annual report (Form 56-2)/ Form 56-1/ Form 56-1 One Report
- Information on holders of common shares
- Information and activities for debenture holders
- Presentations and webcasts
- Roadshow/ conferences
- Analyst Research
- Activity Calendar
- Code of Conduct for Investor Relations
- Major investment project information
- Policy and business direction statements by management
- Compliance with public policies
- Key plans
- CG policies and promotional activities
- Financial performance
- Non-financial performance
- Highlights of CSR activities
- Procurement
- Name and contact number of Investor Relations.

Through the years, PTT has valued disclosure of information that is accurate, complete, transparent, and comprehensive, as well as continual direct and indirect presentation of performance while keeping investors, shareholders, and relevant parties informed of its data. Highlights appear below:

- **Direct:** PTT regularly reports performance, capital budgets, and industry outlooks to analysts, institutional investors, and employees at quarterly analysts' meetings, this year through a virtual conference (Webex and Facebook live), in Thai and English; conference calls as requested; local and international roadshows/ conferences organized by domestic and international financial institutions; company visits by analysts, investors, or related parties such as credit rating agencies, or all of these, through virtual conferences (Microsoft Team and Zoom); press meetings, to discuss performance outcomes and investment projects; basic upstream and downstream business knowledge involving PTT, with the cooperation of PTT and PTT Group (PTTEP, GC, Thailoil, IRPC, and GPSC) and PTT Group 101 Knowledge Sharing, held for Krungthai fund managers; information on strategies and business goals of each company, as well as answers to queries of interest by investors and analysts to ensure that they were well informed of PTT Group's business direction and opportunities for national energy security; SET Opportunity Day via virtual conferences (PTT Microsoft Team); global institutional investors meeting via a digital platform (SET Digital Roadshow) quarterly held by SET, and by domestic and international securities companies.



This year, the following key activities took place:

Activity	2018 (Times)	2019 (Times)	2020 (Times)
Analyst Meetings via Facebook Live/ Webex	4	4	4
Conference calls (presentations of quarterly performances, capital investment, and other key events)	5	5	4
Domestic roadshows/ conferences (including provision of basic PTT business knowledge, including virtual conferences)	12	14	15
International roadshows (including virtual conferences)	14	9	9
Company visits/ conference calls (upon request)	55	57	56
Credit rating review	4	4	4
Press meeting	2	2	2
Company visits by analysts and institutional investors	4	4	-
E-mail/ phone calls	8 - 10 times/day	8 - 10 times/day	10 - 12 times/day
Quarterly SET Opportunity Days and SET in the City	5	5	4
Participation in SET Digital Roadshows (organized by SET)	4	4	4
Minor investors' meetings with management and company visits	One visit (2 groups), Oct. 30 - 31	Two debenture holder visits (2 groups), Apr. 18 - 20 and Oct. 16 - 18 One common shareholder visit (3 groups), Oct. 29 - 31	Two debenture holder visits (2 groups), (Oct. 6 - 8, and Nov. 24 - 26) No common shareholder visit due to COVID-19
Relations activities with debenture holders	15	17	15 (5 via online channel)

- Indirect: Information about PTT, its performance, financial statements, and reports filed with SET are found at [www.set.or.th](http://www.set.or.th), [www.pttplc.com](http://www.pttplc.com), the "Happiness" magazine for debenture holders (via the PTT Debenture Application).
- Investors and interested parties can also mail inquiries to Investor Relations at Tel. 0-2537-3518-9, through e-mail at [ptt-ir@pttplc.com](mailto:ptt-ir@pttplc.com) or at [www.pttplc.com](http://www.pttplc.com). In addition, PTT has constantly publicized news, business activities, operations and project updates apart from addressing questions and facilitating contacts for the media and the public.

In 2018 - 2020, the activities appear below:

Activities	2018 (Times)	2019 (Times)	2020 (Times)
E-mails	225	186	117
News/ photo releases	225	186	117
Press conferences	12	22	6
Media visits to operations (domestic and international)	6	3	2
Welcoming and providing information to visiting agencies for assorted purposes	65 Groups (3,026 persons)	64 Groups (2,521 persons)	7 Groups (483 persons)

#### 4) The Use of Inside Information

PTT has defined guidelines in its CG handbook for all employees on best practices on the use of inside information and guarding of confidential information. They must guard PTT's inside information or confidential information not yet publicly available and must not share with other parties inside information learned during the course of their duties or use it to seek profit in a fraudulent way, or to cause damage to PTT's interests.

In addition, PTT has a policy for the Board, management and personnel with privilege to inside information to refrain from insider trading of PTT stocks as well as those of PTT Group. If necessary, they must report such trading to the Company Secretary at least two days in advance. All PTT personnel will be reminded to refrain from using inside information through PTT's contact channels, in particular, upon important events such as capital increase or debenture issuance.

#### 5) Conflicts of Interest

PTT requires information disclosure to prevent conflicts of interest and illegal, improper activities. Under the Board's policy, business decisions made by management and employees must be solely in PTT's best interests. All staff must not only avoid engaging in financial and other relationships with external parties that would lead to financial losses for PTT or a conflict of loyalty or interest, but must also not compromise the efficiency of business operations. Those staff with interests or related businesses which may require PTT's review and decisions must report their relationships and connection with potential conflicts of interest. PTT is to disallow such connected persons from exercising their authority for and involvement in such transactions.

#### Reporting Transactions of Potential Conflicts of Interest with PTT

PTT has required the directors, management, and all employees to disclose potential conflicts of interest through a specific disclosure form for suspected conflicts of interest with PTT. In addition, any approval of such items must not contain special conditions or specifications that are out of the ordinary, which forms part of PTT's internal controls. PTT's Office of Corporate Audit and the Audit Committee have been entrusted with the monitoring and resolution of issues related to conflicts of interest.

## Reporting Vested Interests of Directors, Management, and Related Parties

In the first quarter of this year the Board developed a form for reporting vested interests of directors, the management and related parties as basic information to manage vested interests for directors and senior management. The directors and management are to report such matters every year and with every change in circumstances. The Company Secretary is to compile and submit the copy to the Chairman of the Board and the Chairman of the Audit Committee to check and manage conflicts of interest. This year, however, no such cases have arisen.

## Reporting Changes in Share Portfolios

As part of the oversight of inside-information measures, all PTT directors and management, including their spouses and children under legal age, must report any changes in their PTT share ownership to SEC under Article 59 of the Securities and Exchange Act B.E. 2535 (1992) and its amendments within three days of the date of sale, purchase, disposal, or receipt of such shares. PTT defines a policy of disclosing or reporting the sale, purchase, disposal, or receipt of such shares, changes in share ownership of the directors and management to the monthly Board meeting, contained in advance as a regular agenda item.

Moreover, a week before the closing of the quarterly and yearly financial statements, the Office of the President issues a letter to the directors, management, or units with privilege to inside information, forbidding them to disclose such information to external parties or unrelated parties, and to buy or sell PTT shares within 45 days (for quarterly statements) and 60 days (for the annual statements) of the last effective date of the financial statements to the notification date of the statements to SET, ahead of the public dissemination of the statements so as to prevent insider trading.

## Filing of Assets and Debts to the National Anti-Corruption Commission (NACC)

Under the Organic Act on Counter-Corruption B.E. 2561 (2018), PTT's directors and top executive, including directors and top executive in the companies where PTT holds more than 50% shares, are required to file a list of their own assets and debts, including those of their spouses and children that

are under legal age, to the NACC each time they take up a position, every three years during their terms, and one year after leaving their positions. To this end, PTT issues a reminder to each of the directors and senior management as required.

## Declaring Vested Interests at Meetings

At every board meeting, the Chairman reminds directors to conform to the policy on conflicts of interest on all agenda items, which requires those with vested interests to declare themselves to the meeting to abstain from voting or giving any views. In 2020, a total of 13 such notices were made to the Chairman at 16 Board meetings.

## Review of Connected Transactions

The Audit Committee reviews related transactions and those with potential conflicts of interest that could undermine PTT's businesses to ensure conformance to the law and SET's criteria. All of which must be reported to the board for approval.

## 6) Right of Shareholders

PTT has defined guidelines on the rights of shareholders and equitable and fair treatment, and has a written policy and guidelines for the rights and equitable treatment of shareholders for directors, management and staff to comply with under PTT's "Corporate Governance, Ethical Standards and Code of Business Ethics Handbook".

## 7) Anti-Corruption

PTT is committed to running its businesses with integrity, transparency, fairness and adherence to the CG code, and resisting all forms of fraud and corruption, direct or indirect. Relevant implementations and development included:

- PTT defined its annual work plan in line with the national strategies on the prevention and suppression of fraud, phase 3 (2017 - 2021), to drive CG and anti-corruption strategies in pursuit of a prototype corporation of transparency and virtue.
- In 2010, PTT enlisted in the declaration of intention to join Thailand Private Sector Collective Action Coalition against Corruption (CAC), an endeavor of

IOD with the support of the government and NACC. As one of the first 27 companies to do so, PTT underwent the certification process and became a certified member. Before expiration of the three-year membership term, PTT applied for CAC recertification and won approval, with effect from May 17, 2018. This year PTT's Board, on November 18, 2020, approved the renewal of CAC membership for a third term.

- In 2012, PTT joined the United Nations Global Compact (UNGC) to show its desire to apply to its business the principles of human rights, labor rights, environmental preservation, and anti-corruption at the international level. PTT presents an update of its compliance with the 10 elements of UNGC in its corporate sustainability report.
- Since 2014, PTT has begun enforcing PTT's and PTT Group's Anti-Corruption Policies. The policies, revised in 2019, contain essential principles and guidelines embracing resistance to fraud by defining the anti-corruption policy as part of Corporate Governance, Ethical Standards and Code of Business Ethics Handbook. They require PTT Group's Anti-Corruption Policy as part of the PTT Way of Conduct so that PTT Group may observe the same standards and management approaches and that all companies may achieve synergy under the investment objective. Details of PTT's and PTT Group's anti-corruption policies are as shown in [https://www.pttplc.com/uploads/CG/PTT%20Group%20Anti-Fraud%20and%20Corruption%20Policy%202019\\_EN.pdf](https://www.pttplc.com/uploads/CG/PTT%20Group%20Anti-Fraud%20and%20Corruption%20Policy%202019_EN.pdf)
- PTT's Anti-Corruption Policy forbids PTT's employees to carry out or participate in corrupt practices as well as all forms of bribery offer or acceptance (direct and indirect). They must seriously observe the Anti-Corruption Policy, which covers various processes, including donation to charities, HR administration, supply procurement, and internal control. Details of PTT's Anti-Corruption Policies are as shown in [https://www.pttplc.com/uploads/CG/PTT%20Anti-Fraud%20and%20Corruption%20Policy%202019\\_EN.pdf](https://www.pttplc.com/uploads/CG/PTT%20Anti-Fraud%20and%20Corruption%20Policy%202019_EN.pdf)
- In 2015, PTT declared its "No-Gift Policy" for any festive period. In 2016 - 2020, it enforced practical guidelines under PTT Group's policy on gifts, entertainment, or other benefits to establish a higher standard for business practices in the hope of having all employees do their best without expecting benefit. To this end, a letter was sent to business partners and external agencies, and signboards were put up on the premises of PTT along with assorted PR channels. PTT was the prototype company of Thailand to truly enforce this policy.
- Communication, training, and task highlights:
  - PTT communicates its Anti-Corruption Policy and guidelines to its subsidiaries, associates, and other PTT-controlled companies, business partners, and stakeholders as well as the public through assorted channels including letters, e-mails, website, PTT intranet, seminars, and exhibitions so that all stakeholders may acknowledge and conform to PTT's guidelines.
  - PTT communicates with its employees and provides training to ensure their understanding of anti-fraud and anti-corruption measures, PTT's expectation, and disciplinary actions for non-compliance. The training includes an orientation session, morality courses, and CG E-learning, and supports its executives' and staff's participation in public courses on anti-fraud and anti-corruption.
  - PTT applies information technology as a means for its personnel to express their transparency, such as in e-trading, which shows pre-order trading of PTT and PTT Group's stocks to prevent insider trading, and a reporting system on receiving/offering customary gifts, assets and others benefit under the No-Gift Policy; PTT personnel who have to receive and cannot return a gift must make a report on it and give it to the Good Governance and Corporate Ethics Department to collect and donate for public use.

- Recognizing that corruption undermines the nation, PTT values work integration and anti-corruption networking with the public and private sectors to drive anti-corruption suppression through several activities, such as joining NACC in developing action plans on anti-corruption in state enterprises, co-hosting a National Moral Assembly, Anti-Corruption Day, and developing a master plan and action plan on enhancing PTT's morality for the National Morality Promotion Committee, Department of Religious Affairs, Ministry of Culture.
- Oversight and monitoring of performance:
  - The Board ensures that PTT commands an efficient system for anti-corruption to ensure that management recognizes and values anti-corruption and cultivates it as a corporate culture.
  - The Audit Committee supervises internal control, financial reporting, and other procedures concerning anti-corruption measures, steers conformance to anti-corruption measures, and reviews applicable measures and internal control to ensure that the measures are adequate and effective. The committee reviews risk assessment and provides recommendations to the Board on suggested practices to mitigate such risks. Executives must implement such recommendations. The committee also regularly reports internal-audit outcomes regarding anti-corruption measures to the Board and provides best practices to the Board and the executives.
  - The Corporate Governance Committee annually defines and reviews the Anti-Corruption Policy, provides recommendations and guidelines, monitors, and assesses performance, and steers and advocates risk management practices concerning anti-corruption and process-level corruption by assessing fraud and corruption risk and review anti-corruption measures for adequacy and suitability.
- Executives establish risk assessment for business processes that may lead to corrupt practices, review the suitability of processes and measures, and personify proper behavior as well as communicating it to all employees and related parties.
- PTT has developed a Fraud and Corruption Risk Assessment Manual for all units to apply as guidelines for assessing corruption risks in their respective business processes and for defining suitable internal control processes.
- PTT establishes procedures for maintaining auditable documents and records to confirm the accuracy and suitability of financial reports. The internal control of accounting processes and information storage is audited to verify the effectiveness of anti-corruption processes and ensure that the entry of financial items is well evidenced for audit.
- The Office of Corporate Audit reviews items of potential conflicts of interest, the likelihood of corruption, and corporate efficiency for managing risks arising from corporate corruption and those at the operating level. The office also reviews business ethics principles and the code of conduct for executives and employees. It reviews actions and reports to the Audit Committee and top executives immediately when encountering items or actions that could undermine PTT's performance outcomes, including corruption.

## 8) Disciplinary Measures for Non-Compliance with Policies and Guidelines

- Measures, scope, and tools for whistleblower protection:
  - PTT's HR administration process echoes its commitment to anti-corruption measures. Although refusal to take part in corruption may deprive PTT of business opportunities, its policy is not to demote, punish, or harm those that do so.
  - PTT's employees should not ignore actions in potential conflicts with anti-corruption measures. PTT has established channels for whistleblowing and protection of whistleblowers or those that need advice about conformance to anti-corruption measures.
  - PTT has established rules on "complaint-filing and whistleblowing on corruption and non-compliance with laws and corporate regulations" to define applicable criteria and guidelines that are suitable and uniform throughout the corporation. Protective measures and fair treatment are in place for whistleblowers or those that provide information. The rules conform to measures for corruption prevention and suppression in the public sector of the National Council for Peace and Order (NCPO), established to overcome corruption seriously, strictly, and more efficiently.
- Punishment
  - PTT has established a suitable and fair process for punishing violators of anti-corruption measures. Any violation of this policy, direct or indirect, calls for disciplinary review under PTT's regulations, consisting of fact-finding, investigation, punishment, and appeal. They could also lead to punishment by law. Employees must therefore master and strictly conform to the Anti-Corruption Policy in every step of their work.

## 6.2 Code of Conduct (if any)

### Code of Conduct

PTT has its written policy and a code of conduct included in the "Corporate Governance, Ethical Standards and Code of Business Ethics Handbook" (CG Handbook), based on international standards. The handbook compiles the format, scope of standard behaviors and actions that the directors, management and employees must comply with during the course of business and in their duties with ethics, integrity, fairness and equality. The code maintains PTT's image as an organization of sustainable growth. Supervisors are responsible for the monitoring and promotion of CG compliance among their subordinates. Violators of the code are subject to disciplinary action. The essential aspects of the code are included below:

1. Respect and Compliance with Laws and Regulations, and Human Rights principles
2. Anti-Money Laundering
3. Political neutrality
4. No vested interests or conflicts of interest
5. Maintaining the confidentiality of information and refraining from using inside information for personal gain
6. Responsibility to customers and response to their needs.
7. Free and fair business competition
8. Transparent procurement and fair treatment of business partners (suppliers)
9. Community and social responsibility
10. Support of employees' rights and promotion of their engagement
11. Stringent, transparent, and equitable observance of contracts/ agreements with creditors
12. Internal control system and efficient internal audit
13. Guidelines for receiving and offering customary gifts, assets, and other benefit
14. Safety, occupational health, and the environment
15. Respect for intellectual properties and proper application of information and communication technology.

Details of the complete information on Corporate Governance, Ethical Standards and Code of Business Ethics are shown in [https://www.pttplc.com/uploads/CG/PTT\\_CGbookEN\\_rev4.3.pdf](https://www.pttplc.com/uploads/CG/PTT_CGbookEN_rev4.3.pdf)



## 6.3 Milestone Development on the CG Policy, Guidelines and System During the Year

This year the Board approved the review and revision of the essences of the CG policy, guidelines, monitoring system and the CG Handbook as follows:

- Revision of the duties and responsibilities of the Corporate Governance Committee to cover CG, risk management (operation level) and internal control, and compliance (Governance, Risk and Compliance: GRC)
- Revision of the duties and responsibilities of the Enterprise Risk Management Committee to cover corporate innovation management and monitoring.

### Other Implementation Under CG Code

A survey on PTT's CG conducted by the Thai Institute of Directors (IOD) under the Corporate Governance Report of Thai Listed Companies for 2020 has ranked PTT as "Excellent", with an average score overall and by category higher than the average score of 692 other companies surveyed and higher than the average score of companies in the SET50 group. The survey was based on publicized information in 2020. PTT's other guidelines which might be useful to other listed companies are:

- PTT's current Chairman of the Board is an independent director, so he independently delegates policy and oversees PTT's operations.
- Independent directors must consist of at least half of the directors in office.
- The meeting of the Corporate Governance Committee No. 9/2020 of December 8, 2020, and the meeting of the Board No. 12/2020 of December 17, 2020, considered the "Corporate Governance Principles for Listed Companies 2020" ("CG Code") prepared by SEC, and the "Corporate Governance Principles

and Guidelines for State Enterprises 2019" prepared by the State Enterprise Policy Office (SEPO), Ministry of Finance. They recognized their role as PTT's governing body in applying CG principles to create sustainable value for the business and assessed its performance under the CG Code and the Corporate Governance Principles and Guidelines for State Enterprises 2019, and duly compared with those of PTT. They were of the opinion that PTT's policy, measures and operational processes are comparable with these two, and that PTT also command short-term and long-term plans to develop PTT's CG system to suit business directions and trends of other international leading companies.

This year PTT complied with CG principles, but did not cover the criteria under the CG Code and the ASEAN CG Scorecard in two items:

1. Composition of the Board, which shall consist of 5 - 12 members

Under PTT's articles of association, the Board shall consist of a minimum of 5 but not exceeding 15 directors. The current Board consists of 15 directors, which complies with the articles of association and suit operations in the petroleum businesses, which need qualified experts in assorted fields essential for PTT business operations. The Board also appointed five subcommittees to assist it in screening crucial matters: the Audit Committee, Nominating Committee, Remuneration Committee, Corporate Governance Committee, and Enterprise Risk Management Committee.

(Meeting attendance of the committees are detailed under Section 2: **"8.1.2 (1) Meetings of the Board"**)

2. Voting to elect directors by cumulative voting

PTT's articles of associations require that directors be elected by majority votes and that each shareholder shall have the number of votes as the shares held. In addition, PTT has defined methods to protect the rights of shareholders, including the rights of minor shareholders to propose meeting agenda and nominate directors.

## 7. Governance Structure and Key Data on the Board of Directors, Specific Committees, Management, Employees and Others

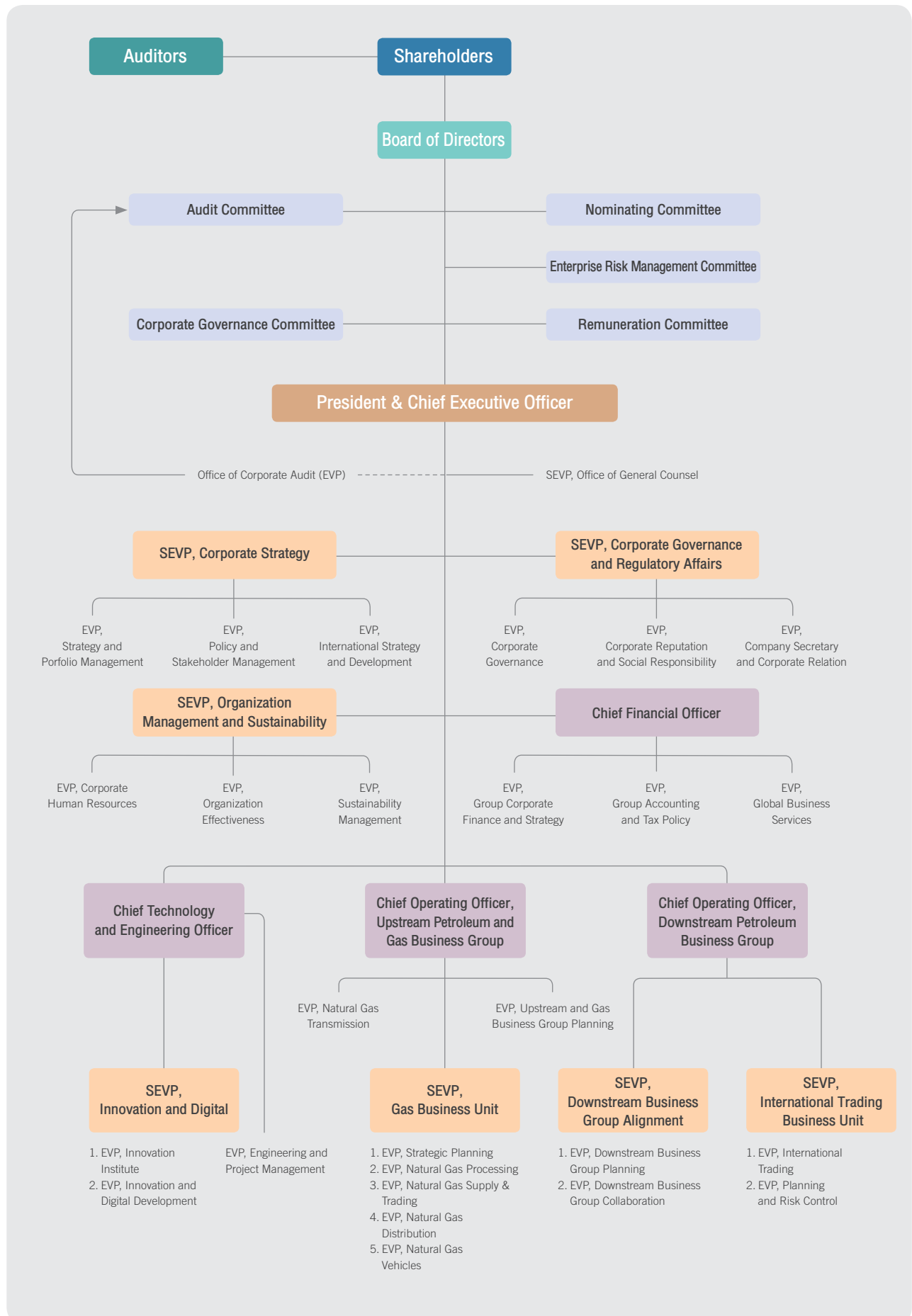
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### 7.1 Governance Structure

#### Management Structure

PTT Public Company Limited's management structure as of January 1, 2020, comprises of the Board of Directors and five specific committees to consider significant matters: the Audit Committee, Nominating Committee, Remuneration Committee, Corporate Governance Committee, and Enterprise Risk Management Committee. The President & CEO (President) is the top executive who manages PTT's business groups through 3 groups of 29 management committees.





## 7.2 Board of Directors

### 7.2.1 Composition of the Board

Under PTT's Articles of Association, the Board consists of:

- 5 - 15 persons
- A minimum of 3 independent directors (PTT's CG requires that independent directors account for no less than one-half of the Board)
- At least 1 director must be knowledgeable in accounting and finance.

According to the certification of the Ministry of Commerce dated December 21, 2020, the PTT Board consisted of 15 directors as follows:

- 14 non-executive directors (93.33% of the entire Board)
- 11 independent directors, which exceeds one-half of the Board (73.33% of the entire Board)
- 1 executive director
- 2 female directors (13.33% of the entire Board).

### 7.2.2 The Current Board of Directors

The Board of Directors as of December 31, 2020, consisted of:

No.	Name	Position	Appointed Date
1.	Professor Dr. Thosaporn Sirisumphand	Independent Director/ Chairman of the Board (appointed as an Independent Director effective from November 6, 2020, and as a Chairman effective from November 18, 2020)	November 6, 2020 (First term)
2.	Professor Dr. Kittipong Kittayarak	Independent Director/ Chairman of the Audit Committee	July 1, 2014 (First term) April 28, 2017 (Second term) July 3, 2020 (Third term)
3.	Mr. Don Wasantapruerk	Independent Director/ Chairman of the Nominating Committee	July 26, 2014 (First term) April 11, 2016 (Second term) April 11, 2019 (Third term)
4.	Gen. Teerawat Boonyawat	Independent Director/ Chairman of the Remuneration Committee	April 11, 2019 (First term)
5.	Mrs. Nuntawan Sakuntanaga	Independent Director/ Chairman of the Corporate Governance Committee	July 1, 2014 (First term) April 9, 2015 (Second term) April 12, 2018 (Third term)
6.	Dr. Pailin Chuchottaworn	Independent Director/ Chairman of the Enterprise Risk Management Committee	September 11, 2020 (First term)

No.	Name	Position	Appointed Date
7.	Mr. Danucha Pichayanan	Independent Director/ Member of the Audit Committee (having adequate knowledge and experience to review the reliability of financial statements)	April 12, 2018 (First term)
8.	Mr. Krishna Boonyachai	Independent Director/ Member of the Audit Committee (having adequate knowledge and experience to review the reliability of financial statements)	July 3, 2020 (First term)
9.	Professor Dr. Surapon Nitikraipot	Independent Director/ Member of the Nominating Committee/ Member of the Corporate Governance Committee	April 12, 2018 (First term)
10.	Dr. Thon Thamrongnawasawat	Independent Director/ Member of the Corporate Governance Committee/ Member of the Enterprise Risk Management Committee	November 18, 2016 (First term) April 12, 2018 (Second term)
11.	Mr. Chumpol Rimsakorn	Director/ Member of the Remuneration Committee/ Member of the Enterprise Risk Management Committee	December 21, 2018 (First term) April 11, 2019 (Second term)
12.	Pol.Gen. Rungroj Sangkram	Independent Director/ Member of the Remuneration Committee/ Member of the Enterprise Risk Management Committee	July 3, 2020 (First term)
13.	Mrs. Premrutai Vinaiphat	Director/ Member of the Enterprise Risk Management Committee	July 3, 2020 (First term)
14.	M.L. Chayotid Kridakon	Director	December 16, 2020 (First term)
15.	Mr. Auttapol Rerkpiboon	Director and Secretary to the Board (President & CEO)	May 13, 2020 (First term)

**Remarks:**

In 2020 the Board/ the Annual General Meeting (AGM) appointed new directors to replace those who had either completed their terms and/or resigned as follow;

- No. 1: Professor Dr. Thosaporn Sirisumphand was appointed as an independent director with effect from November 6, 2020 (replacing Mr. Krairit Euchukanonchai, an independent director/ Chairman of the Board, who retired from the directorship of PTT due to his completion of 65 years of age with effect from November 6, 2020), and was appointed as Chairman of the Board with effect from November 18, 2020.
- No. 6: Dr. Pailin Chuchottaworn was appointed as an independent director with effect from September 11, 2020, replacing Mr. Supattanapong Punmeechaow, who resigned with effect from July 23, 2020.
- No. 8: Mr. Krishna Boonyachai was appointed as an independent director with effect from July 3, 2020, replacing Mr. Nuttachat Charuchinda, who retired from the directorship of PTT due to his completion of 65 years of age with effect from January 17, 2020.
- No. 12: Pol. Gen. Rungroj Sangkram was appointed as an independent director with effect from July 3, 2020, replacing Mr. Vichai Assarasakorn, who retired by rotation at the 2020 Annual General Meeting (AGM).
- No. 13: Mrs. Premrutai Vinaiphat was appointed as a director with effect from July 3, 2020, replacing Mr. Sarawut Kaewtathip, who retired by rotation at the 2020 Annual General Meeting (AGM).
- No. 14: M.L. Chayotid Kridakon was appointed as a director with effect from December 16, 2020, replacing Professor Dr. Supot Teachavorasinskun, who resigned with effect from December 1, 2020.
- No. 15: Mr. Auttapol Rerkpiboon was appointed as President and Chief Executive Officer (President & CEO/ Director and Secretary to the Board of Directors) with effect from May 13, 2020, replacing Mr. Chansin Treenuchagron, who completed his term with effect from May 13, 2020.

## 7.2.3 Authorities, Duties and Responsibilities of the Board

### Authorities of the Board

- The Board is authorized to supervise and oversee PTT's management's compliance with applicable laws, objectives, Articles of Association, and resolutions of shareholders' meetings.
- The Board is authorized to select one director to serve as Chairman and may select a Vice Chairman if appropriate.
- The Board of Directors is authorized to appoint the President and CEO who has been nominated under the nomination process and procedures under relevant laws and regulations. The President and CEO shall be a director and secretary to the Board of Directors.

### Duties and Responsibilities of the Board

The Board is to:

- Carry out its duties under PTT's Articles of Association and ensure that management complies with applicable laws, PTT's objectives, Articles of Association, and resolutions of shareholders' meetings.
- Define PTT's vision, directions, strategies, policies and major plans and consider potential risks so as to ensure that management can effectively drive plans into practice.
- Monitor and ensure plan implementation in line with PTT's major strategies and policies, including objectives, financial targets and operating plans, and budget.
- Institute systems for corporate accounting, financial reporting and auditing, as well as the efficient and effective internal control and internal audit systems.
- Oversee and supervise issues regarding potential conflicts of interest and related-party transactions.
- Define comprehensive risk management guidelines and ensure an efficient risk management system or process.
- Ensure a suitable remuneration system or mechanism for senior management to induce short-term and long-term motivation.

- Assess the performance of the President & CEO and decide suitable remuneration.
- Ensure suitable communicating channels with each group of shareholders and stakeholders.
- Ensure accurate, clear, transparent, reliable, and high-quality disclosure of information.
- Express leadership and be role models for performance excellence.

### The Board's Additional Authority Includes:

- Approve long-term investment, such as common stocks, preferred stocks, bonds, debentures and warrants, or other financial instruments.
- Approve financial support, including funds, common stocks, preferred stocks, loans, or others as appropriate for PTT-invested companies.
- Approve debt financing and issuance of debt instruments such as debentures.
- Approve the annual budget.
- Approve procurement and other related matters if the limits exceed the CEO's approval authority.
- Consent to employ, appoint, transfer, or promote employees serving as senior executive vice presidents or equivalent upward.
- Appoint the Company Secretary.

### Authorized Director to Sign and Bind for PTT

According to PTT's Articles of Association, as of December 21, 2020, the directors whose signatures are authorized to sign and bind PTT are either (1) Mr. Auttapol Rerkpiboon, President & CEO, to sign and affix PTT's seal, or (2) Two out of these three directors: Mr. Don Wasantapruek, Professor Dr. Surapon Nitikraipot, or Pol. Gen. Rungroj Sangkram, jointly sign and affix PTT's seal.

### Appointment and Dismissal of Directors

1. The Board consists of 5 - 15 persons who are appointed at shareholders' meetings. In addition, the Board consists of a minimum of 3 independent directors and at least half of the directors must reside in the Kingdom. At least 1 of them must



- be knowledgeable in accounting and finance. All directors must have qualifications as specified by law and the Articles of Association. Since 2004, the Board has decided that independent directors must consist of at least half of the Board, a requirement that remains effective until present. As of December 31, 2020, the Board had 11 independent directors, 2 female directors, and all of them resided in Thailand. 7 directors are experts in accounting and finance, namely Mrs. Nuntawan Sakuntanaga, Mr. Danucha Pichayanan, Mr. Chumpol Rimsakorn, Professor Dr. Surapon Nitikraipot, Dr. Pailin Chuchottaworn, Mr. Krishna Boonyachai and M.L. Chayotid Kridakon.
2. The shareholders' meetings are to appoint qualified directors whom the Nominating Committee has elected and proposed to the Board under the following criteria:
    - (1) Each shareholder has one vote per share held.
    - (2) Each shareholder exercises all votes applicable under (1) in electing one or more persons as directors, provided that no vote is divisible.
    - (3) Candidates with the highest numbers of votes are to be appointed directors up to the number required at the meeting.
    - (4) If candidates get equal votes, which make the number of successful candidates exceed that of directors to be elected, the Chairman of that meeting will cast the decisive vote.
  3. At the AGM, one-third of the directors - or if the number is not a multiple of three, then the number nearest to one-third - will retire from directorship. The directors retiring in the first and second year after PTT was listed are to be drawn by lots. For subsequent years, those with the longest terms are to retire.
  4. If a director's seat is vacated for reasons other than term completion, the Board may elect a qualified person without the prohibitions stipulated by PTT's Articles of Association to fill the vacancy at the next Board meeting unless the remaining term of the vacated director is less than two months. The acting director must secure at least three-quarters of the votes of the remaining directors. He or she can also stay in office only for the remaining term of the predecessor.

5. Any director who wishes to resign from directorship must tender his or her resignation to PTT. Such resignation will take effect from the date the resignation letter reaches PTT.
6. For voting to remove any director from the directorship before the completion of his or her term, a three-quarter vote of eligible shareholders present at the meeting is required as well as at least half of the total number of shares represented by the eligible shareholders present at the meeting.

## Qualifications of Directors

Directors must be duly qualified, without the prohibitions stated in the Public Limited Company Act and the Standard Qualifications of State Enterprise Directors and Officials Act B.E. 2518 (1975) and its amendments, as well as relevant Cabinet resolutions, including:

- Must not be over 65 years of age.
- Must not hold more than three directorships in state enterprises or juristic persons in which state enterprises hold shares, including appointments due to their positions and those due to acting assignments.
- Independent directors must command independence as required by SET's Notification on the Qualifications and Scope of Work of the Audit Committee.
- Must never been sentenced to imprisonment, except for violations of the law by negligence or a petty offence.
- Must not be a political official, except for holding a directorial position under a provision of law.
- Must not hold any position in a political party or be an official of political party.
- Must never have been expelled, dismissed, or removed from a position because of malfeasance.
- Must not be a shareholder of such state enterprise or a shareholder of a juristic person in which such state enterprise holds shares. Exceptions apply to directors of state enterprises who are not government officials, government employees, or wage earners with positions or position salaries of centralized, or provincial, or local government, or other government agencies. Also, such state-enterprise directors can hold no more than 0.5% of the paid-up capital of the state enterprise in which they serve as directors or juristic persons where the state enterprise in question holds shares.

- Must not hold any position in a juristic person in which such state enterprise holds shares, except where entrusted by the boards of directors of such state enterprise to hold a directorial position or other position in the juristic person in which such state enterprise holds shares.
- Must not be a director or an executive or person with authority over the management or an interest in a juristic person who is a concessionaire or joint-venture party, or having an interest in the undertakings of such state enterprise, except for being a chairperson of the board of directors, director or executive by entrustment of such state enterprise.

In addition, the Corporate Governance, Ethical Standards and Code of Business Ethics Handbook, Revision 4<sup>th</sup>, on term holding, a director can hold office up to the following limits:

1. A maximum of three directorships in the state enterprises/ juristic persons of which the state enterprise is a shareholder.
2. A maximum of three directorships in SET-listed companies, provided that the directorships under (2) do not contradict (1). Such directorships in (1) and (2) must not exceed five.

Moreover, independent directors and members of specific committees shall serve no more than nine consecutive years.

In compliance with the law, PTT ensures that at least one-third of the Board are listed in the Director's Pool of the Ministry of Finance. As of December 31, 2020, 11 out of 15 PTT directors' names were listed in the Director's Pool.

## 7.3 Specific Committees

### PTT five specific committees are as follows:

#### (1) The Audit Committee

Each quarter the Audit Committee, together with the Financial and Accounting functions and the external auditor (EY Office Co., Ltd.), reviews PTT's financial reports. The Board is accountable for PTT Group's consolidated financial statements as well as other financial information presented in the annual report. The financial reports are prepared under generally accepted accounting principles and are audited and certified by Ms. Waraporn Prapasirikul, C.P.A. No. 4579, of EY Office Co., Ltd. Material information, financial and non-financial, is accurately, completely and consistently disclosed.

The Board approved the appointment of the Audit Committee on October 1, 2001, which consisted of directors with the qualifications specified by SEC laws and SET. The committee must consist of at least three directors. As of December 31, 2020, it consisted of three independent directors as follows:

Name	Position	Remarks
1. Professor Dr. Kittipong Kittayarak	Chairman	Independent Director
2. Mr. Danucha Pichayanan	Member	Independent Director
3. Mr. Krishna Boonyachai	Member	Independent Director

The Executive Vice President, Office of Corporate Audit served as secretary.

#### Remarks :

1. Professor Dr. Kittipong Kittayarak was appointed Chairman with effect from July 3, 2020. (Mr. Vichai Assarasakorn was Chairman from April 11, 2019 to July 3, 2020).
2. Mr. Danucha Pichayanan was appointed member with effect from April 11, 2019. He commands sufficient expertise and experience to review and ensure the accuracy and credibility of financial statements, with experience as member of the Audit Committee of the Provincial Electricity Authority.
3. Mr. Krishna Boonyachai was appointed member with effect from July 3, 2020. He commands sufficient expertise and experience to review and ensure the accuracy and credibility of financial reports.

## Duties and Responsibilities

1. Prepare a charter on internal audit for the Audit Committee that is compatible with PTT's scope of work and responsibilities. The charter must be approved by the Board and revised at least once a year.
2. Review the efficiency and effectiveness of CG, risk management, and internal control processes.
3. Review PTT's financial reporting process to ensure accuracy and credibility.
4. Review compliance with laws, regulations, procedures, cabinet resolutions, SET requirements, SEC laws, and announcements or directives relevant to PTT's businesses.
5. Ensure sound internal audit procedures and review the adequacy of the budget and personnel and the independence of the Office of Corporate Audit.
6. Consider connected transactions or transactions of potential conflicts of interest or potential corruption affecting PTT's operations under SET's laws and requirements.
7. Provide recommendations to the Board on the appointment, transfer, promotion, and assessment of the head of the Office of Corporate Audit.
8. Select, nominate and recommend fees for the external auditor to the Board.
9. Coordinate audit findings with the external auditor and recommend reviews or verification of any items, if necessary.
10. Report internal audit performance to the Board at least quarterly, except for the fourth quarter, which is reserved for the annual report. The reports must be submitted to the regulating ministry and the Ministry of Finance for acknowledgment.
11. Evaluate its own internal audit performance at least once a fiscal year and report the results to the Board.
12. Disclose a report on its annual performance and the fees of the external auditor in the annual report.
13. The chairman or members of the Audit Committee must attend shareholders' meetings to address matters related to the committee or the appointment of the external auditor.
14. If independent opinions from advisers or specialists are needed on PTT's assorted operations, the Audit Committee may propose to the Board to invite or to hire such advisers or specialists at PTT's expenses.
15. If internal reports show any sign of violation against laws, regulations, procedures, Cabinet resolutions, announcement, or directives relating to PTT's businesses, senior management must be informed and responsible unit(s) ordered to take due actions.
16. Hold committee meetings at least every quarter and a meeting with the external auditor in the absence of management at least once a year.
17. Hold a formal meeting with management at least once a year.
18. Perform other tasks as required by the law or as assigned by the Board within the committee's scope of duties and responsibilities.

These are in line with PTT's Articles of Association on the Audit Committee and the Office of Corporate Audit 2020.

This year the committee held 14 meetings and duly reported its findings to the Board. In addition, it participated in quarterly audits along with the external auditor and the Financial and Accounting functions.

The Audit Committee disclosed its annual performance in the Report of the Audit Committee.

## (2) The Nominating Committee

The Board approved the appointment of the Nominating Committee on October 1, 2001, by appointing three directors. As of December 31, 2020, it consisted of:

Name	Position	Remark
1. Mr. Don Wasantapruerk	Chairman	Independent Director
2 Professor Dr. Surapon Nitikraipot	Member	Independent Director
3. Pol.Gen. Rungroj Sangkram	Member	Independent Director

The Company Secretary served as secretary.

### Remarks:

1. Mr. Don Wasantapruerk was appointed Chairman with effect from December 23, 2018.
2. Professor Dr. Surapon Nitikraipot was appointed member with effect from April 25, 2018 to April 11, 2019, and from October 1, 2019.
3. Pol.Gen. Rungroj Sangkram was appointed member with effect from December 17, 2020, replacing Professor Dr. Supot Teachavorasinskun, who resigned.

## Duties and Responsibilities

1. Define the methods and criteria for directors' nomination for transparency.
2. Select director nominees to fill vacancies (due to resignation or term completion) for the Board's or the shareholders' consideration and appointment with due regard for the composition of the Board, expertise, competencies, and experience useful to PTT in compliance with PTT's Board Skill Matrix and the Director's Pool of the Ministry of Finance and Thai Institute of Directors (IOD). Equally important, nominees must have no conflict of interest with PTT, and the qualifications of desirable directors must prove compatible with PTT's business strategies.
3. Propose directors for specific committee duties with due regard for the committees' compositions, qualifications, expertise, and competencies. Then these names are to be tabled for the Board's appointment. An exception is for the committee itself, which is to be appointed by the Board.
4. Be directly accountable to the Board, while the Board is accountable for PTT's businesses to all stakeholders.
5. Assess its own performance and report the outcomes to the Board for acknowledgment and disclose them in the annual report.
6. Disclose its own performance in the annual report.
7. Hold at least two meetings a year.
8. Perform other tasks as assigned by the Board.

Directors' recruitment procedures are as follows:

1. The committee defines the qualifications needed for replacements to ensure that new directors meet the criteria and qualifications required by applicable laws and regulations and align with PTT's strategy and operations.

According to the CG Ethical Standards, and the Code of Business Ethics Handbook, the Board should consist of experts from a variety of disciplines needed for the administration of PTT businesses. Specifically, its composition should consist of at least three experts in the petroleum business, one expert in law, and one expert in finance and accounting. Currently, PTT's Board Skill Matrix consists of Accounting/ Finance/ Laws/ Information Technology/ Engineering/ Marketing/ Business Administration and Management/ Listed State Enterprise Management and Supervision/ International Business/ Economics/ Science and Technology/ Energy Innovation/ Petrochemical/ Biological Industry/ Digital/ Automation/ Artificial Intelligence or Robotics/ Political Science/ Security/ Crisis Risk Management/ Social, Community, Natural Resources and Environmental Activities, and Sustainable Development.

2. The committee summarizes its recruitment results and presents to the Board a shortlist of qualified candidates along with supporting rationale.
3. The Board appoints qualified candidates from the list prepared by the committee and submits their names to the shareholders' meeting for approval. The list must also be endorsed by the State Enterprise Policy Office (SEPO) in conformance to the guidelines on the appointment of state enterprise director under the Cabinet resolution of August 6, 2019.

This year the committee held 9 meetings, with all committee members at the time in attendance. The Company Secretary served as secretary.

The Nominating Committee disclosed its annual performance in the Report of the Nominating Committee.

### (3) The Remuneration Committee

The Board approved the appointment of the Remuneration Committee on October 1, 2001, by appointing three directors. As of December 31, 2020, it consisted of:

Name	Position	Remark
1. General Teerawat Boonyawat	Chairman	Independent Director
2. Mr. Chumpol Rimsakorn	Member	Director
3. Pol.Gen. Rungroj Sangkram	Member	Independent Director

The Company Secretary served as secretary.

#### Remarks:

1. Gen. Teerawat Boonyawat was appointed Chairman with effect from April 11, 2019.
2. Mr. Chumpol Rimsakorn was appointed member with effect from December 23, 2018.
3. Pol.Gen. Rungroj Sangkram was appointed member with effect from July 3, 2020.

### Duties and Responsibilities

1. Define the criteria for remuneration and propose fair, sensible remuneration for directors and committee members for the Board's and the shareholders' approval.
2. Propose guidelines for assessing performance outcomes and remuneration for the President & CEO to the Board's for approval.

3. Acknowledge and comment on organization restructuring and job levels, and assess and decide remuneration for senior executive vice presidents.
4. Be accountable to the Board directly, while the Board is accountable for PTT's businesses to all stakeholders.
5. Assess its own performance outcomes and report the findings to the Board for acknowledgment and disclose them in the annual report.
6. Disclose its own performance in the annual report.
7. Hold at least two meetings a year.
8. Perform other Board-assigned tasks.

This year the committee held 5 meetings, with all committee members at the time in attendance. The Company Secretary served as secretary.

The Remuneration Committee disclosed its annual performance in the Report of the Remuneration Committee.

#### (4) The Corporate Governance Committee

The Board approved the appointment of the Corporate Governance Committee on June 24, 2004, by appointing three directors. As of December 31, 2020, it consisted of:

Name	Position	Remark
1. Mrs. Nuntawan Sakuntanaga	Chairman	Independent Director
2. Professor Dr. Surapon Nitikraipot	Member	Independent Director
3. Dr. Thon Thamrongnawasawat	Member	Independent Director

The Senior Executive Vice President, Corporate Governance and Regulatory Affairs, and Senior Executive Vice President, Office of General Counsel, served as secretary, and the Executive Vice President, Corporate Governance, and the Executive Vice President, Company Secretary and Corporate Relation, served as assistant secretaries.

##### Remarks:

1. Mrs. Nuntawan Sakuntanaga was appointed Chairman with effect from July 3, 2020. (Professor Dr. Kittipong Kittayarak was Chairman from April 11, 2019 to July 3, 2020)
2. Professor Dr. Surapon Nitikraipot was appointed member with effect from December 23, 2018.
3. Dr. Thon Thamrongnawasawat was appointed member from November 18, 2016 to April 11, 2019, and from October 1, 2019, replacing Mr. Somsak Chotrattanasiri, who resigned.

#### Duties and Responsibilities

1. Supervise Corporate Governance, Operational Risk Management and Internal Control, and Compliance (GRC), Anti-Fraud and Corruption, Sustainability Management (SM), and Corporate Social Responsibility (CSR) for society, community and environment.
  - Advise and recommendations to the Board and the management on matters dealing with the PTT Good Corporate Governance, Code of Conduct and Code of Business Ethics.



- Approve PTT's objectives, goals, strategies, management framework, and provide policy and operational guidelines annually in line with PTT's strategies and objectives as well as international practices.
  - Supervise and monitor CG implementation and report the findings to the Board.
  - Advise the Governance, Risk and Compliance Management Committee (GRCMC).
2. Establish the policy of allowing minor shareholders to nominate directors and propose AGM agenda items.
  3. Establish the policies and define the scopes for supervising matters dealing with PTT's whistleblowing mechanism for complaints and anti-fraud and corruption practices.
  4. Perform other Board-assigned tasks.
  5. Hold at least one meeting each quarter.

This year the committee held 9 meetings with all committee members at the time in attendance. The Senior Executive Vice President, Corporate Governance and Regulatory Affairs, and the Senior Executive Vice President, Office of General Counsel, served as joint secretary to the committee.

The Corporate Governance Committee disclosed its annual performance in the Report of the Corporate Governance Committee.

## (5) The Enterprise Risk Management Committee

The Board approved the appointment of the Enterprise Risk Management Committee (ERMC) on October 25, 2013, by appointing at least three directors, at least one of whom must be an independent director. As of December 31, 2020, it consisted of:

Name	Position	Remark
1. Dr. Pailin Chuchottaworn	Chairman	Independent Director
2. Dr. Thon Thamrongnawasawat	Member	Independent Director
3. Mr. Chumpol Rimsakorn	Member	Director
4. Mrs. Premrutai Vinaiphat	Member	Director

The Senior Executive Vice President, Corporate Strategy, the Chief Risk Officer (CRO) and Chief Stakeholder Officer (CSO) served as secretary.

### Remarks:

1. Dr. Pailin Chuchottaworn was appointed Chairman, with effect from September 11, 2020 replacing Mr. Supattanapong Punmeechaow, who resigned. (Mr. Supattanapong Punmeechaow was Chairman from October 1, 2019 to July 22, 2020)
2. Dr. Thon Thamrongnawasawat was appointed Chairman from April 25, 2018, and as member with effect from October 1, 2019.
3. Mr. Chumpol Rimsakorn was appointed member with effect from October 17, 2019.
4. Mrs. Premrutai Vinaiphat was appointed member with effect from July 3, 2020.

In 2020, the committee's duties and responsibilities have been revised to embrace screening and commenting on investment items, and the innovation policy and master plans.

## Duties and Responsibilities

1. Define and review PTT's risk management and corporate stakeholder management policies and scopes
2. Supervise and support risk management and stakeholder management practices in line with strategies and business goals as well as prevailing circumstances
3. Provide recommendations, monitor, and evaluate risk management and stakeholder management for further implementation of the Corporate Plan and Risk Management Committee (CPRC) (management level)
4. Review risk management outcome reports and provide recommendations on risks, including specifications of control measures or mitigation plans and development of the risk management system to CPRC for continued efficiency
5. Review reports of corporate stakeholder management outcomes and provide recommendations on relevant plans to extend positive outcomes or minimize/offset potential impacts on stakeholders, including development of the stakeholder management system for CPRC to ensure continued efficiency
6. Support the Chief Risk Officer (CRO) and Chief Stakeholder Officer (CSO) in achieving PTT's corporate risk management and stakeholder management goals
7. Report risk management outcomes and stakeholder management outcomes to the Board at least every quarter. For factors or events with potential significant impacts on PTT, the Board must be notified immediately.
8. Screen and comment before submitting for the Board's approval contractual items that are complicated businesswise and contain risks potentially affecting PTT or potentially and significantly affecting PTT's stakeholders, as endorsed by the Management Committee.
9. Screen and comment on investment agenda:
  - PTT's and PTT Group's wholly-owned investment projects with investment values exceeding THB 5 billion presented to the Board for approval
  - PTT's investment projects in companies where it holds less than 100% shares and those not SET-listed, with investment values exceeding THB 5 billion, presented to the Board for approval before PTT's representative votes in the shareholders' meetings or board meetings in question
  - Investment with risks potentially significantly impacting PTT or its stakeholders, as endorsed by the Management Committee.
10. Define and review the corporate innovation policy
11. Provide recommendations and guidelines for the monitoring and assessment of the long-term and annual innovation management master plan for further implementation
12. Supervise and promote implementation under the innovation policy and master plan to ensure that the annual operation plan can achieve its goals
13. Report the results of the implementation outcomes of creative thinking and innovation to the Board for acknowledgement at least every quarter
14. Hold at least one meeting each quarter
15. Perform other Board-assigned duties.

The reviewing of the risk management system remains the duty of the Audit Committee and the Office of Corporate Audit

This year the Committee held 10 meetings with all committee members at the time in attended. The Senior Executive Vice President, Corporate Strategy, served as secretary.

The Enterprise Risk Management Committee disclosed its annual performance in the Report of the Enterprise Risk Management Committee.

## 7.4 Management

### 7.4.1 Management Team Members as of December 31, 2020

(PTT Management Structure as in the organization chart is detailed under “7.1 Governance Structure”)

Name	Position
1 Mr. Auttapol Rerkpiboon <sup>1/</sup>	President & CEO
2 Mr. Atikom Terbsiri	Chief Operating Officer, Upstream Petroleum and Gas Business Group
3 Mr. Kris Imsang <sup>2/</sup>	Chief Operating Officer, Downstream Petroleum Business Group
4 Mr. Wittawat Svasti-Xuto	Chief Technology and Engineering Officer
5 Ms. Pannalin Mahawongtikul	Chief Financial Officer
6 Mrs. Arawadee Photisaro	Senior Executive Vice President, Corporate Strategy
7 Mr. Terdkiat Prommool <sup>3/</sup>	Senior Executive Vice President, Organization Management and Sustainability
8 Ms. Duangporn Thiengwatanatham	Senior Executive Vice President, Corporate Governance and Regulatory Affairs
9 Ms. Peangpanor Boonklum	Senior Executive Vice President, Office of General Counsel
10 Mr. Wuttikorn Stithit	Senior Executive Vice President, Gas Business Unit
11 Dr. Buranin Rattanasombat <sup>4/</sup>	Senior Executive Vice President, Downstream Business Group Alignment
12 Mr. Disathat Panyarachun	Senior Executive Vice President, International Trading Business Unit
13 Mr. Noppadol Pinsupa <sup>5/</sup>	Senior Executive Vice President, Innovation and Digital
14 Mr. Montri Rawanchaikul <sup>6/</sup>	Senior Executive Vice President, seconded to President, and Acting Executive Vice President, Production Asset Group, PTT Exploration and Production Plc.
15 Dr. Kongkrapan Intarajang	Senior Executive Vice President, seconded to CEO, PTT Global Chemical Plc.
16 Mr. Wirat Uanarumit	Chief Operating Officer, seconded to CEO and President, Thai Oil Plc.
17 Mr. Chawalit Tippawanich <sup>7/</sup>	Senior Executive Vice President, seconded to President and CEO, IRPC Plc.

Name	Position
18 Ms. Jiraphon Kawswat	Senior Executive Vice President, seconded to Acting President and CEO, PTT Oil and Retail Business Plc.
19 Mr. Worawat Pitayasiri <sup>8/</sup>	Senior Executive Vice President, seconded to President and CEO, Global Power Synergy Plc.
20 Mr. Yongyos Krongphanich <sup>9/</sup>	Executive Vice President, Group Corporate Finance and Strategy
21 Ms. Wilaiwan Kanjanakanti	Executive Vice President, Group Finance and Accounting Policy
22 Ms. Jaroonsri Wankertphon <sup>10/</sup>	Executive Vice President, Global Business Services

*Remarks:*

No. 1 - 5 are "Management" under SEC's notification.

1/ Appointed on May 13, 2020, replacing Mr. Chansin Treenuchagron, who completed his term.

2/ Appointed on June 1, 2020, replacing Mr. Auttapol Rerkpiboon, who was appointed as President & CEO.

3/ Appointed on October 1, 2020, replacing Mr. Preecha Pocatanawat, who retired.

4/ Appointed on June 1, 2020, replacing Mr. Kris Imsang, who was appointed Chief Operating Officer, Downstream Petroleum Business Group.

5/ Appointed on December 1, 2020, replacing Mr. Worawat Pitayasiri, who was appointed as SEVP, and seconded to President and CEO, Global Power Synergy Plc.

6/ Appointed on October 1, 2020, replacing Mr. Phongsthorn Thavisin, who retired.

7/ Appointed on December 1, 2020, replacing Mr. Noppadol Pinsupa, who was appointed as SEVP, Innovation and Digital.

8/ Appointed on December 1, 2020, replacing Mr. Chawalit Tippawanich, who was appointed as SEVP, and seconded to President and CEO, IRPC Plc.

9/ Transferred to PTT Exploration and Production Plc. with effect from December 31, 2020.

10/ Appointed on October 1, 2020, replacing Mr. Chienvit Udomwatwong, who retired.

### The Managements appointed/ changed the name of position on January 1, 2021

Name	Position
1. Ms. Wilaiwan Kanjanakanti	Executive Vice President, Group Finance and Accounting Policy, changed the name to Executive Vice President, Group Accounting and Tax Policy with effect from January 1, 2021.
2. Mrs. Chanamas Sasnanand	PTTEP Senior Vice President, seconded to PTT as Executive Vice President, Corporate Finance and Strategy, replacing Mr. Yongyos Krongphanich, with effect from January 1, 2021.

## Duties and Responsibilities of the President & Executive Officer (President)

Under the Articles of Association, the President is authorized and responsible for managing the Board-assigned and PTT's overall business, which must be strictly and prudently managed with integrity under the Board-approved plans or budget in the best interests of PTT and its shareholders.

The President's authority and responsibilities include:

- Operating or managing day-to-day business, or both.
- Hiring, appointing, removing, transferring, promoting, demoting, deducting the salary or wages of, punishing, and dismissing any employee under the Board's regulations.
- Ensuring the preparation and submission of business policies, including operating plans and budget estimates, for the Board's approval, and reporting performance outcomes to the Board every three months.
- Ensuring implementation of the Board-approved policies, plans, and budget.

The Board authorized the President to manage PTT's business under the following scope:

- Manage the overall business under the objectives, Articles of Association, policies, rules and regulations, directives and resolutions of the Board and/or shareholders' meetings.
- Order, contact, command, implement, and sign juristic acts, agreements, orders, announcements, or correspondence with government agencies, state enterprises, or other parties and engage in any essential and suitable action to facilitate this duty.
- Command all employees, including hiring, appointing, removing, promoting, demoting, deducting the salary or wages of, taking disciplinary action against or dismissing any employee under the rules, regulations, and directives of the Board. For employees serving as advisers, senior executive vice presidents or equivalent upward, prior approval of the Board is required. The President is also authorized to specify employment conditions for employees and issue rules for PTT's operations provided that they do not contradict the rules, regulations, and directives of the Board.
- Assign the power of attorney or delegate specific tasks to other persons, or both, provided that the action complies with the document on the power of attorney or rules, regulations, or directives of the Board or PTT, or both.

The authority and duties of the President stated above are invalid for any conflict of interest with PTT in any form resulting from the President's exercise of the authority. This year no such cases have arisen.

## The Management Committee

The PTT Management Committee (PTTMC) was appointed on October 1, 2001, with the mandate of operating PTT's business. As of December 31, 2020, the Committee consisted of 14 members as follows;

Name	Position
1. President & CEO	Chairman
2. Chief Operating Officer, Upstream Petroleum and Gas Business Group	Member
3. Chief Operating Officer, Downstream Petroleum Business Group	Member
4. Chief Technology and Engineering Officer	Member
5. Chief Financial Officer	Member
6. Senior Executive Vice President, Gas Business Unit	Member
7. Senior Executive Vice President, International Trading Business Unit	Member
8. Senior Executive Vice President, Downstream Business Group Alignment	Member
9. Senior Executive Vice President, Innovation and Digital	Member
10. Senior Executive Vice President, Organization Management and Sustainability	Member
11. Senior Executive Vice President, Office of General Counsel	Member
12. Senior Executive Vice President, Corporate Governance and Regulatory Affairs	Member
13. Senior Executive Vice President, Corporate Strategy	Member and Secretary
14. Executive Vice President, Company Secretary and Corporate Relation	Assistant Secretary

The Management Committee meets at least twice a month. This year, there were altogether 49 meetings (47 regular and 2 special meetings).

## Duties and Responsibilities

Provide advice and recommendations to the President on significant issues regarding corporate strategy and business directions, long-term planning, business performance, investment plans, budgets, allocation of resources to PTT and its affiliates, and ensure the uniformity of PTT's operations. PTTMC also provides consultation and recommendations to the President & CEO and promotes operation on the following matters:

- Set the visions and key missions for PTT Group.
- Establish directions, strategies, and business targets for the group along with the performance targets of business units and the group as a whole.
- Define a direction for corporate governance monitoring and integration of Governance, Risk and Compliance of the group
- Consider the capital allocation structure (budget and resources) to support future investment and operations of PTT and PTT Group (PTT Group's Capital Allocation Structure).



- Consider the investment management of PTT and PTT Group (PTT Group's Portfolio Management).
- Consider and monitor PTT's extended international investment.
- Establish a policy on human resource management, prepare and develop the group's management of level 14 up in a systematic, professional way for its future missions in line with the Leadership Affiliation and Alignment Program.
- Screen and provide opinions and recommendations on the establishment of standards/ mechanisms for the systems of business administration, human resources and information, as well as business processes and organizational structures of PTT and its affiliates in order to be a corporation of sustainability excellence.
- Consider, screen, define policies and principles for the PTT Way of Conduct, and ensure desirable direction.
- Rank significant matters about the allocation of human and financial resources of PTT and its affiliates.
- Jointly resolve significant conflicts between PTT's upstream and downstream petroleum and technology and engineering businesses.
- Follow up progress and assesses the performance of the group against KPIs (PAs & KPIs)
- Scrutinize risk management in the business operations of the group.
- Screen meeting agendas before presenting to the Board.
- Rank Board decisions to ensure effective implementation.
- Appoint committees or working groups, or both, to assist the Board's tasks.
- Perform other work as may be assigned by the President & CEO.

To efficiently manage PTT Group to drive the strategies and operations to achieve their goals, PTT has divided its committees into three groups:

### 1. Strategy Committees:

- 1.1 PTT Group Management Committee (PTTGMC)
- 1.2 PTT Management Committee (PTTMC) (mentioned above)
- 1.3 Minor PTT Group Management Committee: Minor PTTGMC

### 2. Coordination Committees:

- 2.1 Upstream & Gas Business Group Alignment & Coordination Management Committee (UAC)
- 2.2 Downstream Business Group Alignment & Coordination Committee (DAC)
- 2.3 Technology and Engineering Group Alignment & Coordination Management Committee (TEAC)
- 2.4 PTT Group Technology Committee (PTTGTC)
- 2.5 Sustainability Alignment Committee (SAC)
- 2.6 Gas Business Strategic Alignment Committee (GBSC)
- 2.7 Downstream Petroleum Business Group Strategic Alignment Committee (DBSC)
- 2.8 Trading Business Strategic Alignment Committee (TBSC)
- 2.9 Trading Risk Management Committee (TRMC)

### 3. Support Committees:

- 3.1 Corporate Plan and Risk Management Committee (CPRC)
- 3.2 Governance, Risk and Compliance Management Committee (GRCMC)
- 3.3 Human Resources Group Alignment & Coordination Management Committee (HRAC)

- 3.4 Finance & Accounting Group Alignment & Coordination Management Committee (FAAC)
- 3.5 PTT Group Core Values & KM Alignment Committee
- 3.6 PTT Group Internal Audit Management Committee
- 3.7 PTT Group Digital Steering Committee
- 3.8 PTT Group Policy & Strategic Sourcing Committee
- 3.9 PTT Group Sustainability Management Committee (GSMC)
- 3.10 PTT Group Brand Equity Optimization Committee
- 3.11 PTT Group Operational Excellence Steering Committee (OpEx SteerCo.)
- 3.12 PTT Group Corporate Governance Committee
- 3.13 PTT Group CSR Committee
- 3.14 Social Enterprise Committee
- 3.15 International Business Development Committee (IBDC)
- 3.16 Information Security Management System Committees (ISMSC)
- 3.17 PTT Innovation Management Committee (PTT IMC)

## Succession Plan

Because PTT is a state enterprise, the nomination and appointment of the President & CEO must follow the Standard Qualifications of Directors and State Enterprise Officer Act. The directors must possess the qualifications as specified in Section 8 ter, and the nominating procedures as specified in Section 8 quarter. The Board is to appoint a Nominating Committee with five members legitimately qualified to nominate persons with appropriate knowledge, capability, and experience to fill the positions of PTT management. They must be legitimately qualified with no prohibited characteristics and cannot be PTT directors, except for management who are directors by title. They must not be older than 58 years old when submitting the application form. When the Nominating Committee has selected appropriate candidates, The result will be submitted to the authority's consideration. The appointment must be completed within

a year since the day the incumbent left the position. The employment contract lasts up to four years for each term. If the Board wishes to hire the previous person after the completion of his term as specified in the employment contract, it does not have to go through the nominating process. However, it cannot hire that person for more than two consecutive terms.

In 2019, the Board proceeded with the nomination of the new President & CEO to replace Mr. Chansin Treenuchagron, who would complete his term under the employment contract on May 12, 2020. The President & CEO Nominating Committee was appointed as required by the Standard Qualifications of State Enterprise Directors and Officials Act B.E. 2518 (1975). Six fully qualified candidates applied for the position, all PTT management personnel. The nominating process was transparently conducted in compliance with Section 8, paragraph 3, of the above-mentioned act and its amendments. The President & CEO Nominating Committee proposed a qualified candidate to the Board for consideration. On December 19, 2019, the Board approved the Committee's proposal and appointed Mr. Auttapol Rerkpiboon as the new President & CEO, succeeding Mr. Chansin Treenuchagron. Mr. Auttapol Rerkpiboon assumed office on May 13, 2020 for a four-year term from the date of appointment.

PTT has been grooming top management to become qualified candidates to replace the top management due to retire in the next 3 - 5 years. In 2007, PTT set up a Group Leader Development Program (GLDP) to develop a succession plan for potential leaders to assume higher positions of PTT Group that become vacant, namely:

- President and CEO
- Senior Executive Vice President (SEVP) or equivalent
- Executive Vice President (EVP) or equivalent
- Vice President (VP) or equivalent.

Management mechanisms are:

- PTT Group Management Committee (PTTGMC)
- PTT Group Management Committee - Minor (PTTGMC-Minor)
- Human Resources Group Alignment & Coordination Management Committee (HRAC)
- Human Resources Management Committee (HRMC)
- Corporate Human Resources Committee (HRC).

## Performance in 2020

- Selection of SEVP pool members from potential EVPs (PTT Group)
  - 43 pool members (as of December 31, 2020)
  - 40 pool members already promoted (2008 - 2020)
- Selection of EVP pool members from potential VPs (PTT Group)
  - 117 pool members (as of December 31, 2020)
  - 78 pool members already promoted (2009 - 2020)
- Selection of VP pool members from PTT potential division managers (PTT)
  - 139 pool members (as of December 31, 2020)
  - 240 pool members already promoted (2009 - 2020).

## Labor Disputes

No reports of PTT labor disputes have been received over the past three years.

## Management's Remuneration Policy

### Management's Remuneration

Management Remuneration was set in accordance with the policy and regulations set by the PTT Board of Directors, aligning with the Performance Agreement (PA) of the Company given by the Ministry of Finance. The President & CEO and all executives had together set Key Performance Indicators (KPIs) every year, as well as achievement targets in line with long-term business strategies. These indicators included business aspects, according to the balance scorecard such as finance, customers, internal processes, learning and developing, products, and human resources. These are for the Company to set the business directions and for the performance evaluation of the President & CEO and all executives.

The Remuneration Committee is responsible for considering the remuneration of the President & CEO to reflect his performance management which are also in line with the principles and the standards of other industrial peers, with clear criteria, transparency and fairness. As a result, the annual salary increase and bonus payment would align with KPIs, short-term and long-term performance that tally with PTT's strategy. Overall, it should reflect his visions and the additional values and capacity enhancement for company in the long run. The principles and the appropriate remuneration must be presented to the Board of Directors for approval. To this end, key factors to evaluate the performance of President & CEO were 1) PTT's performance 2) the performance based on the visions, and 3) management capability and leadership.

According to the definition of "Management" which defined by the Securities and Exchange Commission (SEC), it consist of 5 members included the President and CEO, Chief Operating Officer, Upstream Petroleum and Gas Business Group; Chief Operating Officer, Downstream Petroleum Business Group; Chief Technology and Engineering Officer; and Chief Financial Officer. The remuneration paid to management (excluding those seconded to PTT affiliates and those from PTT affiliates seconded to PTT) are detailed below:

## Total Remuneration Paid to President &amp; CEO in 2020

Unit: THB

Remuneration (President & CEO)	2020
	Amount
Total Remuneration	30,772,423
Bonus	7,939,778
<b>Total</b>	<b>38,712,201</b>

## Remarks:

The salary of the President & CEO included an allowance for additional tasks, namely the position of Chairman or Director (or both) of PTT's subsidiaries. He has been complied with the employment term contract as president.

## Total Remuneration Paid to Top Management according to SEC's Definition (4 persons) in 2020

Unit: THB

Remuneration	2020	
	Management (under SEC's Definition)	
	Person	Amount (THB)
Salary	4	31,623,762
Bonus	4	14,357,096
<b>Total</b>		<b>45,980,858</b>

## Total Remuneration Paid to Management (5 persons) from 2017 – 2020

Unit: THB

Remuneration	2017		2018		2019		2020	
	Person	Amount (THB)	Person	Amount (THB)	Person	Amount (THB)	Person	Amount (THB)
Salary	5	59,587,470	5	62,930,910	5	60,436,160	5	62,396,185
Bonus	5	22,880,880	5	24,672,468	5	24,474,078	5	22,296,874
<b>Total</b>		<b>82,468,350</b>		<b>87,603,378</b>		<b>84,910,238</b>		<b>84,693,059</b>

### Remuneration Paid to Top 5 Management according to SEC's Definition as Chairman and Directors of PTT Group and Subsidiaries in 2020

Unit: THB

Remuneration	2020	
	Person	Amount (THB)
Meeting Allowance and Monthly Allowance	5	14,202,084.34
Bonus	5	14,951,245.29
<b>Total</b>		<b>29,153,329.63</b>

*Remarks:*

The remuneration paid to top 5 Management according to SEC's Definition as Chairman and Directors of PTT Group and Subsidiaries. In addition, the remuneration of the President & CEO has been complied with the employment term contract as president.

### Provident Fund Contribution to Management from 2017 - 2020

Unit: THB

Remuneration	2017		2018		2019		2020	
	Person	Amount (THB)	Person	Amount (THB)	Person	Amount (THB)	Person	Amount (THB)
Provident Fund Contributions	4	3,632,300.50	4	3,708,690.50	4	3,836,735.80	4	5,460,684.00

Additional information on the Board and management:

Records have shown no violation of the law within the past 10 years regarding:

- 1) Being sentenced for criminal charges except for violations of traffic laws, petty charges, or similar charges
- 2) Being sentenced to bankruptcy or having assets controlled
- 3) Serving as an executive or an authority in a company or partnership sentenced to bankruptcy or whose assets are controlled.

## 7.5 Employees

Employees are pivotal to corporate operations, and their quality is a key to its business success. PTT, therefore, stresses the development of HR management systems compatible with technological advancement and international standard. It not only promote both conscientious merit and business competence among its employees, but also encourage them to actively take part in public service. It is indeed through employees that PTT focuses on its development into a sustainable organization to elevate competitiveness and respond to internal changes of a corporation in pursuit of national energy security.

### Headcount and Remuneration

The employee headcount (including those seconded to PTT's affiliates) as of December 31, 2020, stood at 3,506. PTT has continued to set its manpower plans in line with its operations under economic uncertainty. The focus is on allocating resources where significant value supplementation is likely or where continuing investment is needed.

The business-group headcounts from 2017 to 2020 were as follows:

Unit: person

Business Unit	2017		2018		2019		2020	
	PTT	PTT Group	PTT	PTT Group	PTT	PTT Group	PTT	PTT Group
1. Gas	1,281	-	1,393	-	1,417	-	1,440	-
2. Oil	1,486	-	- <sup>3/</sup>	-	-	-	-	-
3. Petrochemicals and Refining	100	-	144	-	124	-	141	-
4. Technology and Engineering	507	-	380	-	394	-	429	-
5. Support staff/ secondees to PTT affiliates	1,084 <sup>1/</sup>	239 <sup>2/</sup>	1,144 <sup>1/</sup>	654 <sup>2/</sup>	1,167 <sup>1/</sup>	476 <sup>2/</sup>	1,117 <sup>1/</sup>	379 <sup>2/</sup>
6. Subsidiaries and jointly-controlled entities	-	25,036	-	25,959	-	27,511	-	29,042
<b>Total</b>	<b>4,458</b>	<b>25,275</b>	<b>3,061</b>	<b>26,613</b>	<b>3,102</b>	<b>27,987</b>	<b>3,127</b>	<b>29,421</b>

Remarks:

1/ Excluding PTT secondments.

2/ PTT secondments.

3/ On July 1, 2018, the Oil Business Unit was isolated and became PTT Oil and Retail Business Plc.



**Remuneration for Personnel (excluding the President and management) from 2017 – 2020**

Unit: THB

Remuneration	2017	2018 <sup>1/</sup>	2019	2020
Salary	4,282,921,717.48	4,104,427,784.01	3,855,819,435.99	3,966,160,901.90
Bonus	2,115,503,048.90	1,980,862,083.68	1,915,330,097.81	1,628,293,859.46
Contribution to Provident Fund	506,518,662.19	489,326,712.01	464,877,921.50	477,524,458.33
Others (if any)	3,778,463,866.70	3,286,987,468.56	3,629,328,277.20	2,077,146,865.96
<b>Total</b>	<b>10,683,407,295.27</b>	<b>9,861,604,048.26</b>	<b>9,865,355,732.50</b>	<b>8,149,126,085.65</b>

*Remarks:*

1/ On July 1, 2018, the Oil Business Unit was isolated and became PTT Oil and Retail Business Plc. Therefore, remuneration for personnel from the Oil Business Unit for 2018 included January to June only.

PTT sets the remuneration of employees based on the short-term and long-term performance through Performance Management, a system is set to drive the company's performance to its achievement and in line with the Performance Agreement (PA) which is also linked to the corporate targets, business unit targets, and individual targets in the same direction.

PTT employee's annual salary increase is considered according to their performance. To this end, KPIs were applied to manage employee performance evaluation, which would be accordingly reflected in their salary increases and benefits. Employee KPIs could be divided into corporate KPIs and business/ operational/ personal, or functional KPIs. Personal KPIs must align with the four aspects of the balance scorecard, namely finance, customers, internal process, and learning and developing. To achieve the Company's targets sustainably, PTT had added two more important aspects, namely products and personnel, in reply to current performance results (short-term) and long-term business plans. Besides, PTT set a variable bonus aligned with the KPIs of PTT executives and employees of the management group to create motivation in achieving the targets of the year.

## Provident Fund

PTT has established and registered a provident fund called the "Provident Fund of PTT Public Company Limited and Affiliates" (the Fund). Employees of PTT and its joint ventures are eligible to participate in the scheme, and currently 3,462 employees out of the total 3,482 employees of PTT, or 99.43%, have joined the Fund, managed by Krungthai Asset Management Public Company Limited and TISCO Asset Management Company Limited. The two companies disclosed related information in compliance with the Investment Governance Code (I Code).

The Fund engaged in investment with due regard for environmental, social, and governance (ESG) factors and jointly with the companies set a policy and assigned them to invest in entities with committed responsibility for all stakeholders: shareholders, employees, customers, business partners, society and the world. PTT has defined CG criteria and applied its decision making process to ensure that the Fund makes the right investment in transparent businesses. Moreover, the Investment Committee required the fund managers to report PTT's current assets that are currently invested and compared them with the lists of SETTHSI index (Thailand Sustainability Investment) in order to learn of the ratio of its assets and the change every time when they submit investment performance.

## Other Remunerations

PTT has instituted employee welfare and other remuneration programs apart from salary, bonus, and provident fund contributions for management and all employees. This is to keep up with economic conditions, the cost of living, and other standards peer companies' as well as PTT's current and future performance, achieved through constant revision and improvement. In addition, PTT has adopted Flexible Benefit, in response to the needs of individual employees. Each employee can choose to apply for flexible benefits instead of workmen's contribution by declaring his or her intention once a year under the period, conditions, and details prescribed by PTT, provided that such customized flexible benefits are not against the law, tradition, and good moral. However, mandatory employee benefits vital to the well-being of employees and in performing his or her duties will not be included as a choice. Moreover, contribution to the provident fund has been increased, and more choices are available for employee fund contribution to promote employees' financial planning and preparation for retirement.

## HR System Development and Improvement

To become a sustainable organization, PTT continuously improves its HR management processes and mechanisms to ensure higher efficiency and realize the full potential of its employees, which will lead PTT toward its goals. PTT employees are able to fully demonstrate their competence, advance in their careers, and continue to grow with PTT.

PTT has focused on participation across the board in designing business plans to suit its direction and targets, since this will efficiently align all its components. To this end, it has instituted a process in which senior PTT Group management along with support staff jointly define a vision and directions before propagating the agreed items for other units to apply in turning business strategies into business plans and budget plans in broad alignment. All PTT employees define individual objectives and KPIs, cascaded through the ranks from the corporate, department, to individual level. Such objectives and indicators defined by employees then serve as a scope for performance and performance assessment standards to reflect individual performance.

PTT has applied Career Management guidelines to prepare and promote management and all employees with skills and knowledge to fit the PTT-designed model in coping with its missions and creating value for the organization. PTT has applied this model to the management and development of all its employees and, taking into account business direction to enhance corporate competitiveness, has divided them into two professional groups (senior management and employees), with clear, efficient interconnected systems for recruitment, assessment, and individual development planning (IDP) in place.

- Senior management (equivalent to vice presidents upward) undergo Group Leader Development, which sustains the needs of senior executives in both quantity and quality. Management of this group is supervised by a panel of CEOs in PTT Group called the "PTT Group Management Committee (PTTGMC)", responsible for defining directions and policies for development plans for senior management. Another team, called "Human Resources Group Alignment & Coordination Management Committee (HRAC)", provides counseling and recommendations to the Senior Executive Vice President, Human Resources & Organization Excellence, to enhance decision-making on key coordination issues regarding human resource development strategies and directions of the PTT Group to align with those of PTT.
- Employees (division manager or equivalent and below): This internal management is specific to PTT or a PTT affiliate in developing employees to suit future operational needs. For PTT, a Corporate Human Resources Committee (HRC) was established to promote and monitor career development planning to ensure goal achievement. A Career Counseling Team (CCT) for 16 professional groups takes charge of defining and developing individuals, providing counseling and guidance, and monitoring and following up on implementation. The individual development plan is a tool for employees to set their goals and develop their career paths, thus adding value to their work in line with PTT's directions and goals. Such employee development can be

undertaken through proper training via success profiles or job rotation in line with their career paths. This will enable all employees to develop skills in their new positions, as will suitable appointments and promotions in line with their responsibilities and potential. With this development framework, employees will be qualified to assume top management positions of PTT Group and enable PTT to achieve its goals.

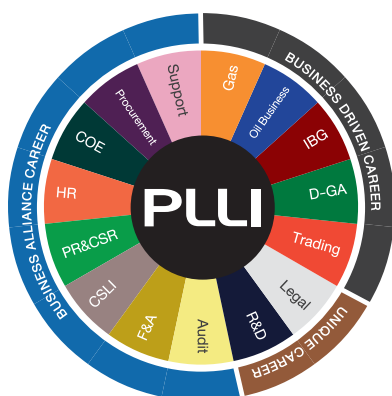
- To ensure that the policy defined and HR management align with and support the business directions of PTT Group, the Human Resources Management Committee (HRMC), appointed to define and propose policies and make decisions on HR management, provide recommendations on the preparedness and development of PTT's current as well as future executives and employees, screen and give recommendations on the corporate structure and manpower, and approve or screen matters on HR management under the authority assigned.

In 2020, PTT held the Sixth "Young People to Globalization program" (YP2G, Class 6) to develop qualified personnel for overseas posting in line with PTT's strategies. These personnel will be assigned challenging responsibilities through the following core functions: Strategy & Planning, Business Development, Commercial & Marketing, and Engineering & Operation. These tasks will enable them to learn and accrue experience in business acumen through on-the-job training (OJT).

Valuing career and competency management, PTT not only prepared and reviewed the success profile and career path of each position, but also assessed success profiles for alignment with the performance cycle. The employees were urged to discuss their responsibilities with their supervisors (two-way communication) at the beginning of the year. These responsibilities were monitored and evaluated at mid-year and the end of the year to monitor or formulate individual development plans (IDPs), or both, for the employees.

PTT Group encourages and supports employees' learning through the "PTT Leadership and Learning Institute (PLLI)" with goals of establishing standards and developing employees capability through the management and implementation of compulsory courses for all PTT employees in the same direction.

PLLI has continually provided capacity-building courses for management and employees to be "smart and conscientious", leadership development grooming for the organization's growth, and staff capacity-building to prepare them for corporate core competencies, advanced technology, stakeholders' needs and strategic challenges. This year, despite the COVID-19 spread, it has upgraded its learning and development course structure by applying new digital self-learning tools and media to support continued learning: the classroom was replaced by real-time virtual classroom for some courses, which enabled participants to exchange their knowledge, experience and opinions with their instructor through the VDO conference, such as MS Teams, Webex and PTT LMS. Other improved digital learning included, e-learning, Organizational Knowledge, over 100 online learning courses on business, technology, soft skills, lifestyle and many others, PTT E-Library (E-Book, E-Magazine, Magazine, Book) that employees can search, book, borrow, and return via online services, including recommended books for compulsory courses in the electronical format and Podcast, and voice online. All of them support uninterrupted self-development of employees in line with PTT's business direction and strategies and maximum benefit in the development of employees' capacity and modern management. PLLI's course structure covers the development of all employees, from new recruits to top management, as follows;



1. Leadership Development Program is designed to prepare and accelerate development of high-potential management team members for skills, knowledge, and ability in people and business management through learning, knowledge-sharing and experience-sharing with world-class instructors, including learning and experience-sharing with top management, internal and external. Participants of this program are potential management team members selected under given criteria.
2. Core Programs are designed to develop the capacity of all employees at each level, position, and career. Supervisors must support employees for training under this program. The program comprises compulsory courses, direction/assignment, essential program, and functional program.
3. Elective Program is designed to develop the capacity of each individual's needs. The line supervisor and employee will together choose additional courses as suitable and necessary, for example, marketing for crisis management, crisis team management and Virtual Agile Team.

## Summary of Human Resource Development

Unit: Hours/person/year

Training hours/person/year	2016	2017	2018	2019	2020
Employee	68.40	40.62	73.67	78.88	30.26
Management	20.91	25.12	73.91	89.15	45.93

Unit: THB/person/year

Expense/person/year	2016	2017	2018	2019	2020
Employee & Management	35,168.35	37,837.83	55,274.35	53,143.21	13,471.73

## Fostering Relationship between Management and Staff in Search of Common Goal

Communication between management and staff comes in various forms. Needing to be aware of corporate business, obstacles, and potential repercussions, employees should be allowed to share their views and take part in business efficiency improvement. Each year, besides the monthly Labor Relations Committee meetings, PTT holds meetings of a working group on the study and development of employees' welfare and other benefits, appointed with the resolution of the Labor Relations Committee. Members comprised representatives from the employer and employees to jointly search and analyze information on employees' welfare and benefits of PTT in comparison with those of other leading national businesses for use in their improvement for PTT's regular and temporary employees. PTT also holds Joint Consultation Committee (JCC) meetings between its management team and staff of regional offices nationwide. In addition, the President constantly holds regular meetings with employees, while PTT annually surveys employees' satisfaction and engagement for improvement. PTT believes that proper communication and information exchange among all staff and management will produce smooth relations and cooperation, thus driving the organization toward goal achievement. Moreover, PTT surveys the basic human

resource needs of management and staff through various committees such as the Human Resource Management Committee, PTT Labor Relations Committee, and Career Path Management Committee. A survey of staff opinions was undertaken by an external human resource management adviser. There was also cooperation with PTT Group to jointly develop a database of management as well as development plans of senior management.

The PTT Labor Relations Committee was established under the State Enterprise Labour Relations Act B.E. 2543 (2000). The committee consists of 19 members with the President as Chairman, nine members representing the employers, and nine members appointed by PTT's Labor Union, representing the employees. The committee considers issues about PTT's operations, employment conditions, employees' rights and benefits, as well as employee complaints.

## PTT Group Core Values

PTT Group defined its core values as SPIRIT, which is significant in molding PTT management and employees to command uniform work behavior. The SPIRIT (S: Synergy, P: Performance Excellence, I: Innovation, R: Responsibility for Society, and T: Trust and Respect) clearly reflects PTT's identity of smart, conscientious and responsible for the company and the outside society alike.



This year, PTT focused on PTT Group as a leading national energy organization and the national driving force to overcome all changes through technology and innovation, enhance competitiveness of the nation, and develop society and the well-being of the people under the concept of **PTT (Powering Thailand's Transformation)** in response to the consumers' needs and stakeholders' expectations, based on the PTT strategy and PTT concept, or "PTT by PTT", which consisted of:

- **Partnership and Platform:** with emphasis on operating businesses by fostering positive relations with its partners and developing PTT's business into a platform rather than just a manufacturer and product distributor.
- **Technology for All:** by applying technology from expertise, innovation and digital to all aspects of operation processes, and driving outward for innovation creation for society.
- **Transparency and Sustainability:** to ensure transparency and confidence in sustainable business operations.

## 7.6 Other Informations

### Company Secretary

To comply with the CG principles of listed companies under the category of directors' responsibility and the terms of the Securities and Exchange Act, the Board appointed a Company Secretary to provide the Board with legal advice and remind them of assorted regulations that they need to know and comply with; hold meetings; supervise assorted Board activities to enable them to perform efficiently and effectively in the best interests of PTT; prepare and maintain key documents, including directors' registration, Board meeting notices and minutes, annual reports; issue shareholders' meeting notices and minutes; and keep reports on vested interests reported by directors or management.

The Board has appointed Company Secretary since 2008. Since October 1, 2020, Mr. Nisit Phongvuttiprapant serves as the Company Secretary.

### Company Secretary



#### Mr. Nisit Phongvuttiprapant

Company Secretary:

(October 1, 2020 - present)

**Age:** 50

**Shareholding:**

0.000003

**Education:**

- Bachelor of Economics (Development Economics), Bangkok University

**Company Secretary Training Record:**

- Director Certification Program (DCP 195/2014), Company Secretary Program (CSP 113/2020), Thai Institute of Directors Association (IOD)

**Training/ Certification:**

- Advanced Management Program II (Class 1/2018), PTT Leadership and Learning Institute
- Leadership Development Program I (2013), PTT Leadership and Learning Institute
- Bain Academy Asia Pacific 2019 Program, Bain & Company SE Asia, Inc., Singapore

**Professional Experience** (past five years):

- October 1, 2020 - Present  
Senior Executive Vice President, PTT Oil and Retail Business Plc. (OR), seconded to Executive Vice President, Company Secretary and Corporate Relations, PTT Public Company Limited
- June 1, 2020 - September 30, 2020  
Senior Executive Vice President, Corporate Strategy, Innovation and Sustainability, OR



- February 1, 2020 - May 31, 2020  
Vice President, Strategy and Portfolio Management, OR
- May 1, 2019 - January 31, 2020  
Vice President, OR, seconded to PTT Oil Myanmar Company Limited
- July 1, 2018 - April 30, 2019  
Vice President, International Business Development and Planning, OR
- May 17, 2017 - April 30, 2019  
Director, PTT Philippines Corporation
- 2012 - April 30, 2019  
Director, PTT (Lao) Company Limited
- January 1, 2017 - June 31, 2018  
Vice President, International Business Development and Planning, PTT Public Company Limited
- September 1, 2013 - December 31, 2016  
Division Manager, PTT, seconded to Managing Director, PTT (Lao) Company Limited

**Related Key Positions Held:**

- -None-

**Important Special Activities**

- Director, Thai Listed Companies Association (TLCA)
- Managing Partner, Phu Luang Kaset Roong Ruang Partnership (1992)

**Relationship with Executives:**

- -None-

## Head of the Office of Corporate Audit

The Executive Vice President, Office of Corporate Audit, PTT, is by position assigned as Head of the Corporate Audit. Mr. Chadil Chavanalikhikorn is the present head of Corporate Audit. More Profile details appear in Part 2 “9. Internal Control and Connected Transactions” and details of the Head of the office of Corporate Audit also appear in Attachment 3.

## Head of Compliance

The Senior Executive Vice President, Office of General Counsel, PTT, is by position assigned as Head of Compliance. Ms. Peangpanor Boonklum was appointed to the position and is currently responsible for PTT’s compliance. More details about compliance Unit are presented in Part 2 “9. Internal Control and Connected Transactions” and profile details of the Head of Compliance also appear in Attachment 1.

## Head of Investor Relations and contact

Mrs. Panporn Sasananan, Investor Relations, was appointed Vice President, Investor Relations Department with effect from January 1, 2019, and can be contacted at Investor Relations, PTT, Tel.: 0-2537-3518-9, Email: ptt-ir@pttplc.com, or website PTT (www.pttplc.com).

## Audit Fee

This year, PTT and its subsidiaries paid a total of THB 156,732,930 (one hundred fifty-six million seven hundred thirty-two thousand nine hundred thirty) in audit fees to the office of the external auditors for previous fiscal year. They also paid THB 68,363,920 (sixty-eight million three hundred sixty-three thousand nine hundred twenty) for other services (non-audit fees) such as those for comfort letters issued for subsidiaries’ debt management plans for debentures, those for revisiting the Updated Global Medium-Term Notes, and other certification fees in the previous fiscal year.

## The person supervising accounting

The Executive Vice President, Global Business Services, PTT, is assigned by position to be directly responsible for PTT’s accounting. Ms. Jaroonsri Wankertphon has been holding the position since October 1, 2020, replacing Mr. Chienvit Udomwatwong, who retired, and is directly in charge of accounting management. She is a qualified as an accountant under the criteria set by the Department of Business Development. *More profile details appear in Executive Profile in Attachment 1.*

## 8. Corporate Governance Milestones

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### 8.1 Performance of the Board of Directors in 2020

#### 8.1.1 Nomination, Development and Performance Assessment of the Board

##### (1) Independent Directors

The Board of Directors, at the meeting No. 1/2013 of January 17, 2013, approved the revised definition of the independence of directors, proposed by the Corporate Governance Committee which is more stringent than the criteria set by the Securities and Exchange Commission (SEC) and the Stock Exchange of Thailand (SET), and defined their roles, duties and responsibilities. PTT published a handbook on their execution of duties and responsibilities, signed by the Chairman, on January 21, 2013. Essential elements of the handbook are:

##### Qualifications of independent directors

- (1) Holding shares not exceeding 0.5% of the voting shares of PTT, its subsidiaries, associated companies, or juristic person of potential conflict, including the shares held by persons related to the independent director. ("Person related" shall mean the person under Section 258 of the Securities and Exchange Act).
- (2) Must not be or have been an executive director/ employee/ member of staff/ adviser who receives a regular salary, or authorized controlling person of PTT, its subsidiaries, associated companies, same-level subsidiary company, or juristic person of potential conflict during the past two years before the appointment.
- (3) Must not have blood relationship or by legal registration as the father, mother, spouse, sibling, or offspring, or spouse of the offspring of any other director, executive, major shareholder, authorized controlling person, or any person to be nominated as an executive, or authorized controlling person of PTT or its subsidiaries.

## (4) Business relationship with PTT:

## (a) Types of relationship

• **Professional service**

- Auditor, other professional service providers including legal or financial advisers and property valuers.
- “Non-independent” criteria
  - Total prohibition for auditors
  - Other professional service providers: when the total value exceeds THB 2 million per year.

• **Commercial/ business relationship: (SET’s regulations on connected transactions will be applied):**

- Types of relationship: Full coverage of business transactions, that is, normal business transactions, real-estate leasing, asset/ service transactions, and financial assistance transactions.
- “Non-independent” criteria: Transaction value from THB 20 million or 3% of PTT’s NTA upward (whichever is lower); the total value must include items occurring within six months before this transaction.

## (b) Should the relationship under (a) apply to a juristic person, the parties regarded as “non-independent” shall include major shareholders, directors (independent directors and members of the Audit Committee not included), and executives or partners of such juristic person.

## (c) Prohibited period for relationships in (a) and (b): Currently and two years before the appointment.

## (d) Exception: If necessary and appropriate, and not on a regular or continuing basis, independent directors and members of the Audit Committee may have more relationship than the non-independent criteria while holding directorship, provided that a prior unanimous approval has been given by the Board. Besides, PTT shall disclose such independent director’s relationship in the annual information disclosure form (Form 56-1) and in the annual report (Form 56-2) of PTT. And should PTT decide to reappoint such independent director, PTT is required to disclose such independent director’s relationship in the notices of the next AGM under the agenda on director nomination.

## (5) The person must not be a director appointed to represent PTT Board of Directors, its major shareholder, or shareholders who related to PTT’s major shareholder.

## (6) Must not have any other characteristic that may hinder expression of independent views.

## (7) Independent directors with qualifications under (1) - (6) may be assigned by the Board to make decisions on the operations of PTT, its subsidiaries, associated companies, same-level subsidiary company, or juristic person of potential conflict, provided that the decision must be collective decisions.

PTT is also required to disclose information on office-holding by independent directors of PTT, its subsidiaries or sister company, including their compensation received, in the 56-1 One Report.

Qualifications of independent directors must not contradict relevant laws and regulations.

- Report on independent directors’ business relationship or other professional service provided during the past fiscal year: None.

## Roles, duties and responsibilities of PTT’s independent directors

## (1) Recommend essential, beneficial matters to PTT, shareholders and minor shareholders to the Board and/or the President &amp; CEO, as applicable.

## (2) Advocate roles and duties of the Board and provide views commonly expected of independent directors for the benefit of PTT and its shareholders and minor shareholders.

## (3) Review PTT’s compliance with laws relating to independent directors and revise the definition of independent directors for suitability and legal completeness.

## (4) Take other Board-assigned actions provided that they do not compromise their independence.

## (5) An independent director’s term begins once he or she fulfills all the requirements under the definition for PTT’s corporate governance (CG); it ends when he or she lacks qualifications or completes the term.

## (6) The independent directors must hold their own meeting at least once a year.

## Segregation of the Chairman and the President & CEO

To segregate policy-making duties from those of day-to-day management and to enable directors to look after and assess performance effectively, PTT has required that the Chairman and the President & CEO are always two persons. This is because the Chairman needs to oversee management's performance, guide, and assist it, but not to take part in or interfere with day-to-day management, which is the duty of the President & CEO under the authority delegated by the Board.

The current Chairman is an independent director. He exercises high-level leadership and ensures that directors do not fall under the influence of management by encouraging them to exercise their voting rights and strictly comply with the CG code.

## Independence of the Chairman

Board Meeting No. 11/2020 of November 18, 2020, appointed Professor Dr. Thosaporn Sirisumphand, an independent director, as Chairman of the Board with effect from November 18, 2020. The appointment was endorsed by the State Enterprise Policy Office (SEPO) as required by the Cabinet resolution of August 6, 2019, on guidelines for the appointment of state enterprise directors, and the 2017 CG code for listed companies. It would allow the work of the Chairman to be independent and boost confidence in the transparency of operations and fair treatment of all stakeholders.

## (2) Nomination of Directors and the President & CEO

### (2.1) Nomination of Directors

In 2020, PTT nominated and appointed seven new directors replacing directors who resigned, retired, or completed their terms at the Annual General Meeting (AGM):

- Professor Dr. Thosaporn Sirisumphand  
Independent Director/ Chairman
- Mr. Krishna Boonyachai  
Independent Director

- Pol. Gen. Rungroj Sangkram  
Independent Director
- Mrs. Premrutai Vinaiphat  
Director
- Dr. Pailin Chuchottaworn  
Independent Director
- M.L. Chayotid Kridakon  
Director
- Mr. Auttapol Rerkpiboon  
Director and Secretary.

PTT reappointed former directors who completed their terms at the 2020 AGM to another term, namely Professor Dr. Kittipong Kittayarak (Independent Director) and Mr. Supattanapong Punmeechaow (Director) whom resigned from the Board with effect from July 23, 2020.

**Nomination procedures are reported under Section 2, Corporate Governance, under the topic of Proposal of additional meeting agenda and nomination of directors and Item 7.3 (2) The Nominating Committee.**

### (2.2) Nomination of the President & CEO/ succession planning

Due to PTT's state enterprise status, nomination and appointment of the President & CEO complies with the Standard for State Enterprise Directors and Employees Act, that is, he/she has to qualify by Section 8 ter and undergo the nomination process under Section 8 quarter. The Board of Directors appointed a five-person nominating committee consisting of those fully qualified and without legal prohibitions to nominate duly knowledgeable, competent, and experienced persons, also qualified and without legal prohibitions, who were not PTT's directors (except directors by position) and aged up to 58 on the application filing date. Once the committee has identified qualified persons, they are to submit their results to the authorized party to appoint within one year after the incumbent leaves office. The employment contract period is up to four years each. If the committee decides to hire the incumbent after completing the employment contract, it can bypass the nomination process but cannot hire that person for more than two consecutive terms.

**Details on management succession plans are reported in Section 2: Corporate Governance, under Item 7.4 Management.**

### (3) Director development

#### • Training Courses/ seminars/ activity engagement in PTT activities

The Board and management values regular participation in training and seminars concerning their competencies for their jobs. (Training details appear in directors' profiles in Attachment 1.) Most PTT directors (more than 90%) underwent training with Thai Institute of Directors Association (IOD) and other leading entities and institutes as well as seminars on related topics. PTT supported and sponsored IOD membership for all directors to provide them with communication and more information channels useful for their directorships. PTT also delivers seminar information for directors to consider enrollment in curricula of their interest; this also applies to other continual seminars or curricula through the year. It regularly organizes in-house briefings by leading consultants' experts on useful business data. Finally, it organizes study trips for directors to other units or entities as seen fit to provide helpful insights for application to PTT's businesses for sustainable growth.

In 2020, training and seminars to foster their work knowledge and PTT's activities include the items below.

Director	Training/ Seminar/ Activity Topic
Professor Dr. Thosaporn Sirisumphand	<ul style="list-style-type: none"> <li>In-house briefing on the criteria and guidelines under the state enterprise assessment model (SE-AM) by TRIS Corporation Co., Ltd.</li> <li>Director Orientation</li> </ul>
Professor Dr. Kittipong Kittayarak	<ul style="list-style-type: none"> <li>In-house briefing on the criteria and guidelines under the state enterprise assessment model (SE-AM) by TRIS Corporation Co., Ltd.</li> </ul>
Mr. Don Wasantapruek	<ul style="list-style-type: none"> <li>In-house briefing on the criteria and guidelines under the state enterprise assessment model (SE-AM) by TRIS Corporation Co., Ltd.</li> </ul>
Gen. Teerawat Boonyawat	<ul style="list-style-type: none"> <li>Director Accreditation Program (DAP 169/2020), IOD</li> <li>In-house briefing on the criteria and guidelines under the state enterprise assessment model (SE-AM) by TRIS Corporation Co., Ltd.</li> </ul>
Mrs. Nuntawan Sakuntanaga	<ul style="list-style-type: none"> <li>In attendance at a visit by HRH Princess Maha Chakri Sirindhorn to VISTEC, KVIS, the Wangchan Valley Development Project, and the Agricultural Innovation Learning Center, Chitralada Technology Institute, November 3-5, 2020</li> <li>In-house briefing on the criteria and guidelines under the state enterprise assessment model (SE-AM) by TRIS Corporation Co., Ltd.</li> </ul>
Mr. Danucha Pichayanan	<ul style="list-style-type: none"> <li>In-house briefing on the criteria and guidelines under the state enterprise assessment model (SE-AM) by TRIS Corporation Co., Ltd.</li> </ul>
Mr. Krishna Boonyachai	<ul style="list-style-type: none"> <li>Director Certification Program (DCP 288/2020), Advanced Audit Committee Program (AACP 38/2020), Role of the Chairman Program (RCP 46/2020), IOD</li> <li>In-house briefing on the criteria and guidelines under the state enterprise assessment model (SE-AM) by TRIS Corporation Co., Ltd.</li> <li>Director Orientation</li> </ul>

Director	Training/ Seminar/ Activity Topic
Professor Dr. Surapon Nitikraipot	<ul style="list-style-type: none"> <li>• In attendance at a visit by HRH Princess Maha Chakri Sirindhorn to VISTEC, KVIS, the Wangchan Valley Development Project, and the Agricultural Innovation Learning Center, Chitralada Technology Institute, November 3 - 5, 2020</li> <li>• In-house briefing on the criteria and guidelines under the state enterprise assessment model (SE-AM) by TRIS Corporation Co., Ltd.</li> </ul>
Pol.Gen. Rungroj Sangkram	<ul style="list-style-type: none"> <li>• Director Certification Program (DCP 298/2020), IOD</li> <li>• In-house briefing on the criteria and guidelines under the state enterprise assessment model (SE-AM) by TRIS Corporation Co., Ltd.</li> <li>• Director Orientation</li> </ul>
Dr. Thon Thamrongnawasawat	<ul style="list-style-type: none"> <li>• Certificate training on “Corporate Governance for Directors and Senior Management of Regulators, State Enterprises, and Public Organizations” (Class 22/2020), King Prajadhipok’s Institute</li> <li>• Risk Management Program for Corporate Leaders (RCL 21/2020), IOD</li> <li>• In-house briefing on the criteria and guidelines under the state enterprise assessment model (SE-AM) by TRIS Corporation Co., Ltd.</li> </ul>
Mr. Chumpol Rimsakorn	<ul style="list-style-type: none"> <li>• Risk Management Program for Corporate Leaders (RCL 19/2020), IOD</li> <li>• In-house briefing on the criteria and guidelines under the state enterprise assessment model (SE-AM) by TRIS Corporation Co., Ltd.</li> </ul>
Mrs. Premrutai Vinaiphath	<ul style="list-style-type: none"> <li>• Risk Management Program for Corporate Leaders (RCL 20/2020), Boardroom Success through Financing and Investment Class (BFI 9/2020), IOD</li> <li>• In-house briefing on the criteria and guidelines under the state enterprise assessment model (SE-AM) by TRIS Corporation Co., Ltd.</li> <li>• Director Orientation</li> </ul>
Dr. Pailin Chuchottaworn	<ul style="list-style-type: none"> <li>• In attendance at a visit by HRH Princess Maha Chakri Sirindhorn to VISTEC, KVIS, the Wangchan Valley Development Project, and the Agricultural Innovation Learning Center, Chitralada Technology Institute, November 3 - 5, 2020</li> <li>• In-house briefing on the criteria and guidelines under the state enterprise assessment model (SE-AM) by TRIS Corporation Co., Ltd.</li> <li>• Director Orientation</li> </ul>



Director	Training/ Seminar/ Activity Topic
M.L. Chayotid Kridakon	<ul style="list-style-type: none"> <li>In-house briefing on the criteria and guidelines under the state enterprise assessment model (SE-AM) by TRIS Corporation Co., Ltd.</li> <li>Director Orientation</li> </ul>
Mr. Auttapol Rerkpiboon	<ul style="list-style-type: none"> <li>In attendance at a visit by HRH Princess Maha Chakri Sirindhorn to VISTEC, KVIS, the Wangchan Valley Development Project, and the Agricultural Innovation Learning Center, Chitralada Technology Institute, November 3 - 5, 2020</li> <li>In-house briefing on the criteria and guidelines under the state enterprise assessment model (SE-AM) by TRIS Corporation Co., Ltd.</li> </ul>

The PTT Board also engaged in other corporate activities, including a business visit and exchange of views with Huawei management, a study visit to T-Space@8 of PTT's International Trading Business Unit, the Establishment Day of PTT, business visit to PTT Group and engagement in environmental conservation activities in Phuket and Chiang Mai, visit to Bang Bo in Samut Prakan to survey gas leak areas with the Enterprise Risk Management Committee, site visit by the Corporate Governance Committee to the Art Gallery at Ban Chao Phraya (where PTT has promoted art and culture along with support of artists' exhibition areas), and PTT Group's operations in Rayong.

#### (4) Board Self-assessment

In compliance with the CG code, PTT required the Board to conduct self-assessment to scope its regular review of its performance. With the resolution of Board Meeting No. 10/2020 of October 15, 2020, the Board approved all five self-assessment forms with some modification made to the assessment topics on satisfaction of subcommittees and its chairman performance to the overall performance of each subcommittee for clearer review. The five assessment forms are Assessment of the Board (entire Board)/ Assessment of Individual Directors (Self-assessment)/ Individual Assessment of Other Directors (Cross-assessment)/ and Assessment of the Committees (Entire Committees)/ and Assessment of the Chairman's roles, duties and performance along with work satisfaction of the committees and chairman of each committee. The five assessment forms stipulated the percentages corresponding to the levels of performance achieved in each topic: over 85% = excellent, over 75% = very good, over 65% = good, over 50% = fair, and below 50% = need improvement.

The self-assessment findings were as follows:

- 1. Assessment of the Board (entire Board):** The assessment form comprises five assessment topics: Board Policy, Board Composition, Board Practices, Board Meeting, and Board Training and Development.

The results indicated excellent/ most suitable overall performance, with an average score of 97.87%.

**2. Assessment of Individual Directors (Self-assessment):**

The assessment form comprises six topics: accountability for decision-making and actions; responsibility for performing the duties with full ability and efficiency; equitable and fair treatment of all stakeholders; transparency of job performance and information disclosure; vision to create a long-term value; and business ethics.

The overall results of the six categories indicated excellent conformance by most directors, with an average score at 98.96%.

**3. Individual Assessment of Other Directors (Cross-assessment):** The assessment form consisted of six identical categories as listed above for direct comparison.

The cross-assessment results in these six categories indicated excellent conformance by most directors, with an average score of 99.59%.

**4. Self-assessment of the Committees (entire committees)** consisted of four topics: Board policy, Board composition, Board practices, and Board meetings.

The results of the four committees indicated efficient/ mostly suitable overall performance as follows:

- 4.1 The Nominating Committee indicated excellent performance, with an average score of 98.61%.
- 4.2 The Remuneration Committee indicated excellent performance, with an average score of 99.31%
- 4.3 The Corporate Governance Committee indicated excellent performance, with an average score of 99.31%
- 4.4 The Enterprise Risk Management Committee indicated excellent performance, with an average score of 100.00%.

**5. Chairman's Roles & Duties and Performance Assessment, Work Satisfaction of the Committees and the Chairman of each.**

The assessment of the Chairman consisted of eight topics and ten topics on work satisfaction assessment, with an average score of 99.25%.

**6. Audit Committee's Performance Assessment**

Under PTT's regulations on performance assessment of the Audit Committee and Internal Audit of 2020, and SEPO's and SET's good governance, the Audit Committee must assess its performance by undertaking self-assessment at least annually. The individual self-assessment or the entire committee's assessment is presented annually to the Board, specifying problems leading to unfulfilled objectives. This year the Audit Committee's Meeting No. 8/2020 of August 10, 2020, approved the assessment forms for the Audit Committee, namely Assessment of Individual Directors (self-assessment), Individual Assessment of Other Directors (cross-assessment), and Assessment of the Committee (entire Committee). The Audit Committee Meeting No. 11/2020 of November 10, 2020, approved the assessment of its performance for 2020 and submitted the results together with performance improvement plan to Board Meeting No. 12/2020 of December 17, 2020, with the following details:

- **Assessment of the entire committee:** The assessment form consisted of eight assessment topics: the structure, composition and office term/ meetings/ roles and responsibilities/ relationship with the internal auditor/ relationship with the external auditor/ relationship with management/ reporting/ quality consistency. The assessment criteria were 4 = regularly implemented, 3 = mostly implemented, 2 = sometimes implemented, 1 = never implemented.

The results of the assessment of the entire Audit Committee was at the "mostly implemented" level, with an average score of 3.95.

- **Assessment of Individual Directors (Self-Assessment):** The Assessment form consisted of six topics: business knowledge/ specific expertise/ independence and fairness/ understanding of duties and responsibilities of members/ commitment to work and meetings/ and meeting attendance. The assessment criteria were 4=excellent, 3=good, 2=fair, 1=need improvement. The results of the Audit Committee's self-assessment was at "good" level, with an average score of 3.90.
- **Cross-assessment:** The Cross-assessment form consisted of six topics identical to the list above for direct comparison.  
The results of the Audit Committee's cross-assessment indicated "excellent" overall performance, with an average score of 4.00

PTT also analyzed the assessment topics to develop/ improve performance and formulated an annual plan to enhance their efficiency of directorship to the Board for approval. In addition to developing the annual performance assessment forms for the Board, the Board has since 2017 begun gauging directors' efficiency and effectiveness by defining KPIs for their performance early in the year for measuring the Board's performance and for determining their compensation.

## Directors Orientation

For new directors, PTT arranges an orientation program dealing with its business policies, capital structure, shareholding structure, business performance, information systems, as well as applicable laws and regulations. Moreover, each director receives a Director's Handbook, which includes the following topics:

### Director's Handbook:

- |  |   |
|--|---|
| 1. Public Company Act  | 6. Company Objectives                         |
| 2. Securities and Exchange Act   | 7. Articles of Association                    |
| 3. Standard Qualifications of State Enterprise Directors and Employees Act | 8. Company Rules (17 Rules)                   |
| 4. Company Registration Certificate  | 9. PTT Corporate Governance Handbook          |
| 5. Company Certificate   | 10. Manual for Directors of Listed Companies. |

### Information kit for directors:

- |   |   |
|---|---|
| 1. Overview business presentation of PTT                            | 9. Financial Report   |
| 2. List of directors, specific committees, and management structure | 10. Annual Corporate Sustainability Report                    |
| 3. Director Fiduciary Duty Check List                               | 11. Corporate Governance handbook                             |
| 4. CG principles for listed companies (CG Code)                     | 12. Debenture Magazine ("Happiness")                          |
| 5. Connected transactions of listed companies                       | 13. Article: "Truth about Privatization"                      |
| 6. Guidance on providing information for listed company management  | 14. PTT Way of Conduct  |
| 7. PTT Plc Company Profile (short version)                          | 15. PTT Technology and Innovation Management Operating System |
| 8. Annual Report  | 16. PLLI Course Catalog                                       |

This year, in the briefing to the new directors, the President & CEO along with senior management presented information about PTT, its management structure, strategies and policies on business operations and performance, and relevant information for their overview of the business operations. At the same time, the above-mentioned documents and handbook for new directors were handed over. In 2020, PTT arranged four occasions for new directors as well as visits to International Trading Business Unit at the Smart Intelligence Center (Space@8).

## 8.1.2 Meeting attendance and individual directors' compensation

### (1) Board meetings

Each month of the year, PTT schedules its board meetings in advance. In 2020, the monthly meetings took place on the third Thursday of each month, with occasional special meetings on special agenda as seen fit. The Office of the President sends to each director meeting notices, agenda with complete details and rationale, and supplementary documents with enough essential details for decision-making about seven days ahead of each meeting to give them time to study these. Directors consider the agenda through an application software to streamline the process of agenda delivery and the paperwork involved, thus speeding up directors' work while efficiently providing them with adequate details for decision-making.

Since 2015, for each meeting, the Board has required regular follow-up agenda on the updates of implementation of Board observations and comments to ensure implementation of PTT's strategies.

The Board's policy is that, for a given agenda item, if any director has potential conflicting interests with PTT, the secretariat will not deliver such agenda item to that director, who will not attend the meeting and abstain voting on such agenda item. In voting, the minimum quorum of directors is two-thirds of all attending directors. If the quorum does not comply with this guideline, the discretion of the Chairman will be sought, a policy that is stated in the Corporate Governance handbook.

For each agenda item, the minutes contain written comments and observations. The Board-certified minutes are filed for perusal by the directors and related parties. Each meeting normally takes 3 - 4 hours.

Due to the aggravating, widespread COVID-19 in Thailand in 2020, the Chairman of the Board allowed electronic meetings in observance of the COVID-19 safety and control measures. In 2020, PTT held the meeting totally of 16 meetings, 12 regular and 4 special ones. The special meeting held annually to determine, review and approve PTT Group's vision, mission, directions, and strategies (five-year rolling). This year the Board and management took part in reviewing such matters and approved the direction and strategy to scope and guide the work by business units, subsidiaries, and associates in developing enterprise and budgeting plans for 2021 - 2025. In addition, one non-executive meeting was held in June on the topic of PTT's businesses on various issues and recommendations to management for further business improvement, which is in line with the principles and guidelines for corporate governance of state enterprises of 2019 as well as the guidelines for the enterprise given by the State Enterprise Policy Office. One independent directors' meeting was held in October on the topic of the role of Independent Director to shareholders. At every meeting, the Chairman allowed all directors to express their open and free views. The Board meetings are detailed below.

## Attendance of the Board and Five Specific Committee Meetings for 2020

Name	1/2020	2/2020	3/2020	Special 1/2020	4/2020	Special 2/2020	5/2020	6/2020	7/2020	Special 3/2020	8/2020	9/2020	10/2020	11/2020	12/2020	Special 4/2020
1. Professor Dr. Thosaporn Sirisumphand	Appointed as an Independent Director, effective from November 6, 2020, and as Chairman of the Board, effective from November 18, 2020													/	/	/
- Mr. Krairit Euchukanonchai	/	/	/	/	/	/	/	/	/	/	/	/	/	Retired from the directorship of PTT due to his completion of 65 years of age, effective from November 6, 2020		
2. Professor Dr. Kittipong Kittayarak	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
3. Mr. Don Wasantapruek	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
4. Gen. Teerawat Boonyawat	X	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
5. Mrs. Nuntawan Sakuntanaga	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	X
6. Dr. Pailin Chuchottaworn	Appointed, effective from September 11, 2020											/	/	/	/	/
- Mr. Supattanapong Punmeechaow	/	/	/	/	/	/	/	/	/	/	Resignation: effective from July 23, 2020					
7. Mr. Danucha Pichayanan	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	X
8. Mr. Krishna Boonyachai	Appointed, effective from July 3, 2020									/	/	/	/	/	/	/
- Mr. Nuttachat Charuchinda	/	Retired from the directorship of PTT due to his completion of 65 years of age, effective from January 17, 2020														
9. Professor Dr. Surapon Nitikraipot	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
10. Pol. Gen. Rungroj Sangkram	Appointed, effective from July 3, 2020									/	/	/	/	/	/	/
- Mr. Vichai Assarasakorn	/	/	/	/	/	/	/	/	Retired by rotation at the 2020 AGM							
11. Dr. Thon Thamrongnawasawat	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
12. Mr. Chumpol Rimsakorn	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
13. Mrs. Premrutai Vinaiphath	Appointed, effective from July 3, 2020									/	/	/	/	/	/	/
- Mr. Sarawut Kaewtathip	/	/	/	/	/	/	/	/	Retired by rotation at the 2020 AGM							
14. M.L. Chayotid Kridakon	Appointed, effective from December 16, 2020													/	/	/
- Professor Dr. Supot Teachavorasinskun	/	/	/	/	/	/	/	/	/	/	/	/	/	Resignation: effective from December 1, 2020		
15. Mr. Auttapol Rerkpiboon	Appointed, effective from May 13, 2020							/	/	/	/	/	/	/	/	/
- Mr. Chansin Treenuchagron	/	/	/	/	/	/	Completed his term under the employment contract, effective from May 13, 2020									
<b>Total Attendances</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>15</b>	<b>15</b>	<b>14</b>	<b>15</b>	<b>15</b>	<b>15</b>	<b>15</b>	<b>13</b>
<b>Total Directors</b>	<b>15</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>15</b>	<b>15</b>	<b>14</b>	<b>15</b>	<b>15</b>	<b>15</b>	<b>15</b>	<b>15</b>

Name	Board and Specific Committee Meetings in 2020						Appointment during the year
	Board of Directors (Total 16)	Audit Committee (Total 14)	Corporate Governance Committee (Total 9)	Nominating Committee (Total 9)	Remuneration Committee (Total 5)	Enterprise Risk Management Committee (Total 10)	
1. Professor Dr. Thosaporn Sirisumphand	3/3						November 6, 2020 (replacing Mr. Krairit Euchukanonchai)
2. Professor Dr. Kittipong Kittayarak	16/16	7/7	3/3				-
3. Mr. Don Wasantapruek	16/16			9/9			-
4. Gen. Teerawat Boonyawat	15/16				5/5		-
5. Mrs. Nuntawan Sakuntanaga	15/16	7/7	6/6				-
6. Dr. Pailin Chuchottaworn	5/5					3/3	September 11, 2020 (replacing Mr. Supattanapong Punmeechaow)
7. Mr. Danucha Pichayanan	15/16	12/14					-
8. Mr. Krishna Boonyachai	8/8	7/7					July 3, 2020 (replacing Mr. Nuttachat Charuchinda)
9. Professor Dr. Surapon Nitikraipot	16/16		9/9	9/9			-
10. Pol. Gen. Rungroj Sangkram	8/8				2/2		July 3, 2020 (replacing Mr. Vichai Assarasakorn)
11. Dr. Thon Thamrongnawasawat	16/16		9/9			10/10	-
12. Mr. Chumpol Rimsakorn	16/16				5/5	10/10	-
13. Mrs. Premrutai Vinaiphat	8/8					5/5	July 3, 2020 (replacing Mr. Sarawut Kaewtathip)
14. M.L. Chayotid Kridakon	2/2						December 16, 2020 (replacing Professor Dr. Supot Teachavorasinskun)
15. Mr. Auttapol Rerkpiboon	10/10						May 13, 2020 (replacing Mr. Chansin Treenuchagron)



**Attendance Record of Directors Who Retired/ Resigned in 2020 (Total: 7 directors)**

Name	Board and Specific Committee Meetings 2020						Appointment during the year
	Board of Directors (Total 16)	Audit Committee (Total 14)	Corporate Governance Committee (Total 9)	Nominating Committee (Total 9)	Remuneration Committee (Total 5)	Enterprise Risk Management Committee (Total 10)	
1. Mr. Nuttachat Charuchinda	1/1						Retired from the directorship of PTT due to his completion of 65 years of age, effective from January 17, 2020
2. Mr. Chansin Treenuchagron	6/6						Completed his term, effective from May 13, 2020
3. Mr. Vichai Assarasakorn	8/8	7/7					Retired by rotation at the 2020 AGM
4. Mr. Sarawut Kaewtathip	8/8						Retired by rotation at the 2020 AGM
5. Mr. Supattanapong Punmeechaow	10/10					5/5	Resignation: effective from July 23, 2020
6. Mr. Krairit Euchukanonchai	13/13						Retired from the directorship of PTT due to his completion of 65 years of age, effective from November 6, 2020
7. Professor Dr. Supot Teachavorasinskun	14/14			8/8	3/3		Resignation: effective from December 1, 2020

*Remarks:*

*In 2020, total of 16 Board meetings were held this year (12 regular and 4 special meetings)*

*\* Reasons for meeting absence were prior scheduled official engagement or other urgent meetings. Apologies letters were duly forwarded to the Chairman ahead of the meetings.*

## (2) Remuneration of Directors

This year, with the validation of the Remuneration Committee, PTT fairly and sensibly specifies the compensation of directors, taking into account practices of other listed peer companies, leading domestic as well as international companies, and state enterprise companies, the principles of good corporate governance, PTT's financial performance, responsibilities of the Board, and economic growth and inflation. Directors' compensation consists of monthly allowance, meeting allowance and bonuses. Directors appointed to specific committees receive additional allowances for additional responsibilities. Shareholder-approved directors' compensation rates are as follows:

### Directors' Remuneration

The Directors' Remuneration was approved at the 2020 Annual General Meeting (AGM) held on Friday, July 3, 2020 as follow:

#### 1. Monthly Fees and Meeting Attendance fee for the year 2020, the rates of which remained the same.

##### 1.1 Monthly fee and meeting attendance fee of the Board:

- Monthly fee of THB 30,000 per month per director with the Chairman receiving twice the amount of the director.
- Meeting attendance fee of THB 60,000 per meeting for those in attendance only and the Chairman shall receive 25% higher than members. The payment is limited to one meeting per month. Where necessary, the attendance fee may be paid for more than one meeting a month but must not exceed 15 meetings per year.

##### 1.2 Monthly fee and meeting allowances fee of specific committees shall be at **the same rate** as follow:

###### 1.2.1 Audit Committee

- Monthly fee of THB 15,000 per month per director; the Chairman receives the same rate as members.
- Meeting attendance fee of THB 45,000 per meeting for those in attendance only. The Chairman receives 25% higher than members, and the secretary receives a monthly fee of THB 7,500 (same rate as last year).

##### 1.2.2 The remuneration for other committees, namely **the Nominating Committee, the Remuneration Committee, the Corporate Governance Committee, the Enterprise Risk Management Committee** and other sub-committees that may be appointed by the Board as necessary and appropriate in the future, shall be at **the same rate as last year** as follows:

- Monthly fee – None (same as last year)
- Meeting attendance fee of THB 30,000 per meeting for those in attendance only. The Chairman receives 25% higher than members.

##### 1.3 Other benefits – None (same as last year)

A vehicle was provided to the Chairman to facilitate his duties only.

## Directors' Bonuses in 2020

Bonus payouts for directors, at 0.05% of the net profit of 2020, corresponded to PTT's performance and net profit, with a maximum limit of THB 60 million for the entire Board. Bonuses were prorated with each director's term, with the Chairman receiving 25% higher than members.

### The Remuneration for Directors in 2020

Unit: THB

No.	Name	Days of Service Jan. - Dec. 2020	Bonus 2020	Meeting Allowance (Inclusive of Monthly Allowance)	Meeting Allowance (Specific Committee)	Total Allowance	Total Remuneration
1	Professor Dr. Thosaporn Sirisumphand	56	231,797.36	248,000.00	-	248,000.00	479,797.36
2	Professor Dr. Kittipong Kittayarak	366	1,294,335.62	1,260,000.00	538,790.32	1,798,790.32	3,093,125.94
3	Mr. Don Wasantapruek	366	1,294,335.62	1,260,000.00	337,500.00	1,597,500.00	2,891,835.62
4	Gen. Teerawat Boonyawat	366	1,294,335.62	1,200,000.00	187,500.00	1,387,500.00	2,681,835.62
5	Mrs. Nuntawan Sakuntanaga <sup>a/</sup>	366	1,294,335.62	1,260,000.00	623,709.68	1,883,709.68	3,178,045.30
6	Dr. Pailin Chuchottaworn	112	383,147.66	350,000.00	112,500.00	462,500.00	845,647.66
7	Mr. Danucha Pichayanana <sup>a/</sup>	366	1,294,335.62	1,260,000.00	705,000.00	1,965,000.00	3,259,335.62
8	Mr. Krishna Boonyachai	181.5	630,145.36	597,580.65	358,790.32	956,370.97	1,586,516.33
9	Professor Dr. Surapon Nitikraipot <sup>a/</sup>	366	1,294,335.62	1,260,000.00	570,000.00	1,830,000.00	3,124,335.62
10	Pol. Gen. Rungroj Sangkram	181.5	630,145.36	597,580.65	60,000.00	657,580.65	1,287,726.01
11	Dr. Thon Thamrongnawasawat	366	1,294,335.62	1,260,000.00	540,000.00	1,800,000.00	3,094,335.62
12	Mr. Chumpol Rimsakorn	366	1,294,335.62	1,260,000.00	420,000.00	1,680,000.00	2,974,335.62
13	Ms. Premrutai Vinaiphat	181.5	630,145.36	597,580.65	150,000.00	747,580.65	1,377,726.01
14	M.L. Chayotid Kridakon	16	54,129.98	75,483.87	-	75,483.87	129,613.85
15	Mr. Auttapol Rerkpiboon <sup>b/</sup>	233	816,602.95	768,387.10	-	768,387.10	1,584,990.05
<b>Total</b>			<b>13,730,798.99</b>	<b>13,254,612.92</b>	<b>4,603,790.32</b>	<b>17,858,403.24</b>	<b>31,589,202.23</b>

a/ Including the meeting attendance fee of the President & CEO on the Remuneration Committee.

b/ Mr. Auttapol Rerkpiboon has been in full compliance with the terms of his employment contract as President & CEO for the remuneration that he received as a director from May 13 to December 31, 2020.

Remarks:

No. 1	Professor Dr. Thosaporn Sirisumphand	was appointed as an independent director and as Chairman of the Board of Directors	on November 6, 2020, on November 18, 2020
No. 6	Dr. Pailin Chuchottaworn	was appointed as an independent director	on September 11, 2020
No. 8	Mr. Krishna Boonyachai	was appointed as an independent director	on July 3, 2020
No. 10	Pol. Gen. Rungroj Sangkram	was appointed as an independent director	on July 3, 2020
No. 13	Mrs. Premrutai Vinaiphat	was appointed as a director	on July 3, 2020
No. 14	M.L. Chayotid Kridakon	was appointed as a director	on December 16, 2020
No. 15	Mr. Auttapol Rerkpiboon	was appointed as a director and secretary to the Board	on May 13, 2020.

## The Remuneration for Directors Who Completed the Terms and/ or Resigned in 2020

Unit: THB

No.	Name	Days of Service Jan. - Dec. 2020	Bonus 2020	Meeting Allowance (Inclusive of Monthly Allowance)	Meeting Allowance (Specific Committee)	Total Allowance	Total Remuneration
1	Mr. Nuttachat Charuchinda	16	54,129.98	75,483.87	-	75,483.87	129,613.85
2	Mr. Chansin Treenuchagron*	133	477,732.67	491,612.90	-	491,612.90	969,345.57
3	Mr. Vichai Assarasakorn	184.5	664,190.26	662,419.35	428,709.68	1,091,129.03	1,755,319.29
4	Mr. Sarawut Kaewtathip	184.5	664,190.26	662,419.35	-	662,419.35	1,326,609.61
5	Mr. Supattanapong Punmeechaow	204	730,161.17	801,290.32	150,000.00	951,290.32	1,681,451.49
6	Mr. Krairit Euchukanonchai	310	1,375,803.25	1,585,000.00	-	1,585,000.00	2,960,803.25
7	Professor Dr. Supot Teachavorasinskun	335	1,185,897.60	1,170,000.00	330,000.00	1,500,000.00	2,685,897.60
<b>Total</b>			<b>5,152,105.19</b>	<b>5,448,225.79</b>	<b>908,709.68</b>	<b>6,356,935.47</b>	<b>11,509,040.66</b>

\* Mr. Chansin Treenuchagron has been in full compliance with the terms of his employment contract as President & CEO for the remuneration received as a director.

## Remarks:

- No. 1 Mr. Nuttachat Charuchinda was appointed as a Director on January 16, 2019, and retired from the Directorship of PTT due to his completion of 65 years of age with effect from January 17, 2020.
- No. 2 Mr. Chansin Treenuchagron was appointed President & CEO/ Director and Secretary to the Board on August 31, 2018, and completed his term with effect from May 13, 2020.
- No. 3 Mr. Vichai Assarasakorn was appointed as an Independent Director on September 4, 2014, and completed his term on July 3, 2020.
- No. 4 Mr. Sarawut Kaewtathip was appointed as a Director on December 16, 2019, and completed his term on July 3, 2020.
- No. 5 Mr. Supattanapong Punmeechaow was appointed as a Director on October 1, 2019 and resigned with effect from July 23, 2020.
- No. 6 Mr. Krairit Euchukanonchai was appointed as an Independent Director on July 11, 2018, and as a Chairman of the Board on September 7, 2018, and retired from the Directorship of PTT due to his completion of 65 years of age with effect from November 6, 2020.
- No. 7 Professor Dr. Supot Teachavorasinskun was appointed as a Director on January 18, 2018, and resigned with effect from December 1, 2020.

## Directors' Remuneration Profile, 2017 – 2020

Unit: THB

Remuneration	2017		2018		2019		2020	
	Person	THB	Person	THB	Person	THB	Person	THB
Meeting Attendance	15	17,319,925.12	15	17,241,903.21	15	21,787,467.74	15	24,215,338.71
Bonus	15	45,215,753.42	15	45,125,342.45	15	46,475,302.07	15	18,882,904.18
<b>Total</b>		<b>62,535,678.54</b>		<b>62,367,245.66</b>		<b>68,262,769.81</b>		<b>43,098,242.89</b>

## Remarks:

The 2017, 2018, 2019 and 2020 directors' remuneration shown in the table includes the remuneration of President & CEO who has already complied with the terms under the employment contract as President & CEO.

## Remuneration of PTT's Directors/ Independent Directors who receiving from being as a Director/ an Independent Directors of Subsidiaries\* in 2020

(The table below presents remuneration paid to directors/ independent directors only for the period they served with PTT.)

Unit: THB

Name	Director Remuneration		Committee Meeting Allowance	Total Remuneration	Remarks
	Bonus***	Meeting Allowance and Monthly Allowance			
1. Professor Dr. Thosaporn Sirisumphand	2,137,102.44	102,083.25	-	2,239,185.69	The remuneration as an Independent Director, Chairman of the Board, Thai Oil Public Company Limited during November 6 - 30, 2020
2. Dr. Pailin Chuchottaworn	622,396.58	410,000.00	-	1,032,396.58	The remuneration as an Independent Director, Chairman of the Board, Global Power Synergy Public Company Limited during September 11, 2020 - December 31, 2020
3. Mr. Don Wasantapruek	2,390,016.48	1,200,000.00	506,250.00	4,096,266.48	The remuneration as an Independent Director, PTT Global Chemical Public Company Limited during January 1, 2020 - December 31, 2020

Unit: THB

Name	Director Remuneration		Committee Meeting Allowance	Total Remuneration	Remarks
	Bonus***	Meeting Allowance and Monthly Allowance			
4. Mrs. Premrutai Vinaiphat	2,082,496.68	20,967.74	-	2,103,464.42	The remuneration as a Director, PTT Global Chemical Public Company Limited during July 3 - 15, 2020
5. Mr. Auttapol Rerkpiboon**	1,242,531.00	450,000.00	-	1,692,531.00	The remuneration as a Director, PTT Exploration and Production Public Company Limited during August 1, 2020 - December 31, 2020
	1,709,681.95	330,645.00	101,250.00	2,141,576.95	The remuneration as a Director, Thai Oil Public Company Limited during May 13, 2020 - July 31, 2020
	-	398,387.10	-	398,387.10	The remuneration as a Director, Chairman of the Board, PTT Oil and Retail Business Public Company Limited during January 1, 2020 - December 31, 2020
6. Mr. Supattanapong Punmeechaow	2,390,016.48	695,483.87	135,000.00	3,220,500.35	The remuneration as a Director, PTT Global Chemical Public Company Limited during January 1, 2020 - July 22, 2020
7. Mr. Nuttachat Charuchinda	-	23,225.81	-	23,225.81	The remuneration as a Director, IRPC Public Company Limited during January 1 - 16, 2020



Unit: THB

Name	Director Remuneration		Committee Meeting Allowance	Total Remuneration	Remarks
	Bonus***	Meeting Allowance and Monthly Allowance			
8. Mr. Chansin Treenuchagron**	1,080,108.62	575,483.87	-	1,655,592.49	The remuneration as a Director, PTT Exploration and Production Public Company Limited during January 1, 2020 - May 12, 2020
	-	683,225.81	-	683,225.81	The remuneration as a Director, Chairman of the Board, IRPC Public Company Limited during January 1, 2020 - May 12, 2020

*Remarks:*

\* According to the new International Financial Reporting Standards.

\*\* Mr. Auttapol Rerkpiboon and Mr. Chansin Treenuchagron have complied with the terms under their employment contracts as President &amp; CEO.

\*\*\* Directors have received the 2020 annual bonuses (for the 2019 performance) for serving with PTT Global Chemical Public Company Limited, Thai Oil Public Company Limited and Global Power Synergy Public Company Limited, approved by the 2020 AGM of each company.

### 8.1.3 Governance of Subsidiaries and Associates

Supervising, monitoring, and assessing PTT's implementation of corporate governance and anti-corruption, the Corporate Governance Committee assigns a policy and guidelines to the Governance, Risk and Compliance Management Committee (GRCMC), which is charged with steering corporate governance compliance, operational risk management, internal control, and compliance. The Senior Executive Vice President, Corporate Governance and Regulatory Affairs, the chairperson of GRCMC reporting directly to the Corporate Governance Committee, is responsible for steering and implementing plans for corporate governance and anti-corruption together with definition of goals and KPIs approved by the Corporate Governance Committee and the Board. Part of these tasks is governance of subsidiaries and associates.

A summary of PTT's promotion of compliance with the policy and guidelines for governance of subsidiaries and associates appears below:

1. Development of the PTT Group Way of Conduct web portal, which is a database and communication channel among policy owners and administrating units of affiliates and PTT Group companies in pursuit of standardized implementation
2. Site visits aimed at efficient mobilization of PTT Group management approach, communication aimed at setting goals and GRC strategies, and counseling on PTT Group management approach for affiliates
3. Strengthening of the mastery of GRC and emphasis on various guidelines through the following development programs:
  - MD on Board for senior management team members that are MDs or CEOs in PTT Group
  - Secondment Development Program for PTT's executives and employees serving in affiliates.

(Details on PTT's policy on governance of subsidiaries appear under Section 2 (**governance of subsidiaries and associated companies** and **policy for directorships in other companies of directors and management**).

### 8.1.4 Corporate Governance Policy and Guideline Compliance Control

#### (1) Internal information guideline

PTT has instituted a system for reporting trading of PTT Group's securities in advance. If PTT's personnel need to trade such securities, they must inform the Company Secretary through such system at least two days in advance. In 2020, there were 15 reported transactions outside silent periods involving those whose jobs involved internal information; no major incidents occurred that impacted PTT.

#### (2) Conflicts of interest

PTT requires disclosure of information to ward off conflicts of interest with PTT to in turn prevent activities that could cause conflicts as well as illegal or improper activities.

#### Preparation of reports on potential conflicts of interest with PTT

To prevent conflicts of interest, PTT requires all employees to annually file reports to disclose possible items where employees or their relatives develop conflicts of interest with PTT and each time this is discovered. This year the Board, management, and all employees all filed their reports through the PTT intranet; no material cases were found. The disclosed items of conflicts of interest with PTT confirm acknowledgment that breach of ethics and PTT's code of conduct is regarded as a disciplinary offense, subject to disciplinary actions according to disciplinary procedures and severity.

#### Preparation of reports on vested interests of directors, management, and related parties

Details of the topic are reported under section 2, Corporate Governance.

#### (3) Corporate governance, code of conduct, and anti-corruption activities

The Corporate Governance Committee provides oversight monitors and assesses PTT's execution of corporate governance and anti-corruption tasks and the Corporate Governance Committee assigns a policy and guidelines to the Governance, Risk and Compliance Management Committee (GRCMC), which is charged with steering corporate governance compliance, operational risk management, internal control, and compliance, as well as housing PTT's anti-corruption operation center in state enterprises. The Senior Executive Vice President, Corporate Governance and Regulatory Affairs, the chairperson of GRCMC and reporting directly to the Corporate Governance Committee, is responsible for steering and implementing plans for corporate governance and anti-corruption together with definition of goals and KPIs approved by the Corporate Governance Committee and the Board. Besides its constant implementation and development as mentioned under Section 6 (Corporate Governance on the topic of Anti-Corruption), this year PTT executed the following promotional activities on corporate governance, code of conduct, and anti-corruption:

- Organized training on corporate governance and anti-corruption for new employees and required CG e-learning testing together with delivering the CG handbook to all of them for study and acknowledgment as their own guidelines. This year PTT required three e-learning curricula (CG, Compliance Policy, and the Public Procurement and Supplies Administration Act) as a corporate KPI on non-compliance. About 99.33% of the workforce participated in the training.
- Communicated in functional meetings, educational activities, and seminars including Town Hall, training on the investigating and fact-finding process for senior management, and training on the investigating and fact-finding process for vice presidents. The speakers from the NACC office informed executives so that they may truly appreciate the procedures for the investigation and fact-finding process.
- Developed comprehensive e-learning under the PTT intranet to communicate corporate governance, code of conduct, and anti-corruption measures for all employees by themselves. The training was on CG e-learning through various simulated incidents for proper practical real-life application, with a test at the end of the curriculum. In 2020 an e-learning curriculum was added on the Prevention and Suppression of Fraud Act of 2019.
- Communicated fraud risk management with representatives of all functions to establish proper understanding by international standards of the principles for fraud risk management and applicable internal control measures so that they may apply these guidelines in their everyday life. This year saw a total of 14 functions involved.
- Assessed corporate governance and anti-fraud through internal communication channels for data application to develop related tasks. It was found that 98.53% commanded good understanding, 86.40% were satisfied with good to very good GRC communication, and 89.41% agreed with related implementation by PTT.
- Foster an ambience of awareness through PTT's various media, including exhibitions, GRC intranet website, opportunities for interested parties to inquire through GRChelpdesk@pttplc.com, reminders through CG Tips (internal e-mail), CG Channel page in PTT Workplace for everyone's information about CG/ GRC, and education as well as engagement in activities of interest. PTT also requires the subject to be part of agenda-based meetings for various units, with the QSHE / SPIRIT / CSR / GRC Talk topic serving as a GRC communication channel and promotional tool with CG/ GRC awareness, including the PTTMC meeting.
- Organized a GRC Camp in the seventh consecutive year to develop PTT employee representatives into GRC agents for respective functions to communicate understanding of GRC to fellow employees and duly apply such knowledge to their tasks. This year's activities were in the form of a virtual camp (on site/ on line), consisting of educational dialogue and sharing of GRC experience by senior management team members of GRC and business functions so that employees may adapt the knowledge to their own jobs and advocate the Business Integrity culture.

- Valued corporate governance among PTT Group in line with the PTT Group Way of Conduct by appointing a PTT Group Corporate Governance Committee, whose goal is to upgrade corporate governance standards for PTT Group to comparable levels and define action plans and relentlessly proactive guidelines for public relations through the PTT Group CG Day to campaign for, promote, and publicize corporate governance by PTT Group, namely PTT, PTTEP, GC, TOP, IRPC, GPSC, and OR. Guests of honor from external agencies included representatives of SET, SEC, IOD, the Foundation of Anti-Corruption Networks, and the Office of the Ombudsman along with business partners, the boards, management, and employees of PTT Group. In 2020, IRPC Plc. hosted the event under the PTT Group CG Day 2020: Step to the Future theme in a virtual, online format to illustrate the commitment to driving the organization of PTT Group with the CG code while remaining poised to adaptation under changing circumstances.
- Strived to form transparent networks for a robust Thai society by strongly advocating its business partners declaration of the intention to join CAC to lower risks of corrupt practices across the supply chain. In 2020, PTT educated and urged business partners to join CAC at the annual suppliers' seminar and at the annual supplier seminars for NGV and gas distribution pipeline functions.
- Promoted and shared knowledge with external agencies to upgrade their corporate governance standard. Management team members served as speakers that shared their experience and concept of corporate governance on various occasions. Welcomed public and private entities, including educational institutions, on site visits, where experience was shared and observation was made on PTT's corporate governance practices.



## (4) Whistleblowing

All stakeholders can use this tool to contact, learn, and provide tips either inside the corporation through the intranet webboard or outside through PTT website, phone, written notification, e-mail to Investor Relations, Office of the President, Corporate Communications and Reputation, Governance, or the Ordering and Customer Relations Center as follows:

Phone: 1365 CONTACT CENTER, 0-2537-2000

Website: [www.pttplc.com](http://www.pttplc.com)

e-mail: Ordering & Customer Relations Center:  
1365@pttor.com

Corporate Communication and Branding  
Department:

[corporate@pttplc.com](mailto:corporate@pttplc.com)

Office of the President:

[corporatesecretary@pttplc.com](mailto:corporatesecretary@pttplc.com)

Investor Relations Department:

[ptt-ir@pttplc.com](mailto:ptt-ir@pttplc.com)

Call Center GRC:

[GRChelpdesk@pttplc.com](mailto:GRChelpdesk@pttplc.com)

LINE: @contact1365

All questions, comments, and recommendations are forwarded to related units to act or remedy through the whistleblowing system, with follow-ups made through alerts under the e-mail system under applicable service level agreements (SLAs). If action is not completed, the next superior is reminded to take action. When the action is taken, the responsible unit informs the whistleblower and follows up again through inquiring about service satisfaction by a Contact Center officer. Executives monitor all information monthly to gauge trends and use them as guidelines for process and goods improvement to meet all stakeholders' needs. This year, excluding complaints about PTT Oil and Retail Business Public Company Limited (OR), 21,220 questions, comments, and recommendations were filed, most dealing with discount cards, energy credit cards, and service station data.

PTT enables the public to file grievances and complaints when coming across untoward or unethical behavior of directors, executives, or employees. These are made known to the Audit Committee, Office of Corporate Audit, Corporate Governance, and Human Resources. PTT listens to all complaints in an equitable, transparent, attentive, and fair manner, with suitable action periods and with due safeguarding of confidential information and protection of whistleblowers.

To this end, the Board appointed a structure for corporate governance and regulatory affairs by appointing Corporate Governance Department to centralize notifications of incidents, tips, and follow-ups of notifications, protection, and administration of fairness to complainants or whistleblowers concerning corporate corrupt practices, and reports of investigation and punishment to management and applicable committees, apart from notification to related parties. This year a total of seven complaints were made through whistleblowing channels for fraud and non-compliance. After due consideration under the process, four were found to be without grounds for fraud and three were under fact-finding, which could concern non-compliance with PTT's regulations or directives.

## (5) The Reporting of Securities holding Portfolio

In 2020, the Office of the President issued a reminder on four occasions to each of the directors and management team on forbidding trading or transfer of PTT securities. The first was between January 1 and February 29, 2020 (fiscal year 2019); the second, between April 1 and May 15, 2020 (first quarter budget of 2020); the third, between July 1 and August 15, 2020 (second quarter budget of 2020), and the fourth, between October 1 and November 15, 2020 (third quarter budget of 2020). In addition, PTT defined a policy of avoiding securities trading of PTT Group outside these periods. Directors and management complied with this strictly. If necessary to trade PTT Group securities, they must inform the Company Secretary at least two days ahead.

## Securities Portfolios of Directors, 2019 – 2020

No.	Name	Number of Shares			Remarks
		As of Dec. 31, 2019	As of Dec. 31, 2020	Change during the year	
1.	Professor Dr. Thosaporn Sirisumphand	N/A	-	-	Appointed as a director on November 6, 2020 Appointed as Chairman of the Board of Directors on November 18, 2020
	Spouse and children under legal age	N/A	18,000	-	-
2.	Professor Dr. Kittipong Kittayarak	-	-	-	(No PTT share held)
	Spouse and children under legal age	-	-	-	-
3.	Mr. Don Wasantapruek	-	-	-	(No PTT share held)
	Spouse and children under legal age	-	-	-	-
4.	Gen. Teerawat Boonyawat	-	-	-	(No PTT share held)
	Spouse and children under legal age	-	-	-	-
5.	Mrs. Nuntawan Sakuntanaga	-	-	-	(No PTT share held)
	Spouse and children under legal age	-	-	-	-
6.	Dr. Pailin Chuchottaworn	N/A	100,000	-	Appointed on September 11, 2020
	Spouse and children under legal age	N/A	-	-	-
7.	Mr. Danucha Pichayanan	-	-	-	(No PTT share held)
	Spouse and children under legal age	-	-	-	-
8.	Mr. Krishna Boonyachai	N/A	-	-	Appointed on July 3, 2020 (No PTT share held)
	Spouse and children under legal age	N/A	-	-	-
9.	Professor Dr. Surapon Nitikraipot	-	-	-	(No PTT share held)
	Spouse and children under legal age	-	-	-	-



No.	Name	Number of Shares			Remarks
		As of Dec. 31, 2019	As of Dec. 31, 2020	Change during the year	
10.	Pol. Gen. Rungroj Sangkram	N/A	-	-	Appointed on July 3, 2020 (No PTT share held)
	Spouse and children under legal age	N/A	-	-	-
11.	Dr. Thon Thamrongnawasawat	-	-	-	(No PTT share held)
	Spouse and children under legal age	-	-	-	-
12.	Mr. Chumpol Rimsakorn	-	-	-	(No PTT share held)
	Spouse and children under legal age	-	-	-	-
13.	Mrs. Premrutai Vinaiphat	N/A	-	-	Appointed on July 3, 2020 (No PTT share held)
	Spouse and children under legal age	N/A	-	-	-
14.	M.L. Chayotid Kridakon	N/A	-	-	Appointed on December 16, 2020 (No PTT share held)
	Spouse and children under legal age	N/A	-	-	-
15.	Mr. Auttapol Rerkpiboon	225,000	225,000	-	Appointed as Director and Secretary of the Board with effect from May 13, 2020
	Spouse	43,000	43,000	-	-
	Children under legal age	-	-	-	-

*Remarks:*

No PTT share was held by directors' spouses and children under legal age except those of No. 1 and 15.

## Securities Portfolios of Directors Who Completed Their Terms or Resigned in 2020

No.	Name	Shares			Remarks
		As of Dec. 31, 2019	As of Dec. 31, 2020	Change during the Year	
1.	Mr. Nuttachat Charuchinda	630	N/A	N/A	Retired from the directorship of PTT due to his completion of 65 years of age, with effect from January 17, 2020
	Spouse and children under legal age	-	N/A	N/A	-
2.	Mr. Vichai Assarasakorn	-	N/A	N/A	Completed his term on July 3, 2020 (No PTT share held during his directorship in 2020)
	Spouse and children under legal age	-	N/A	N/A	-
3.	Mr. Sarawut Kaewtathip	-	N/A	N/A	Completed his term on July 3, 2020 (No PTT share held during his directorship in 2020)
	Spouse and children under legal age	-	N/A	N/A	-
4.	Mr. Supattanapong Punmeechaow	-	N/A	N/A	Resignation: effective from July 23, 2020 (No PTT share held during his directorship in 2020)
	Spouse and children under legal age	-	N/A	N/A	-
5.	Mr. Krairit Euchukanonchai	-	N/A	N/A	Retired from the directorship of PTT due to his completion of 65 years of age, with effect from November 6, 2020. (No PTT share held during his directorship in 2020)
	Spouse and children under legal age	-	N/A	N/A	-
6.	Mr. Chansin Treenuchagron	-	N/A	N/A	Completed his term effective from May 13, 2020
	Spouse and children under legal age	-	N/A	N/A	-
7.	Professor Dr. Supot Teachavorasinskun	-	N/A	N/A	Resignation: effective from December 1, 2020 (No PTT share held during his directorship in 2020)
	Spouse and children under legal age	-	N/A	N/A	-

## Securities Portfolios of Management, 2019 – 2020

No.	Name	Shares			Remarks
		As of Dec. 31, 2019	As of Dec. 31, 2020	Change during the Year	
1.	Mr. Auttapol Rerkpiboon	225,000	225,000	-	Appointed as President & CEO with effect from May 13, 2020. (No trading transaction of PTT shares in 2020)
	Spouse	43,000	43,000	-	-
	Children under legal age	-	-	-	-
2.	Mr. Atikom Terbsiri	-	-	-	(No PTT share held)
	Spouse and children under legal age	-	-	-	-
3.	Mr. Kris Imsang	100,000	100,000	-	(No trading transaction of PTT shares in 2020)
	Spouse and children under legal age	-	-	-	-
4.	Mr. Wittawat Svasti-Xuto	554,510	554,510	-	(No trading transaction of PTT shares in 2020)
	Spouse and children under legal age	-	-	-	-
5.	Ms. Pannalin Mahawongtikul	288,120	288,120	-	(No trading transaction of PTT shares in 2020)
6.	Mrs. Arawadee Photisaro	-	-	-	(No trading transaction of PTT shares in 2020)
	Spouse	1,140	1,140	-	-
	Children under legal age	-	-	-	-
7.	Mr. Terdkiat Prommool	N/A	-	-	Appointed on October 1, 2020 (No PTT share held)
	Spouse and children under legal age	N/A	-	-	-
8.	Ms. Duangporn Thiengwatanatham	77,000	77,000	-	(No trading transaction of PTT shares in 2020)
9.	Ms. Peangpanor Boonklum	-	-	-	(No PTT share held)
10.	Mr. Wuttikorn Stithit	141,210	141,210	-	(No trading transaction of PTT shares in 2020)
	Spouse	90,960	90,960	-	-
	Children under legal age	-	-	-	-
11.	Dr. Buranin Rattanasombat	N/A	214,190	-	Appointed on June 1, 2020 (No trading transactions of PTT shares in 2020)
	Spouse and children under legal age	N/A	-	-	-

No.	Name	Shares			Remarks
		As of Dec. 31, 2019	As of Dec. 31, 2020	Change during the Year	
12.	Mr. Disathat Panyarachun	-	-	-	(No PTT share held)
	Spouse and children under legal age	-	-	-	-
13.	Mr. Noppadol Pinsupa	136,000	136,000	-	(No trading transaction of PTT shares in 2020)
	Spouse	508,000	508,000	-	-
	Children under legal age	-	-	-	-
14.	Mr. Montri Rawanchaikul	N/A	64,000	-	Appointed on October 1, 2020 (No trading transactions of PTT shares in 2020)
	Spouse and children under legal age	N/A	-	-	-
15.	Dr. Kongkrapan Intarajang	-	-	-	(No PTT share held)
	Spouse and children under legal age	-	-	-	-
16.	Mr. Wirat Uanarumit	155,000	159,000	4,000	(There were trading transaction of PTT shares in 2020)
	Spouse	-	12,000	12,000	(There were trading transaction of PTT shares in 2020)
	Children under legal age	-	-	-	-
17.	Mr. Chawalit Tippawanich	10,000	10,000	-	(No trading transaction of PTT shares in 2020)
	Spouse and children under legal age	-	-	-	-
18.	Mr. Worawat Pitayasiri	-	-	-	(No PTT share held)
	Spouse and children under legal age	-	-	-	-
19.	Ms. Jiraphon Kawswat	-	-	-	(No PTT share held)
20.	Mr. Yongyos Krongphanich	3,000	3,000	-	Transferred to PTT Exploration and Production Public Company Limited, effective from December 31, 2020 (No trading transaction of PTT shares in 2020)
	Spouse and children under legal age	-	-	-	-
21.	Ms. Wilaiwan Kanjanakanti	36,990	36,990	-	(No trading transaction of PTT shares in 2020)
22.	Ms. Jaroonsri Wankertphon	N/A	26,000	-	Newly appointed with effect from October 1, 2020. (No trading transaction of PTT shares in 2020)

**Remarks:**

No PTT share was held by executives' spouses and children under legal age except those of No. 1, 6, 10, 13 and 16.

## Securities Portfolios of Management Newly Appointed/ Transferred/ Resigned/ Retired in 2021

No.	Name	Shares			Remarks
		As of Dec. 31, 2019	As of Dec. 31, 2020	Change during the Year	
1.	Mrs. Chanamas Sasnanand	N/A	N/A	N/A	Appointed on January 1, 2021
	Spouse and children under legal age	N/A	N/A	N/A	-

## Securities Portfolios of Management Transferred/ Resigned/ Retired in 2020

No.	Name	Shares			Remarks
		As of Dec. 31, 2019	As of Dec. 31, 2020	Change during the Year	
1.	Mr. Chansin Treenuchagron	-	N/A	N/A	Completed his term on May 13, 2020. (There were trading transactions of PTT shares during office-holding in 2020)
	Spouse and children under legal age	-	N/A	N/A	-
2.	Mr. Phongsthorn Thavisin	10,000	N/A	N/A	Retired on September 30, 2020 (No trading transaction of PTT shares during office-holding in 2020)
	Spouse	15,000	N/A	N/A	(There were trading transactions of PTT shares during office-holding in 2020)
	Children under legal age	-	-	-	-
3.	Mr. Preecha Pocatanawat	-	N/A	N/A	Retired on September 30, 2020 (No trading transaction of PTT shares during office-holding in 2020)
	Spouse and children under legal age	-	-	-	-
4.	Ms. Duangkamol Settanung	80,000	N/A	N/A	Retired on September 30, 2020 (No trading transaction of PTT shares during office-holding in 2020)
	Spouse and children under legal age	-	-	-	-

No.	Name	Shares			Remarks
		As of Dec. 31, 2019	As of Dec. 31, 2020	Change during the Year	
5.	Mr. Chienvit Udomwatwong	15,160	N/A	N/A	Retired on September 30, 2020 (No trading transaction of PTT shares during office-holding in 2020)
	Spouse and children under legal age	-	N/A	N/A	-

*Remarks:*

PTT has issued and offered 60,000,000 warrants to the President, management, PTT employees, and employees of PTT Group companies seconded to PTT consisting of two batches: PTT-W1 (40,000,000 units), offered in 2005, with the last exercise date on August 31, 2010, and PTT-W2 (20,000,000 units), offered in 2006, with the last exercise date on September 28, 2011. All warrants were exercised, and no new ones have been issued.

## (6) Filing of assets and debts to NACC

Details of the topic are reported under section 2, Corporate Governance.

## (7) Declaration of vested interests in meetings

Details of the topic are reported under section 2, Corporate Governance.

## (8) Deliberation and review of related transactions

Details of the topic are reported under section 2, Corporate Governance.

# 8.2 Reports of Specific Committees' Performance This Past Year

The Board values corporate governance. In the initial years, three Specific Committees were set up, namely the Audit Committee, Nominating Committee, and Remuneration Committee. The Audit Committee was charged with corporate governance and risk management at the Board level.

Then in 2004 the Board appointed a Corporate Governance Committee in support of and screening actions concerning corporate governance and management for excellence. In 2013 it appointed an Enterprise Risk Management Committee to more explicitly focus on PTT's risk management in line with the corporate governance code that should be observed by state enterprises' listed companies, issued by the State Enterprise Policy Office in 2009. PTT today therefore has five specific committees to prudently screen key tasks under the corporate governance code and focus on shareholders' best interests with due regard for all stakeholders, marked by business ethics, transparency, and auditability. All these specific committees are made up of non-executive directors that are qualified for their responsibility as required by SET, and their roles and responsibility are clearly defined in writing. Since 2009, the authority and duties of the Corporate Governance Committee have been broadened to assignment of policies and guidelines and monitoring of tasks concerning



responsibility for society, communities, and the environment so that the committee may more completely and efficiently look after stakeholders. In 2013 the committee's expanded authority embraced the formulation of a work scope for PTT's anti-fraud. In 2015 and 2016 the Board updated the authority and duties of the Nominating Committee, Remuneration Committee, Corporate Governance Committee, and Enterprise Risk Management Committee. In 2017 the Board approved the Enterprise Risk Management Committee's additional duty of stakeholder management process supervision. Then in 2019 the Board added to this additional duty investment screening and commenting. This year the Board approved the modification of the duties and responsibility of the Audit Committee for greater pragmatic clarity in line with real-life practices; the Corporate Governance Committee for GRC coverage; and the Enterprise Risk Management Committee for coverage of corporate innovation management.

## **8.3 Report of the Audit Committee for 2020**

### **8.3.1 Report of the Audit Committee**

See on page 288 - 290

## **8.4 Report of the Specific Committees for 2020**

### **8.4.1 Report of the Nominating Committee**

See on page 291

### **8.4.2 Report of the Remuneration Committee**

See on page 292

### **8.4.3 Report of the Corporate Governance Committee**

See on page 293 - 295

### **8.4.4 Report of the Enterprise Risk Management Committee.**

See on page 296 - 297

## Report of the Audit Committee

PTT Plc.'s present Audit Committee is made up of three knowledgeable independent directors, chaired by Professor Dr. Kittipong Kittayarak, with Mr. Danucha Pichayanan and Mr. Krishna Boonyachai serving as members. The individual terms this year appear below;

### January 1<sup>st</sup> to July 3<sup>rd</sup>, 2020:

- Mr. Vichai Assarasakorn  
Chairman
- Mrs. Nuntawan Sakuntanaga  
Member
- Mr. Danucha Pichayanan  
Member

### July 3<sup>rd</sup> to December 31<sup>st</sup>, 2020:

- Professor Dr. Kittipong Kittayarak  
Chairman
- Mr. Danucha Pichayanan  
Member
- Mr. Krishna Boonyachai  
Member.

Serving as secretary to this committee is Mr. Chadil Chavanalikhikorn, Executive Vice President, Office of Corporate Audit.

In 2020, the committee executed its Board-assigned duties and those under its own charter, which agreed with SEC's best practices. It reviewed and advocated PTT's corporate governance, together with an adequate risk management and internal control system, as well as enforcement of compliance. It ensured PTT's emphasis on being a transparent organization with efficient and effective internal audit activity, while aligning corporate goals, and transforming the Office of Corporate Audit to be a trustworthy partner for sustainable long-term value creation for PTT with due regard for satisfying stakeholders' expectations. Below are its performance highlights.



1. Advocated the upgrading of processes of governance, risk management, internal control, and compliance, with a focus on forming a corporate culture of business integrity underlined by integrated actions under the Three Lines Model. The ultimate goal is to make improper actions intolerable to executives and employees, who will agree that efficient, effective operation produces less opportunities for fraud and corrupt practices.

2. Promoted operating safety measure as a priority for the management team for both PTT's operation and operation by its stakeholders. To this end, the committee recommended that management should review operating and monitoring processes, and also, consider technological application in support of operation to raise corporate safety standards.

3. Advised management to apply lessons learnt from various operations to make operating processes more efficient and fair, especially, contract management and procurement processes.

4. Encouraged PTT's transformation into a Data-Driven Organization so that it may have a single database accessible to the 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> Lines under sound data governance; also, the committee supported management's priority given to cybersecurity risk management, marked by an ongoing process to build up understanding and awareness among the Board, management, and the workforce (Peopleware).

5. Supported technological application for greater performance efficiency and effectiveness, warding off non-compliance, deterring fraud and corrupt practices; also, the committee advocated operating transparency, including development of "Digital Procurement" and "Investment Dashboard", improvement of the international trading operating system, and application of the Robotic Process Automation (RPA) in various processes.

6. Assigned a policy on upgrading PTT Group's internal audit activity quality, leading to efficient, effective, credible, and professional practices by focusing on audit of efficiency and effectiveness apart from audit of compliance so as to add value for PTT and PTT Group. Personnel development was to be ongoing, and additional technology found application in audit work.

In 2020 the committee held 14 meetings, with attendance detailed below:

**January 1<sup>st</sup> to July 3<sup>rd</sup>, 2020: 7 meetings**

- Mr. Vichai Assarasakorn  
7 times
- Mrs. Nuntawan Sakuntanaga  
7 times
- Mr. Danucha Pichayanan  
6 times.

**July 3<sup>rd</sup> to December 31<sup>st</sup>, 2020: 7 meetings**

- Professor Dr. Kittipong Kittayarak  
7 times
- Mr. Danucha Pichayanan  
6 times
- Mr. Krishna Boonyachai  
7 times.

## Summary of Performance

### 1. Review of financial reports:

The committee reviewed quarterly and annual financial reports together with consolidated financial reports with management, the Office of Corporate Audit, and the experiences auditor. It asked the external auditor about the accuracy and completeness of financial reports, adjustment of material account entries and accounting projections affecting such reports, adequacy and suitability of account recording, audit scope, information disclosure that was accurate, complete, and adequate, as well as its own freedom. All these elements ensured that the preparation of financial reports abided by legal requirements as well as accounting standards under generally accepted accounting principles that were credible and timely, and that adequate information was disclosed for users' benefit.

### 2. Review of risk management process:

In conjunction with management, the committee regularly reviewed the efficiency and effectiveness of the risk management process as well as the policy, action plans, and risk management approach that affect PTT Group's operations. It also provided advice for process improvement for unforeseen events.

### 3. Review of internal control process effectiveness:

The committee reviewed PTT's internal control with the Office of Corporate Audit by examining its operation, resource consumption, stewardship of properties, prevention or reduction of errors or damage, losses, waste, or fraud, credibility of financial reports, including, compliance with laws, regulations, and Cabinet resolutions. No significant problems or material shortcomings were detected. This year's assessment outcomes of internal control against the Ministry of Finance's Internal Control Standards for Government Agencies, B.E. 2561 (2018), according to PTT management, were that PTT had indeed designed adequate and appropriate control mechanisms, with ongoing compliance.

#### 4. Review of governance process:

The committee reviewed the process of compliance with applicable laws and regulations, business protocols, related party transactions or those with potential conflicts of interest, and connected transactions among PTT Group to ensure sensible conformance to normal business terms. The committee also reviewed the complaint-handling and whistleblowing process.

#### 5. Review of internal audit:

The committee reviewed the Office of Corporate Audit's strategic plans, annual and long-term internal audit plans, conformance to plans and internal audit findings. To this end, it advised and monitored corrective and proactive actions for significant aspects of good governance and adequate internal control. It considered amending the internal audit charter and reviewed the annual budget of the office, its personnel development, recruitment, rotation, training plans, and confirmation of audit freedom. Also reviewed were the office's adequacy and suitability of resources, KPIs, and the annual merit consideration for the executive vice president heading the office. The committee also supervised ongoing quality and task improvement of the Office of Corporate Audit.

#### 6. Quality assurance of the Audit Committee:

The committee not only reviewed its own charter, but also assessed its own performance as a group and individuals (self-assessment and cross-assessment) against SET's best practices to ensure efficient, fruitful performance. Overall assessment result for the committee as a group were "regularly perform", results for self-assessment were "good", and results for cross-assessment were "excellent". Action plan to improve its own performance were set. Finally, the committee reported its performance outcomes to the Board every quarter, with comments noted for value addition and process improvement of governance, risk management, and internal control supervision as well as compliance with PTT's regulations.

#### 7. Appointment of the external auditor for 2021:

The committee endorsed Ms. Waraporn Prapasirikul, CPA No. 4579 and/or Mrs. Saifon Inkaew, CPA No. 4434, and/or Ms. Rungnapa Lertsuwankul, CPA No. 3516, or all, of the EY Office Co., Ltd., as the external auditors for 2021 for the Board's concurrence and the shareholders' approval at the 2021 AGM, together with its audit fees. The committee also met exclusively with the external auditor on one occasion in absence of PTT management to discuss about the audit scope, guidelines, and plans together with its performance freedom and comments with a focus on accurate, complete, and adequate presentation of data.

In summary, the Audit Committee executed its charter duties and responsibilities with due competence, care, prudence, and freedom while providing comments and advice for the equitable benefit of all stakeholders. Its view is that PTT's financial statements are accurate, credible, and align with generally accepted accounting standards. In addition, PTT practiced compliance with applicable laws and business obligations, together with good governance, adequate risk management and internal control, conformance to rules along with efficient and effective internal audit.

## Report of the Nominating Committee



The present Nominating Committee consists of three independent directors, chaired by Mr. Don Wasantapruek, with Professor Dr. Surapon Nitikraipot and Police General Rungroj Sangkram as members. The Company Secretary or the Executive Vice President, Company Secretary and Corporate Relations, serves as its secretary.

This year the committee executed Board-assigned duties with due prudence, transparency, and fairness and updated its approach to align with up-to-date business strategies with due regard for shareholders' and stakeholders' best interests. The outcomes of this year's nine meetings are highlighted below.

- Nominated directors to replace those who were due to retire by rotation, based on diverse information, from various professions with suitable qualifications under applicable laws and regulations, PTT's Articles of Association, and the corporate governance code. Nominated candidates must be duly competent, skillful, and qualified for PTT's business strategies, based on an analysis of the PTT Board Skill Matrix and the Director's Pool of the Ministry of Finance and Thai

Institute of Directors (IOD). Their track records as well as past to present roles must ensure shareholders' confidence. Their background must also be unblemished experiences and without conflicts of interest with PTT. The names of qualified candidates were tabled for the Board's concurrence for appointment by the AGM. Those names must also have the endorsement of a Sub-Committee for the Screening Committee for State Enterprise Committee along with the endorsement of the Chairman, State Enterprise Policy Committee, in keeping with the Cabinet resolution on state enterprise director's appointment guidelines dated August 6, 2019.

- Nominated directors to replace those resigning during the year. To this end, the committee carefully tabled qualified names along with their profiles to the Board for appointment. The names must also secure prior concurrence from the State Enterprise Policy Committee
- Nominated directors for specific Board subcommittees, based on their compositions, qualifications, expertise, competencies, related skills and suitability (Skill Matrix) for the Board's appointment, with the exception of the Nominating Committee itself, which is to be appointed by the Board
- Reviewed the Board Skill Matrix as well as the matrix for the five specific committees to decide whether the matrix still aligned with PTT's strategies and KPIs determination to measure the Board's performance outcomes (in addition to the Board assessment) and tabled the findings for the Board's comments
- Consulted each other on the driving/supervision of the Board's performance guidelines for sustainable development
- Improved its own performance to be more thorough, suitable, timely, and aligned with PTT's corporate governance code.

In 2020, the Board gave minor shareholders the opportunity to nominate directors, but no such nomination was put forward for the 2020 AGM. For transparency, other details appear in this 56-1 One Report.

## Report of the Remuneration Committee



In 2020, the Board of Directors appointed the Remuneration Committee, which consists mainly of independent directors. The committee is chaired by General Teerawat Boonyawat, an independent director, with Mr. Chumpol Rimsakorn and Police General Rungroj Sangkram as members. Serving as secretary was the Company Secretary or the Executive Vice President, Company Secretary and Corporate Relations.

The committee performed its duties with prudence and care by screening and commenting on key issues for the Board's consideration. The outcomes of 2020's five meetings are highlighted below.

- Considered the 2020 remuneration for the Board and its subcommittees, based on PTT's performance results and business size, guidelines of listed companies of the same industry and leading ones worldwide, along with Board responsibilities and the outcomes of Board assessment under various topics defined in the annual assessment forms. The remuneration was tabled for the Board's concurrence and subsequent purpose for approval at the 2020 AGM.

- Reviewed assessment guidelines for the President & CEO's performance to decide his new remuneration, based on factors linked to the agreement of the annual performance assessment for state enterprise, between PTT and the State Enterprise Policy Office, his performance results against the corporate vision, together with his managerial ability, leadership, self-assessment, and assessment by all individual directors. All these had gone into the committee's consideration before it tabled its views to the Board for approval.

- Acknowledged and commented on the assessment of senior executive vice presidents.

- Reviewed details of appropriate guidelines for improving variable bonuses for employees and executives.

For transparency, the Remuneration Committee has disclosed the pays of all directors and subcommittee members together with management's pays in this 56-1 One Report.



## Report of the Corporate Governance Committee



The current Corporate Governance Committee is made up of three independent directors, namely Mrs. Nuntawan Sakuntanaga (Chairman, replacing Professor Dr. Kittipong Kittayarak from July 3, 2020), Professor Dr. Surapon Nitikraipot (member), and Dr. Thon Thamrongnawasawat (member since October 1, 2019). The Senior Executive Vice President, Corporate Governance and Regulatory Affairs, and the Senior Executive Vice President, Office of General Counsel, serve as secretaries.

Highly valuing business conduct with integrity, accountability, and resistance to all forms of fraud and corruption, the Board stresses PTT's firm commitment to becoming a corporation of transparency and morality under corporate governance (CG), a high ethical standard, a Code of Business Conduct, and PTT Group's scope of sustainability development to upgrade PTT's CG system for relentless efficiency in turn boost fairness and confidence among all its stakeholders and lead to PTT's sustainable growth.

To this end, the Board has assigned this committee to propose CG guidelines and oversee the conduct of the directors and management to ensure conformance to CG principles, SEC's and SET's CG principles, IOD's recommendations from the Corporate Governance Assessment Report, and the international principles of the Organization for Economic Cooperation and Development (OECD) together with the ASEAN CG Scorecard (ACGS), the Ten Principles of the UN Global Compact (UNGC), and the DJSI Corporate Sustainability Assessment, as well as sustainability management and scope formulation for the oversight of PTT's applicable anti-fraud and corruption tasks.

In 2020, the committee held nine meetings as planned to track and assess CG and anti-fraud and corruption tasks, as well as social, community, and environmental responsibility together with sustainable development plans, as highlighted below:

### Information Disclosure and Transparency

- Prepared 56-1 One Report 2020, and disclosed PTT's quarterly performances and material information for shareholders, investors, and the public, complete with material, adequate, credible, and timely details through assorted channels, including SET's publicity channels and [www.pttplc.com](http://www.pttplc.com). The core units taking charge of information distribution were Investor Relations and Corporate Communication and Branding.

- Disclosed sustainability performance data taking into account all stakeholders covering Environmental, Social and Governance (ESG) dimensions through 56-1 One Report 2020 under the topic of driving business towards sustainability, integration of the sustainability performance with the topic of risk management, Management Discussion and Analysis, and Corporate Governance under the applied Global Reporting Initiative (GRI) Sustainability Reporting Standard 2016 and Oil and Gas Sector Disclosure (OGSD). It presented performance data under Integrated Reporting (IR) formats of the International Integrated Reporting Council (IIRC), provided the progress report in compliance with

the Ten Principles of the United Nations Global Compact (UNGC), and reported operating outcomes that confirmed PTT's staunch support for sustainable development goals in line with the scope of the UN Sustainable Development Goals (SDGs) with the applied Recommendations of The Task Force on Climate-related Financial Disclosures (TCFD) in reporting business outcomes related to climate change. Moreover, a third party was commissioned to constantly review the report, with disclosure of the report on PTT's, GRI's, and UNGC's websites. In addition, PTT advocated preparation of this report by PTT Group companies, namely PTTEP, GC, Thailoil, IRPC, GPSC, and OR, in compliance with SEC's and SET's direction of convincing listed companies to disclose performance data on the environmental, social, and governance sides on a par with international practices.

### Rights of the Shareholders

- Held the 2020 AGM and provided in advance adequate and timely information on the date, time, venue, and agenda as well as all information relevant to matters needing decisions at the AGM. Informed the shareholders about meeting rules and distributed such information on PTT's website before sending out meeting notices to give shareholders adequate time to study details. Facilitated their full exercising of meeting and voting rights under situation of the epidemic of Coronavirus 2019 (COVID-19). As a result, PTT achieved an "outstanding" score on the AGM Checklist assessment.

### Equitable Treatment of Shareholders

- Allowed shareholders to propose additional agenda items and nominate directors for election in advance from September 1 to November 30, 2020, as required by PTT.
- Required all directors and executives to disclose vested interests about themselves and related parties for 2020 so that the Board might review PTT's transactions with potential conflicts of interest and decide in PTT's best interests. Required directors with potential vested interests on any meeting agenda items to abstain, refrain from commenting, and skip such agenda items.
- Required all directors, executives, and employees to report by paper form or electronically report their conflicts of interest for 2020 on the PTT Intranet. No significant conflict was reported this year.
- Required all directors and executives to report their securities portfolios as required by law and assigned the Company Secretary to compile and report these to the Board every quarter.

- Ensured enforcement of the Insider Trading Guidelines by asking the directors and management to refrain from PTT Group companies' securities trading. If such trading is necessary, for transparency they must notify the Corporate Secretary ahead of time.

### Responsibilities of the Board

- Assessed Board performance namely overall, self-assessment, cross-assessment, subcommittee assessment, and duty and performance assessment of the Chairman, satisfaction with performance of subcommittees, and chairman of each subcommittee. The outcomes for 2020 were "outstanding".
- Attended training courses to develop competencies in directorship, such as courses hosted by the Thai Institute of Directors (IOD) and other relevant institutes, as well as holding in-house courses and sessions by inviting experts to provide information related to the Board's work.
- Studied business management practices in PTT Group and matters related to energy and related businesses.
- Held one meeting among the independent directors.
- Held one non-executive meeting.

### Recognition of Stakeholders

- Endorsed an action plan on PTT's CG and anti-fraud and corruption for 2020 together with the annual goals before cascading to implementation, followed by constant monitoring, with recommendations provided to upgrade PTT's CG on a par with international standards.
- Provided oversight for the review of "PTT Corporate Governance, Ethical Standards and Code of Business Ethics Handbook" regarding the amendment of duties and responsibilities of the Corporate Governance Committee to embrace good corporate governance, operational risk management and internal control, Governance Risk and Compliance (GRC), and the amendment of duties and responsibilities of the Enterprise Risk Management Committee to cover the governance of organizational innovation.
- Assigned the Corporate Governance Policy and advised the Governance, Risk and Compliance Management Committee (GRCMC), in charged with steering CG, operational risk management, internal control, and compliance management. GRCMC also serves as PTT's Anti-Fraud and Corruption Operation Center for State Enterprises.

- Assigned policies and provided recommendations to management on the definition of a PTT Group governance policy. To this end, a PTT Group Way of Conduct was developed to house guidelines, code of practice, and business processes of various aspects of PTT and PTT Group that align and harmonize with one another. PTT Group Way of Conduct then aids the oversight of PTT-invested companies through the implementation and driving of all PTT Group companies to adopt the same standard.

- Advocated and urged PTT's business allies to declare their intention to join Thai Private Sector Collective Action against Corruption (CAC).

### CSR and Sustainable Development

- Defined PTT Group Sustainability Management Framework by committing to corporate citizenship that values the three principles of Environmental, Social and Governance as operating policy in tandem with business, and defined a social responsibility towards communities which forms PTT's major groups of stakeholders at all operating sites whose wellbeing PTT aims to raise. PTT's stewardship also covers social network communities across the country under the two-dimensional operations namely development of human resources, communities, and society (Social), and conservation of natural resources and the environment (Environmental). PTT applies PTT group's expertise to the driving of community self-development, particularly support for creating inclusive businesses which stress inclusion of the underprivileged and low-income earners as part of PTT's business.

- Development of human resources, communities, and society (Social) promotes items 4, 7, and 8 of the UN Sustainable Development Goals (SDGs) involving access to quality education, clean energy, economic growth, poverty alleviation, decent vocational skills, and income generation opportunities, as well as sustainable social investment in the form of Social Enterprise (SE) through Sarn Palung Social Enterprise Co., Ltd.

- Conservation of natural resources and the environment (Environmental) promotes item 15 of the UN Sustainable Development Goals (SDGs) involving conservation and rehabilitation of natural resources and the environment through expansion of green urban areas and suburban forests, as well as awareness raised for environmental conservation through PTT learning center.

- Passed assessment by SAM Corporate Sustainability Assessment and qualified as a member of DJSI for the 9<sup>th</sup> consecutive year with the highest score as Industry Leader in Oil & Gas Upstream & Integrated (OGX) among the 7 out of 54 companies invited to join Dow Jones Sustainability World Index (DJSI World), and among the 2 out of 18 companies invited to join Dow Jones Sustainability Emerging Markets Index (DJSI Emerging Markets). PTT achieved an industry-best score on Materiality, Codes of Business Conduct, Policy Influence, Tax Strategy, Energy Mix, Environmental Reporting, Social Reporting, Human Rights, Human Capital Development, Corporate Citizenship and Philanthropy, and Occupational Health and Safety among the Oil & Gas Upstream & Integrated (OGX) category.

### Awards of Pride

Thanks to its firm commitment to operating businesses with CG and social responsibility, coupled with constant sustainability management and improvement, in 2020 PTT earned extensive acclaim from domestic and international entities alike. Awards included:

- The 9<sup>th</sup> Integrity Award presented by the Office of the National Anti-Corruption Commission (NACC) for the 2<sup>nd</sup> consecutive year.

- Passed NACC Integrity & Transparency Assessment (ITA) at the "very high" level for the 6<sup>th</sup> consecutive year; the assessment outcome for 2020 was in the A range.

- Received "Excellent" ranking based on the 2020 survey of listed companies (Corporate Governance Report of Thai Listed Companies 2020) for the 12<sup>th</sup> consecutive year.

- Received ASEAN Corporate Governance Scorecard (ASEAN CG Scorecard) award as a Thai listed company that passed assessment according to the criteria of ASEAN CG Scorecard with the scores of 97.50 upward (ASEAN Asset Class PLCs), ASEAN Top 20 PLCs, and Country Top 3 PLCs (Thailand).

# Report of the Enterprise Risk Management Committee



PTT Plc. values corporate risk management as an indispensable tool for coping with risk factors from outside and inside the corporation, including the volatile world economy, various uncertainty, and emerging risks that are increasingly complex and severe. Since all these could compromise business outcomes, risk management plays such a critical role in alleviating these impacts and steering PTT toward its business goals.

The Enterprise Risk Management Committee (ERMC) has supported the Board's performance under corporate governance to keep risk management efficient and effective for goal achievement while aligning with the corporate vision and direction as well as mitigating impacts of business uncertainty. The key is to ensure shareholders and stakeholders that PTT's risk management system can indeed handle all these risks.

In 2020, ERMC held a total of 10 meetings as highlighted below.

## 1. Steered Risk Management to Ease Business Impacts:

ERMC defined proactive measures focusing on lowering the probability of all risk events while commanding passive measures should risk events actually arise so as to ease impacts on corporate goals. It defined comprehensive risk management plans for all situations. In 2020, PTT's risk management policy and process were aligned with the COSO: ERM 2017 standard as recommended by SET for listed companies. PTT issued a declaration of the "Risk Appetite Statement" to ensure that its corporate risk management process is appropriate as well as practical. In addition, the Board has endorsed ERMC's new responsibility for steering corporate innovation management.

**2. Oversaw Corporate Stakeholder Management:**

This was designed to make such management complete and embrace comprehensive management of all stakeholders. ERMCI endorsed the following matters:

- 2.1 Stakeholder management strategies
- 2.2 Stakeholder management objectives and scope
- 2.3 Stakeholder policy
- 2.4 Stakeholder groups
- 2.5 Critical corporate issues for stakeholders together with operating guidelines, including the drive for implementation by all functions and monitoring of operation and outcomes of management assessment. ERMCI also provided comments and advice for goal achievement.

**3. Closely Monitored Corporate Risk Management Every Quarter in 2020:**

ERMCI advocated leading KRIs (Key Risk Indicators) and lagging KRIs and counseled management on improvement of its management practices by revising risk management plans in line with prevailing business strategies and contexts. Finally, it reported its performance outcomes to the Board. This year ERMCI urged and closely monitored the outcomes of price hedging processes under highly volatile markets.

**4. Screened the List of 2021 Corporate Risks and Sought Endorsement of the Board:**

To this end, a list of corporate risk items and risk management plans was integrated with the preparation of the annual enterprise plans. As a result, risk management plans have become more explicit and in line with the corporate business direction, strategies, and goals. Implementation was cascaded across the corporation to efficiently address risks and promptly handle them.

On the whole, the Enterprise Risk Management Committee and PTT's risk management taskforce are committed to maintaining and developing its efficiency of risk management for effective and proper performance as well as keeping risks manageable. Ultimately, this would sustainably support business goal achievement in the long-term amid challenging circumstances.

## 9. Internal Control and Connected Transaction

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### 9.1 Internal Control

PTT implements its internal control by the international standard of The Committee of Sponsoring Organizations of the Treadway Commission (COSO) to achieve these objectives: Operation, Reporting, and Compliance.

At Board Meeting No. 12/2563 of December 17, 2020, with all the Board of Directors consist of 11 independent directors (of whom 3 independent directors were the Audit Committee) in attendance, the Board reviewed the internal control assessment report prepared by the management following the form of The Securities and Exchange Commission (SEC) together with the result of the Audit Committee. The Board regarded PTT's internal control as adequate and suitable, with consistent compliance. Its assigned unit responsible for internal control focused on laying down a system embracing all activities that was adequate and suitable for its businesses for efficient and effective achievement of internal control objectives. Its financial and other reports were transparent, reliable, timely and compliance with applicable laws and regulations.

PTT has modified its procedures and systems further to improve internal control and ensure that the system's detection of problems or risks efficiently and more speedily. PTT's internal control system can be summarized by COSO component as seen below.

#### (1) Control Environment

PTT commands a sound overall control environment that is adequate for business efficiency and effectiveness. Its executives have promoted a corporate culture focusing on integrity and ethics as a role model with the following implementation:

- The Board and management executives take seriously the control environment and corporate culture by defining policies for internal control, risk management, corporate governance (CG), anti-corruption, compliance, and giving and receiving of gifts, assets, or other benefits. It announces these policies for all to acknowledge and observe and organizes training and internal/ external public relations about them. Regular monitoring and assessment are in place. The Board, management executives, and the workforce must acknowledge such guidelines in writing and conform to the Corporate Governance, Ethical Standards and Code of Business Ethics Handbook (CG Handbook). Integrity and Ethics form part of the SPIRIT corporate values to stress transparent business conduct and collaboration in the Power of Virtue, which explicitly embraces their everyday duties, decision-making, and treatment of all stakeholders, including business partners, customers, and third parties. PTT values equitable treatment on the basis of fair competition, mutual respect of rights, nurturing of relations and cooperation, and strict honoring of contracts. All executives and employees prepare reports disclosing items of potential conflicts of interest with PTT annually or upon every related incident.



- Setting good corporate governance as a part of the organization's vision, mission and values by considering the 3 aspects of equilibrium (ESG) which include Environmental, Social and business operations under good Governance principles, and integrated management of stakeholders with the strategy of Business Integrity as part of the operation.
- Its structure is based on the "Three Lines Model" management approach focusing on ensuring everyone's understanding and strictly complying with regulations and duties and responsibility. To this end, it focuses on prevention and solution by those on the job, systematic operation with total segregation of authority for approving, account recording, payment and receipt of payment, and verification and stewardship of assets, which results in effective checks and balances. In addition, the Office of Corporate Audit has a clear and independent reporting line to the Audit Committee under PTT's structure, which is marked by decentralization of power to business units, thus giving due flexibility to communication for their duties and responsibility.
- It defines a written policy and procedure for human resource (HR) development, including procedures for planning and administering the overall workforce in both short and long-terms. In place is an annual analysis and revision of manpower, including analysis, planning, and definition of key succession processes by defining policies, regulations, tools, selection, assessment of potential, and plans for developing those in the Potential Pool for key positions. All these are compatible with business directions, as well as compliance. PTT reviews the suitability of audit authority segregation for checks and balances for efficient internal control and communicates to applicable units to prepare for recruitment and prepare expenditure budgets to meet HR needs.

## (2) Risk Assessment

PTT recognizes the importance of risk management to achieve business objectives as well as those of compliance and preparation of credible reports under changes that impact its businesses due to internal and external factors. It views risk management as a critical component of every business process which must be linked with one another.

- PTT defines a policy of corporate risk management for all to conform to. At every level, risks are to be assessed, including those of corruption. For corporate risks, management is systematically undertaken by its various management committees. Operational risks fall under the oversight of respective executives. An Enterprise Risk Management Committee (ERMC) steers and supports corporate risk management in line with business strategies and goals as well as shifting circumstances, and provides advice on guidelines for monitoring and assessment to the Corporate Plan and Risk Management Committee (CPRC) to manage overall risks for maximum efficiency. It is the responsibility of all units to manage and control risks to manageable levels (risk appetite), as clearly stated in the functional descriptions of all units.
- The Business Continuity Management (BCM) process is applied to the COVID-19 situation management to assess guidelines for business, workforce communication, and preparation of resources and business processes for employees' uninterrupted and safe work without impacts on key goals.
- It develops a third-party screening process for greater efficiency and prudence together with fostering credibility and confidence in engagement with business partners and stakeholders for standardized and suitable analysis and assessment of traders, customers, business partners, and employees. The year 2021 will see application in pilot processes: procurement, hiring, and crude oil trading.

### (3) Control Activities

PTT defines control activities to lower risks to achievement of its objectives as described below.

- The Management Committee (MC) reviews financial and other reports of all business groups and regularly reviews performance to ensure conformance to regulations, protocols, and job manuals. PTT defines written policies and procedures, including those for performance assessment of all employees, which relies on KPIs to make control of administrative activities suitable, adequate, and auditable. Portions of businesses have been identified for key risks, and mechanisms have been defined to control and minimize errors. Regular performance reviews by the management are in place, including financial, procurement, and general administrative transactions.
- Systematic delegation of duties to personnel groups ensures proper checks and balances. Authority is duly and fully segregated for approval, information compilation, transaction recording, receipt and disbursement of cash, reviews of inspection and stewardship of properties. In place is an internal control system for finance and accounting dealing with cash collection, cash retention, receipt and disbursement, bank deposits, and cash advances. These follow the rules with complete, accurate, and regular recording. Systematic and consistent storage of accounting documents, both documents and informations, is in place to comply with the law. Should PTT engage in transactions with the major shareholder, directors, managers, or their related parties, it would apply strict measures to ensure that each such transaction secures the required approval every time and for every item. Parties with vested interests will not take part in the approval of such an item. PTT also closely monitors subsequent actions.
- An investment plan to grow business is carefully developed with due regard for sources of capital, notably by structuring the capital structure to duly maintain key financial ratios on a par with industry peers through screening by the Strategic Investment Management Committee to grow adequate future businesses at suitable finance costs. It also executes investment priority by grouping current businesses in a business portfolio.
- PTT Group Way of Conduct serves as a mechanism and guidelines for steering the policies and business conduct among PTT Group under Principle, Change, and Team Choice. Multi-level Governance ensures a single implementation standard for all. The internal control policy is grouped under strategic alignment, with a report submitted to PTT annually. It also arranges site visits, which integrates the GRC Policy to engage in sharing, counseling, and recommending ideas on internal control development as well as compliance with the PTT Group Way of Conduct.
- PTT defines its requirement on the standard for compliance with the ICT policy to control, develop, or execute change management to its computer work systems. The practical guidelines embrace various work procedures, including requesting, testing, and migrating for actual application, and major system maintenance, including data backup. Also in place are policies and requirements for ICT policy compliance for controlling key infrastructure, including security of network systems and operation centers and access control to wireless networks. It develops infrastructure for emergencies by leveraging the BCM standard to sustain uncertainty, thus it can provide continuous services; plan drills take place every year. Should its businesses be affected by COVID-19, procedures have been amended in line with the Ministry of Public Health's measures, including delivery and transmission of documents, to allow uninterrupted businesses.

- Investigation and fact-finding processes are defined to obtain facts and lead to fair disciplinary actions, ranging from receipt of a given matter into the deliberation process, appointment of a fact-finding panel and a disciplinary investigation panel, planning and issue definition, compilation of evidence and weighing of witness accounts, to preparation of reports and issue findings.
- In procurement, PTT follows the Public Sector Procurement and Supplies Management Act of 2017 and requirements on materials and supplies, which clearly define responsible parties, including the authority, approval limits, supply need assessment, delivery inspection, control and storage of supplies, and property counting. It has systematized HR administration, complete with adequate monitoring and assessment, covering recruitment, determination of compensation, responsibilities, personnel development, performance, and communication so that employees may be competent and that HR administration may be suitable and efficient.
- PTT values the steering of sustainability management together with security, safety, health, and environment (SSHE), all of which are likened to a vital shield against risks or impacts, and efficiently as well as effectively lowering potential losses suffered by all stakeholders, assets, work processes, data, and the surroundings. This would bring about business sustainability while extending performance in all aspects of excellence for vision and goal attainment. In 2020, it defined tools and processes for sustainability management under the “Manual for State Enterprise Assessment under the New Assessment System” section 4.1 (policy and job manual and strategic implementation of CSR in Process) and section 9.2 (policy and job manual and development of strategic sustainability), required by the State Enterprise Policy Office for sustainability management supervisory structure. The Board looks after, monitors, and provides policies as well as recommendations on sustainability management and SSHE, which PTT then applies as its control activities through the Corporate Governance Committee, which reviews, orders, and comments on

the outcomes of strategic and plan implementation, key sustainability and SSHE goals and indicators every quarter. The MC, led by the President & CEO, screens, orders, and comments monthly, supported by subcommittees at the management level for specific matters and management practices at the strategic level and operating level for sustainability and SSHE, namely the Governance Risk and Compliance Management Committee (GRCMC), PTT Group Sustainability Management Committee (GSMC) and the Corporate Plan and Risk Management Committee (CPRC). To this end, centralized departments are Good Governance and Corporate Ethics, Sustainability Strategy, and Enterprise Planning and Budgeting. In addition, the “PTT Sustainability Management Policy” has been revised and officially enforced with the President & CEO’s signature given on June 22, 2020, to show PTT’s intention and commitment to managing its key sustainability issues for management for the entire workforce to support, drive, integrate, and conform to this policy and convey it to PTT Group and all stakeholders while communicating and engaging with world-class leading entities to enhance its potential for sustainability development. At the same time, it has developed a “Master Plan, Processes, and Manual for Sustainability Management as an Illustration of Social and Environmental Responsibility” to describe its objectives, strategic directions, roadmap, short-term and long-term goals, key plans, and processes for sustainability management; and to define key roles and responsibility of related agencies for implementing the master plan and processes to jointly mobilize toward integrated implementation with other key processes in the same fashion across PTT while illustrating the connection between other procedures and key documents describing minor work processes. To this end, a “Sustainability Roadmap” measures the outcomes of sustainability strategic directions and roadmap of senior executives of each related unit. Details about sustainability management and SSHE management appear under the annual information disclosure form/ Form 56-1 One Report under “**Driving Business for Sustainability**”.

## (4) Information & Communication

PTT values quality ICT systems since ICT supports effective internal control. Below are its management guidelines:

- Managing data by classifying levels of confidentiality; defining guidelines for storing key documents and control documents, and internal and external operation-supporting data to ensure that key information related to business is accurate, complete, adequate, and timely and that an efficient data analytical and storage system is in place to ensure that the data used are credible and adequate for timely decision-making.
- Instituting various internal communication channels, namely Town Hall, intranet communication, electronic mail, orientation, and Learning Management System.
- Instituting communication channels with external stakeholders, including the website and facebook. Directly responsible units regularly disclose key data to all stakeholders. PTT set up its 1365 Contact Center to centralize data provision covering integrated goods and services for interested parties. It allows shareholders to propose AGM agenda items and nominate directors in advance, thus promoting corporate governance under the rights of shareholders and equitable treatment.
- Instituting clear grievance channels and management guidelines so that employees and third parties can be assured that their complaints will be transparently, fairly, confidentially, and honestly considered in due time.

In 2020, PTT forged ahead with the “PTT” (“Powering Thailand’s Transformation”) concept as Thailand’s energy entity driving the country across this transformation by leveraging technology and innovation to all sectors, upgrading national competitiveness, developing society, and upgrading the quality of life for Thais. The Board therefore approved and pushed ahead with Digital Roadmap implementation to drive innovations for business efficiency, lower costs, and lower business competition expenses by focusing on outcomes that comprehensively and equitably meet all stakeholders’ needs with the application of digital technology.

With BCI (Thailand) Co., Ltd., or Thailand Blockchain Community Initiative (a cooperative scheme among 22 commercial banks in Thailand on Blockchain technological application), PTT developed a system for returning contract collateral to traders once they have completely and accurately delivered work at the end of their contractual obligation period. The system generates requests for collateral return for authorized people to approve through the system, thus speeding up the process with clarity and accuracy, eliminating document filing, and lowering the use of paper, which supports the green procurement policy. On another matter, PTT applies the Robotic Process Automation (RPA) to repetitive everyday actions by employees in a speedy fashion around the clock; today RPA has been completed for over 30 processes, thus raising work efficiency by giving processes faster speed. On average, 75% of the processes save 25 - 50% overall expenses while reducing errors under the manual process. PTT supervises RPA by distinctly grouping the roles of those involved and grouping processes. In addition, it developed the Digital Procurement Project to raise the efficiency of procurement and non-hydrocarbon procurement by leveraging advanced technology in support of work, including RPA, Analytic, and Chatbot, with a focus on procurement under the Governance, Risk, and Compliance principle.

Due to the outbreak of the Coronavirus Disease 2019 (COVID-19), PTT manages its digital support of business to enable prompt adjustment to change and engage in uninterrupted business. To elaborate, PTT's digital management enables employees to work from home efficiently and safely by properly preparing notebooks for employees and preparing software to efficiently accommodate working from home, namely VPN, data file and data backup management, teleconference, and virtual classroom personnel development. Resource adequacy is closely examined to ensure that employees can function efficiently as normal.

The Board also values cyber security, which are on the rise according to the World Economic Forum. This year saw a wide variety of cyber-attacks worldwide through networks, applications, data, Cloud, and the Internet of Things (IoT), wreaking havoc to organizations in several aspects, including data ransom expenses, business disruption impacts, and worst of all, loss of customers' confidence in the organization. Cyber-threats are therefore a common topic of value. The Board recognizes the value of cybersecurity by planning and installing preventive hardware; it cooperates with PTT Digital in three aspects. First, technology, systems, and hardware. Second, process for dealing with cyber-threats with the Cyber Security Operation Center (CSOC) and reporting; all CSOC personnel are internationally certified experts. Third, users; users are exposed to activities and tools to relentlessly forge awareness of cyber security and the digital culture so as to ensure that PTT's cyber security is indeed efficient and that employees are poised to handle cyber-threats. To this end, PTT in conjunction with PTT Digital hired third parties to attempt to penetrate PTT's system (penetration test); the test outcomes have helped PTT improve the system.

## (5) Monitoring & Evaluation Activities

PTT commands a process for monitoring and assessing the adequacy of internal control and defines guidelines for improvement to ensure system efficiency and effectiveness:

- Assess the efficiency and effectiveness at least annually by requiring top management to conduct such assessment by themselves according to their assigned roles through the Control Self-Assessment (E-CSA) forms and by requiring all departments and direct-report divisions to assess risks and internal control by themselves against the Governance, Risk and Compliance (GRC) guidelines. They are also to develop internal control improvement plans for high-risk processes and regularly follow up the outcomes of such improvement at least quarterly.
- Regularly monitor and report the outcomes of implementation of strategic plans, laws, and regulations (inside and outside PTT and PTT Group).

This year the Office of Corporate Audit also reviewed internal control practices to ensure that they are adequate, suitable, and consistently practiced. If a given item needed improvement, procedures would be discussed with management to define implementation guidelines along with improvement plans to ward off or lower risks and monitor execution to ensure that audit and review findings are promptly remedied. This is reported every quarter to the Audit Committee, indicating that PTT's internal control system for this year is adequate, efficient, and effective, a view shared by the external auditor.

## Internal Control System

The Office of Corporate Audit is an independent unit that directly reports to the Audit Committee. It fosters assurance and provides consultation to ensure that business processes are duly equipped with CG, risk management, and sound internal control practices as well as GRC in support of corporate objectives.

The office commands an annual audit plan and three-year audit plans in line with PTT's business strategic direction and a risk-based approach to key corporate risks, encompassing PTT Group's domestic and international businesses. It reports findings to the Audit Committee for consideration and forwarding them to the Board for acknowledgment every quarter. Regular monitoring is undertaken for actions in response to the office's recommendations. In its course of work, the office freely expresses its opinions. No conflicts have arisen between audited units and the office that cannot be resolved.

## Head of the Office of Corporate Audit

At Meeting No. 5/2562 of May 16, 2019, the Board appointed Mr. Chadil Chavanalikhorn Executive Vice President, Office of Corporate Audit, with effect from July 1, 2019, citing his mastery of PTT's business. Equipped with expertise, skills, and experience in internal audit, he is familiar with business undertaking, good governance, risk assessment, and internal control at the business and overall levels and was therefore regarded as suitable for the position. The Audit Committee approved the appointment, transfer, performance assessment, and annual merit pay increase of this position.

## Biography of the Head of Corporate Audit



### Mr. Chadil Chavanalikhorn

Age: 54

#### Education

- Bachelor of Engineering, Kasetsart University
- Master of Business Administration, Kasetsart University
- Certified Internal Auditor (CIA), The Institute of Internal Auditors

#### Training

- Senior Energy Executive, Thailand Energy Academy, Ministry of Energy
- Administrative Psychological Operation: Institute of Security Psychology, National Defence Studies Institute
- Anti-Corruption Training Program for Public Officials, NACC
- Senior Executive Program (SEP), Sasin Graduate Institute of Business Administration
- Leadership Development Program II, PTT-Harvard Business School: PLLI
- Leadership Development Program II, PTT-IMD: PLLI
- Successful Formulation & Execution of Strategy (SFE 17/2013), Anti-Corruption: The Practical Guide (ACPG 2/2013), Company Secretary Program (CSP 65/2015), Independent Observer Program (IOP 1/2016), Thai Institute of Directors Association (IOD)



**Working Experiences (past 5 years)**

- 2013 - 2016  
Vice President, Strategy & Audit Quality Development Department
- 2016 - 2017  
Vice President, Internal Audit Department
- 2017 - 2018  
Executive Vice President, Sustainability Management
- 2018 - 2019  
Executive Vice President, Corporate Governance
- 2019 - Present  
Executive Vice President, Office of Corporate Audit

**Key Related Directorship**

- -None-

**Relations with the Management**

- -None-

## Compliance Unit

PTT inaugurated a Compliance Department, which governs under the Office of General Counsel and reports directly to the Senior Executive Vice President (biographical data shown under “PTT Executives”), indirectly reporting to the GRCMC and the Corporate Governance Committee. Compliance centralizes corporate compliance and oversees all personnel and all business units under PTT to fully comply with all external and internal laws, rules, regulations, directives, procedures, and announcements controlling all facets of PTT businesses, such as laws governing state-owned enterprises, regulations governing company registration and articles of association, rules and laws governing energy businesses, both inside and outside.

Compliance routinely works with the 2<sup>nd</sup> Line of Defense Alliances or business units directly in charge of specific legal issues, forming a coordination team to collect, search, and develop a data depository on laws and regulations governing the operations and businesses of PTT. The team is tasked to analyze and determine legal assessment and potential legal risks, as well as impacts on the operations and businesses. The assessment also focuses on the compliance of all business units with all laws and regulations, and takes all concerning issues into consideration for analysis and solution – or measure-finding for continuous work process improvement to ensure full compliance with external and internal laws, rules, and regulations. Compliance also constantly develops and nurtures a compliance culture through continuous organization of legal learning and development sessions, consultancy services, and publications and dissemination of data and information related to laws, rules, and regulations governing operations and businesses. Compliance promotes various public relations efforts and organizes activities promoting the compliance culture, including series of internal emails, training, and E-learning, and sharing of best practices and regulatory compliance. In 2020, its activities promoted role models provided by the Board and top management to urge and promote personnel's commitment to compliance, CG and the code of conduct; the activities also stressed whistleblowing in conjunction with the Corporate Governance unit throughout the year. It also disseminated the E-learning course on “Basic Knowledge of the Organic Law on Prevention and Suppression of Corruption (2018)” so that employees may master key points of such law. These compliance efforts are intended to nurture compliance values and culture, and to enhance understanding of legal and compliance issues concerning individual job responsibilities and the awareness of consequences of non-compliance. Thanks to correct work practices and strict adherence to legal and regulatory compliance of all, PTT can rest assured that all operations and businesses are uninterrupted by legal risks, while striving to become a sustainable zero non-compliance organization.

## 9.2 Connected Transactions

The connected transactions in 2020 are summarized below:

(More details on the connected transactions of the past 3 years are shown in: [investor.pttplc.com/en/downloads/annual-reports](http://investor.pttplc.com/en/downloads/annual-reports) )

### 9.2.1 Connected Transactions with Shareholders

In 2019, PTT has connected transaction with Ministry of Finance, a major shareholder, which was a guarantor of PTT's domestic loans insurance amounting to THB 1,000 million. The loans were fully paid in 2020.

### 9.2.2 Connected Transactions between PTT and Parties with the Common Major Shareholder

#### Transactions for PTT's products sold/ services rendered to parties with the common major shareholder with potential conflicts

Party with the common major shareholder	2020 (THB million)	Relationship	
		Shareholding (As of December 31, 2020)	Management (As of December 31, 2020)
Electricity Generating Authority of Thailand (EGAT)	65,117.03	Ministry of Finance, PTT's major shareholder, has control over EGAT.	—
State Railway of Thailand (SRT)	1,687.52	Ministry of Finance, PTT's major shareholder, has control over SRT.	—
Bangkok Mass Transit Authority (BMTA)	1,306.27	Ministry of Finance, PTT's major shareholder, has control over BMTA.	—
Port Authority of Thailand (PAT)	626.11	Ministry of Finance, PTT's major shareholder, has control over PAT.	—
Others	738.58		—
<b>Total</b>	<b>69,475.51</b>		

## Transactions for PTT's products bought/ services received and other expenses from parties with the common major shareholder with potential conflicts

Party with the common major shareholder	2020 (THB million)	Relationship	
		Shareholding (As of December 31, 2020)	Management (As of December 31, 2020)
Provincial Electricity Authority (PEA)	1,196.01	Ministry of Finance, PTT's major shareholder, has control over PEA.	PTT's director, Mr. Danucha Pichayanan, is a PEA director.
Metropolitan Electricity Authority (MEA)	368.89	Ministry of Finance, PTT's major shareholder, has control over MEA.	–
Electricity Generating Authority of Thailand (EGAT)	44.21	Ministry of Finance, PTT's major shareholder, has control over EGAT.	–
Airports of Thailand Plc. (AOT)	43.95	Ministry of Finance, PTT's major shareholder, has control over AOT.	–
Others	107.62		
<b>Total</b>	<b>1,760.68</b>		

## Trade accounts receivable, other accounts receivable and advance payments to parties with the common major shareholder with potential conflicts

### Trade Accounts Receivable

Party with the common major shareholder	2020 (THB million)	Relationship	
		Shareholding (As of December 31, 2020)	Management (As of December 31, 2020)
Electricity Generating Authority of Thailand (EGAT)	4,632.34	Ministry of Finance, PTT's major shareholder, has control over EGAT.	—
State Railway of Thailand (SRT)	191.96	Ministry of Finance, PTT's major shareholder, has control over SRT.	—
Bangkok Mass Transit Authority (BMTA)	171.18	Ministry of Finance, PTT's major shareholder, has control over BMTA.	—
Port Authority of Thailand (PAT)	51.11	Ministry of Finance, PTT's major shareholder, has control over PAT.	—
Others	76.77		
<b>Total</b>	<b>5,123.36</b>		

### Other Accounts Receivable

Party with the common major shareholder	2020 (THB million)	Relationship	
		Shareholding (As of December 31, 2020)	Management (As of December 31, 2020)
Liquor Distillery Organization	0.04	Ministry of Finance, PTT's major shareholder, has control over the Liquor Distillery Organization.	—
Thailand Post Co., Ltd. (THP)	0.01	Ministry of Finance, PTT's major shareholder, has control over THP.	—
<b>Total</b>	<b>0.05</b>		

### Advance Payments

There was no advance payment made to parties with the common major shareholder with potential conflicts in 2020.

## Trade accounts payable and other accounts payable to parties with the common major shareholder with potential conflicts

### Trade Accounts Payable

Party with the common major shareholder	2020 (THB million)	Relationship	
		Shareholding (As of December 31, 2020)	Management (As of December 31, 2020)
Industrial Estate Authority of Thailand (IEAT)	17.74	Ministry of Finance, PTT's major shareholder, has control over IEAT.	–
<b>Total</b>	<b>17.74</b>		

### Other Accounts Payable

Party with the common major shareholder	2020 (THB million)	Relationship	
		Shareholding (As of December 31, 2020)	Management (As of December 31, 2020)
State Railway of Thailand (SRT)	44.18	Ministry of Finance, PTT's major shareholder, has control over SRT.	–
MCOT Plc. (MCOT)	9.52	Ministry of Finance, PTT's major shareholder, has control over MCOT.	–
TOT Plc. (TOT)	5.26	Ministry of Finance, PTT's major shareholder, has control over TOT.	–
CAT Telecom Plc. (CAT)	0.82	Ministry of Finance, PTT's major shareholder, has control over CAT.	–
Others	1.38		
<b>Total</b>	<b>61.16</b>		

### 9.2.3 Connected Transactions between PTT and Subsidiaries, Joint Ventures, Associates and Other Related Parties

#### Transactions for PTT's products sold/ services rendered to subsidiaries, joint ventures, associates and other related parties

Related Party	2020 (THB million)	Relationship	
		Shareholding (As of December 31, 2020)	Management (As of December 31, 2020)
Subsidiaries			
PTT Global Chemical Plc. (GC)	175,175.20	PTT Group owns 48.42% of GC's shares. No shares held by PTT's related parties with potential conflicts.	PTT's director, Mr. Don Wasantapruerk, is GC's director. PTT's executives, namely Mr. Wittawat Svasti-Xuto, Ms. Arawadee Photisaro and Mr. Disathat Panyarachun, are GC's directors. PTT's executive, Mr. Kongkrapan Intarajang, is the Board's director & secretary and CEO of GC.
IRPC Plc. (IRPC)	100,329.47	PTT Group owns 48.05% of IRPC's shares. No Shares held by PTT's related parties with potential conflicts.	PTT's executives, namely Mr. Kris Imsang and Mr. Noppadol Pinsupa, are IRPC's directors. PTT's executive, Mr. Chawalit Tippawanich, is the Board's director & secretary and President & CEO of IRPC.
Thai Oil Plc. (TOP)	67,590.13	PTT Group owns 48.03% of TOP's shares. No shares held by PTT's related parties with potential conflicts.	PTT's executives, namely Ms. Pannalin Mahawongtikul, Mr. Terdkiat Prommool, Ms. Duangporn Thiengwatanatham and Dr. Buranin Rattanasombat, are TOP's directors. PTT's executive, Mr. Wirat Uanarumit, is the Board's director & secretary and CEO & President of TOP.



Related Party	2020 (THB million)	Relationship	
		Shareholding (As of December 31, 2020)	Management (As of December 31, 2020)
PTT Oil and Retail Business Plc. (OR)	29,552.24	Wholly owned by PTT Group	PTT's director/ executive, Mr. Auttapol Rerkpiboon, is OR's Chairman of the Board. PTT's executive, Ms. Peangpanor Boonklum, is OR's director. PTT's executive, Ms. Jiraphon Kawswat, is the Board's director & secretary and acting President & CEO of OR.
PTT International Trading Pte. Ltd. (PTTT)	22,596.81	Wholly owned by PTT Group	PTT's executive, Mr. Disathat Panyarachun, is Chairman of the Board of PTTT.
Global Power Synergy Plc. (GPSC)	11,399.60	PTT Group owns 75.23% of GPSC's shares. No shares held by PTT's related parties with potential conflicts.	PTT's executives, namely Mr. Atikom Terbsiri, Mr. Wittawat Svasti-Xuto, Mr. Wuttikorn Stithit, Mr. Kongkrapan Intarajang and Mr. Wirat Uanarumit, are directors of GPSC. PTT's executive, Mr. Worawat Pitayasiri, is the Board's director & secretary and President & CEO of GPSC.
Others	35,202.70		

Related Party	2020 (THB million)	Relationship	
		Shareholding (As of December 31, 2020)	Management (As of December 31, 2020)
Joint Ventures			
HMC Polymers Co., Ltd. (HMC)	4,414.26	PTT Group owns 41.44% of HMC's shares. No shares held by PTT's related parties with potential conflicts.	–
PTT Asahi Chemicals Co., Ltd. (PTTAC)	3,335.89	PTT Group owns 50% of PTTAC's shares. No shares held by PTT's related parties with potential conflicts.	–
Nava Nakorn Elecricity Generating Co., Ltd. (NNEG)	1,788.30	PTT Group owns 30% of NNEG's shares. No shares held by PTT's related parties with potential conflicts.	–
District Cooling System and Power Plant Co., Ltd. (DCAP)	1,622.39	PTT Group owns 35% of DCAP's shares. No shares held by PTT's related parties with potential conflicts.	–
Others	62.80		
Associates			
Bangpa-in Cogeneration Co., Ltd. (BIC)	2,948.42	PTT Group owns 25% of BIC's shares. No shares held by PTT's related parties with potential conflicts.	–
Vinythai Plc.	236.82	PTT Group owns 24.98% of Vinythai's shares. No shares held by PTT's related parties with potential conflicts.	–
Other Related Parties			
Ratchaburi Power Co., Ltd. (RPCL)	6,027.89	PTT Group owns 15% of RPCL's shares. No shares held by PTT's related parties with potential conflicts.	PTT's executive, Mr. Worawat Pitayasiri, is a director of RPCL.
Total	462,282.92		

## Transactions for PTT's products bought/ services received from subsidiaries, joint operations

### Joint ventures, associates and other related parties

Related Party	2020 (THB million)	Relationship	
		Shareholding (As of December 31, 2020)	Management (As of December 31, 2020)
Subsidiaries			
PTT Exploration and Production Plc. (PTTEP)	81,263.85	PTT Group owns 65.29% of PTTEP's shares.  No shares held by PTT's related parties with potential conflicts.	PTT's director/ executive, Mr. Auttapol Rerkpiboon, is PTTEP's director. PTT's executive, Mr. Atikom Terbsiri, is PTTEP's director. PTT's executive, Mr. Montri Rawanchaikul, is PTTEP's President.
PTT International Trading Pte. Ltd. (PTTT)	28,593.84	Wholly owned by PTT Group	PTT's executive, Mr. Disathat Panyarachun, is Chairman of the Board of PTTT.
PTT Oil and Retail Business Plc. (OR)	18,139.65	Wholly owned by PTT Group	PTT's director/ executive, Mr. Auttapol Rerkpiboon, is OR's Chairman of the Board. PTT's executive, Ms. Peangpanor Boonklum, is OR's director. PTT's executive, Ms. Jiraphon Kawswat, is the Board's director & secretary and acting President & CEO of OR.

Related Party	2020 (THB million)	Relationship	
		Shareholding (As of December 31, 2020)	Management (As of December 31, 2020)
PTT Global Chemical Plc. (GC)	17,415.36	PTT Group owns 48.42% of GC's shares. No shares held by PTT's related parties with potential conflicts.	PTT's director, Mr. Don Wasantapruet, is GC's director. PTT's executives, namely Mr. Wittawat Svasti-Xuto, Ms. Arawadee Photisaro and Mr. Disathat Panyarachun, are GC's directors. PTT's executive, Mr. Kongkrapan Intarajang, is the Board's director & secretary and CEO of GC.
PTTEP International Ltd.	14,535.77	Wholly owned by PTT Group	–
PTTEP Siam Ltd.	11,465.11	Wholly owned by PTT Group	–
PTT LNG Co., Ltd.	9,517.40	Wholly owned by PTT Group	PTT's executive, Mr. Atikom Terbsiri, is Chairman of the Board of PTTLNG Co., Ltd.
PTT International Trading London Ltd.	7,482.27	Wholly owned by PTT Group	PTT's executive, Mr. Disathat Panyarachun, is Chairman of the Board of PTT International Trading London Ltd.
PTTEP SP Ltd.	5,839.77	Wholly owned by PTT Group	–
Others	1,075.96		
<b>Joint Operations</b>			
Moattama Gas Transportation Co., Ltd. (MGTC)	13,917.36	PTT Group owns 25.50% of MGTC's shares. No shares held by PTT's related parties with potential conflicts.	–
Andaman Transportation Ltd. (ATL)	9,250.09	PTT Group owns 80% of ATL's shares. No shares held by PTT's related parties with potential conflicts.	–
Others	7,318.54		
<b>Joint Ventures</b>			
Trans Thai-Malaysia (Thailand) Co., Ltd. (TTM(T))	1,402.70	PTT Group owns 50% of TTM(T)'s shares. No shares held by PTT's related parties with potential conflicts.	–
Others	5.03		

Related Party	2020 (THB million)	Relationship	
		Shareholding (As of December 31, 2020)	Management (As of December 31, 2020)
Other Related Parties			
Dhipaya Insurance Plc. (TIP)	287.77	PTT Group owns 13.33% of TIP's shares.  No shares held by PTT's related parties with potential conflicts.	–
Total	227,510.47		

### Interests received from subsidiaries, joint ventures, associates and other related parties

Related Party	2020 (THB million)	Relationship	
		Shareholding (As of December 31, 2020)	Management (As of December 31, 2020)
Subsidiaries			
PTT Treasury Center Co., Ltd. (PTT TCC)	1,195.00	Wholly owned by PTT Group	–
Others	53.62		
Total	1,248.62		

### Interests paid by subsidiaries, joint ventures, associates and other related parties

Related Party	2020 (THB million)	Relationship	
		Shareholding (As of December 31, 2020)	Management (As of December 31, 2020)
Subsidiaries			
PTT Treasury Center Co., Ltd. (PTT TCC)	1,474.77	Wholly owned by PTT Group	–
Others	14.61		
Joint Ventures			
Trans Thai-Malaysia (Thailand) Co., Ltd. (TTM(T))	48.11	PTT Group owns 50% of TTM(T)'s shares. No shares held by PTT's related parties with potential conflicts.	–
Total	1,537.49		

## Trade accounts receivable, other accounts receivable, advance payments, short-term loans, and long-term loans to subsidiaries, joint ventures, associates and other related parties

### Trade Accounts Receivable

Related Party	2020 (THB million)	Relationship	
		Shareholding (As of December 31, 2020)	Management (As of December 31, 2020)
Subsidiaries			
IRPC Plc. (IRPC)	13,569.37	PTT Group owns 48.05% of IRPC's shares. No shares held by PTT's related parties with potential conflicts.	PTT's executives, namely Mr. Kris Imsang and Mr. Noppadol Pinsupa, are IRPC's directors. PTT's executive, Mr. Chawalit Tippawanich, is the Board's director & secretary and President & CEO of IRPC.
PTT Global Chemical Plc. (GC)	12,261.18	PTT Group owns 48.42% of GC's shares. No shares held by PTT's related parties with potential conflicts.	PTT's director, Mr. Don Wasantapruerk, is GC's director. PTT's executives, namely Mr. Wittawat Svasti-Xuto, Ms. Arawadee Photisaro and Mr. Disathat Panyarachun, are GC's directors. PTT's executive, Mr. Kongkrapan Intarajang, is the Board's director & secretary and CEO of GC.
Thai Oil Plc. (TOP)	4,184.76	PTT Group owns 48.03% of TOP's shares. No shares held by PTT's related parties with potential conflicts.	PTT's executives, namely Ms. Pannalin Mahawongtikul, Mr. Terdkiat Prommool, Ms. Duangporn Thiengwatanatham and Dr. Buranin Rattanasombat, are TOP's directors. PTT's executive, Mr. Wirat Uanarumit, is the Board's director & secretary and CEO & President of TOP.
PTT International Trading Pte. Ltd. (PTTT)	3,010.97	Wholly owned by PTT Group	PTT's executive, Mr. Disathat Panyarachun, is Chairman of the Board of PTTT.



Related Party	2020 (THB million)	Relationship	
		Shareholding (As of December 31, 2020)	Management (As of December 31, 2020)
PTT Oil and Retail Business Plc. (OR)	1,721.36	Wholly owned by PTT Group	PTT's director/ executive, Mr. Auttapol Rerkpiboon, is OR's Chairman of the Board. PTT's executive, Ms. Peangpanor Boonklum, is OR's director. PTT's executive, Ms. Jiraphon Kawswat, is the Board's director & secretary and acting President & CEO of OR.
Others	4,861.39		
<b>Joint Ventures</b>			
HMC Polymers Co., Ltd. (HMC)	442.79	PTT Group owns 41.44% of HMC's shares. No shares held by PTT's related parties with potential conflicts.	–
PTT Asahi Chemicals Co., Ltd. (PTTAC)	410.93	PTT Group owns 50% of PTTAC's shares. No shares held by PTT's related parties with potential conflicts.	–
Nava Nakorn Electricity Generating Co., Ltd. (NNEG)	158.94	PTT Group owns 30% of NNEG's shares. No shares held by PTT's related parties with potential conflicts.	–
Others	137.97		
<b>Associates</b>			
Bangpa-in Cogeneration Co., Ltd. (BIC)	230.48	PTT Group owns 25% of BIC's shares. No shares held by PTT's related parties with potential conflicts.	–
Vinythai Plc.	19.29	PTT Group owns 24.98% of Vinythai's shares. No shares held by PTT's related parties with potential conflicts.	–
<b>Other Related Parties</b>			
Ratchaburi Power Co., Ltd. (RPCL)	954.17	PTT Group owns 15% of RPCL's shares. No shares held by PTT's related parties with potential conflicts.	PTT's executive, Mr. Worawat Pitayasiri, is RPCL's director.
<b>Trade accounts receivable</b>	<b>41,963.60</b>		
Less allowance for doubtful accounts	-		
<b>Total</b>	<b>41,963.60</b>		

## Other Accounts Receivable

Related Party	2020 (THB million)	Relationship	
		Shareholding (As of December 31, 2020)	Management (As of December 31, 2020)
Subsidiaries			
PTT Oil and Retail Business Plc. (OR)	615.92	Wholly owned by PTT Group	PTT’s director/ executive, Mr. Auttapol Rerkpiboon, is OR’s Chairman of the Board. PTT’s executive, Ms. Peangpanor Boonklum, is OR’s director. PTT’s executive, Ms. Jiraphon Kawswat, is the Board’s director & secretary and acting President & CEO of OR.
PTT Treasury Center Co., Ltd. (PTT TCC)	282.49	Wholly owned by PTT Group	–
Others	325.83		
Joint Ventures			
Trans Thai-Malaysia (Malaysia) Sdn. Bhd. (TTM(M))	38.74	PTT Group owns 50% of (TTM(M)). No shares held by PTT’s related parties with potential conflicts.	–
Others	36.70		–
Associates			
Eastern Fluid Transport Co., Ltd. (EFT)	5.53	PTT Group owns 37.65% of EFT’s shares. No shares held by PTT’s related parties with potential conflicts.	–
Others	1.04		
Other Related Parties			
Sarn Palung Social Enterprise Co., Ltd. (SPSE)	0.34	Wholly owned by PTT Group	PTT’s executive, Ms. Duangporn Thiengwatanatham, is SPSE’s Chairman of the Board.
Other accounts receivable	1,306.59		
Less allowance for doubtful accounts	-		
Total – Net	1,306.59		

## Short-Term Advance Payments

Related Party	2020 (THB million)	Relationship	
		Shareholding (As of December 31, 2020)	Management (As of December 31, 2020)
Subsidiaries			
PTT Digital Solutions Co., Ltd. (PTT Digital)	12.90	Wholly owned by PTT Group	PTT’s executive, Mr. Noppadol Pinsupa, is Chairman of the Board of PTT Digital.
Other Related Parties			
Dhipaya Insurance Plc. (TIP)	324.75	PTT Group owns 13.33% of TIP’s shares. No shares held by PTT’s related parties with potential conflicts.	PTT’s executive, Ms. Wilaiwan Kanjanakanti, is TIP’s director.
Total	337.65		

## Short-Term Loans

Related Party	2020 (THB million)	Relationship	
		Shareholding (As of December 31, 2020)	Management (As of December 31, 2020)
Subsidiaries			
PTT Treasury Center Co., Ltd. (PTT TCC)	4,986.74	Wholly owned by PTT Group	–
Energy Complex Co., Ltd. (ENCO)	150.00	Wholly owned by PTT Group	PTT’s executive, Ms. Peangpanor Boonklum, is Chairman of the Board of ENCO.
Total	5,136.74		
Less allowance for doubtful accounts	-		
Grand total	5,136.74		

## Long-Term Loans

Related Party	2020 (THB million)	Relationship	
		Shareholding (As of December 31, 2020)	Management (As of December 31, 2020)
Subsidiaries			
PTT Treasury Center Co., Ltd. (PTT TCC)	44,345.77	Wholly owned by PTT Group	–
Energy Complex Co., Ltd. (ENCO)	317.50	Wholly owned by PTT Group	PTT’s executive, Ms. Peangpanor Boonklum, is Chairman of the Board of ENCO.
Total	44,663.27		
Less allowance for doubtful accounts	-		
Total	44,663.27		

## Trade Accounts Payable

Related Party	2020 (THB million)	Relationship	
		Shareholding (As of December 31, 2020)	Management (As of December 31, 2020)
Subsidiaries			
PTT Exploration and Production Plc. (PTTEP)	8,333.29	PTT Group owns 65.29% of PTTEP's shares.  No shares held by PTT's related parties with potential conflicts.	PTT's director/ executive, Mr. Auttapol Rerkpiboon, is PTTEP's director.  PTT's executive, Mr. Atikom Terbsiri, is PTTEP's director.  PTT's executive, Mr. Montri Rawanchaikul, is PTTEP's President.

Related Party	2020 (THB million)	Relationship	
		Shareholding (As of December 31, 2020)	Management (As of December 31, 2020)
PTT Oil and Retail Business Plc. (OR)	2,905.74	Wholly owned by PTT Group	PTT's director/ executive, Mr. Auttapol Rerkpiboon, is OR's Chairman of the Board. PTT's executive, Ms. Peangpanor Boonklum, is OR's director. PTT's executive, Ms. Jiraphon Kawswat, is the Board's director & secretary and acting President & CEO of OR.
PTT Global Chemical Plc. (GC)	2,165.96	PTT Group owns 48.42% of GC's shares. No shares held by PTT's related parties with potential conflicts.	PTT's director, Mr. Don Wasantapruerk, is GC's director. PTT's executives, namely Mr. Wittawat Svasti-Xuto, Ms. Arawadee Photisarao and Mr. Disathat Panyarachun, are GC's directors. PTT's executive, Mr. Kongkrapan Intarajang, is the Board's director & secretary and CEO of GC.
Others	6,937.94		
<b>Joint Operations</b>			
Moattama Gas Transportation Co., Ltd. (MGTC)	1,876.45	PTT Group owns 25.50% of MGTC's shares. No shares held by PTT's related parties with potential conflicts.	—
Andaman Transportation Ltd. (ATL)	1,190.13	PTT Group owns 80% of ATL's shares. No shares held by PTT's related parties with potential conflicts.	—
Orange Energy Ltd.	295.61	PTT Group owns 53.95% of Orange Energy Ltd.'s shares. No shares held by PTT's related parties with potential conflicts.	—

Related Party	2020 (THB million)	Relationship	
		Shareholding (As of December 31, 2020)	Management (As of December 31, 2020)
B8/32 Partners Ltd.	295.61	PTT Group owns 25% of B8/32 Partners Ltd.'s shares. No shares held by PTT's related parties with potential conflicts.	–
Taninthayi Pipeline Co., LLC (TPC)	159.74	PTT Group owns 19.32% of TPC's shares. No shares held by PTT's related parties with potential conflicts.	–
<b>Joint Ventures</b>			
Trans Thai-Malaysia (Thailand) Co., Ltd. (TTM(T))	236.90	PTT Group owns 50% of TTM(T)'s shares. No shares held by PTT's related parties with potential conflicts.	–
<b>Total</b>	<b>24,397.37</b>		

## Other Accounts Payable

Related Party	2020 (THB million)	Relationship	
		Shareholding (As of December 31, 2020)	Management (As of December 31, 2020)
Subsidiaries			
PTT Oil and Retail Business Plc. (OR)	4,537.27	Wholly owned by PTT Group	PTT’s director/ executive, Mr. Auttapol Rerkpiboon, is OR’s Chairman of the Board. PTT’s executive, Ms. Peangpanor Boonklum, is OR’s director. PTT’s executive, Ms. Jiraphon Kawswat, is the Board’s director & secretary and acting President & CEO of OR.
PTT Treasury Center Co., Ltd. (PTT TCC)	762.71	Wholly owned by PTT Group	–
PTT Digital Solutions Co., Ltd. (PTT Digital)	694.87	Wholly owned by PTT Group	PTT’s executive, Mr. Noppadol Pinsupa, is Chairman of the Board of PTT Digital.



Related Party	2020 (THB million)	Relationship	
		Shareholding (As of December 31, 2020)	Management (As of December 31, 2020)
PTT International Trading Pte. Ltd. (PTTT)	523.61	Wholly owned by PTT Group	PTT's executive, Mr. Disathat Panyarachun, is Chairman of the Board of PTTT.
Others	643.21		
<b>Joint Ventures</b>			
Suez Environmental Services Co., Ltd. (SUEZ)	5.02	PTT Group owns 40% of SUEZ's shares. No shares held by PTT's related parties with potential conflicts.	–
Nava Nakorn Electricity Generating Co., Ltd. (NNEG)	3.13	PTT Group owns 30% of NNEG's shares. No shares held by PTT's related parties with potential conflicts.	–
PTT Asahi Chemicals Co., Ltd. (PTTAC)	2.48	PTT Group owns 50% of PTTAC's shares. No shares held by PTT's related parties with potential conflicts.	–
Others	4.14		
<b>Associates</b>			
Bangpa-in Cogeneration Co., Ltd. (BIC)	6.83	PTT Group owns 25% of BIC's shares. No shares held by PTT's related parties with potential conflicts.	–
Eastern Fluid Transport Co., Ltd. (EFT)	3.42	PTT Group owns 37.65% of EFT's shares. No shares held by PTT's related parties with potential conflicts.	–
Others	1.58		
<b>Other Related Parties</b>			
Ratchaburi Power Co., Ltd. (RPCL)	31.80	PTT Group owns 15% of RPCLs shares. No shares held by PTT's related parties with potential conflicts.	PTT's executive, Mr. Worawat Pitayasiri, is RPCL's director.
Dhipaya Insurance Plc. (TIP)	10.43	PTT Group owns 13.33% of DIP's shares. No shares held by PTT's related parties with potential conflicts.	PTT's executive, Ms. Wilaiwan Kanjanakanti, is TIP's director.
<b>Total</b>	<b>7,230.50</b>		

## Short-Term Loans

Related Party	2020 (THB million)	Relationship	
		Shareholding (As of December 31, 2020)	Management (As of December 31, 2020)
Subsidiaries			
PTT Tank Terminal Co., Ltd. (PTT Tank)	1,114.69	Wholly owned by PTT Group	PTT’s executive, Mr. Kris Imsang, is Chairman of the Board of PTT Tank.
PTT LNG Co., Ltd. (PTT LNG)	816.04	Wholly owned by PTT Group	PTT’s executive, Mr. Atikom Terbsiri, is Chairman of the Board of PTTLNG.
PTT Global Management Co., Ltd. (PTTGM)	300.32	Wholly owned by PTT Group	–
Others	330.01		
Total	2,561.06		

## Long-Term Loans

Related Party	2020 (THB million)	Relationship	
		Shareholding (As of December 31, 2020)	Management (As of December 31, 2020)
Subsidiaries			
PTT Treasury Center Co., Ltd. (PTT TCC)	45,181.01	Wholly owned by PTT Group	–
Total	45,181.01		

## Liabilities under Finance Leases due within One Year

Related Party	2020 (THB million)	Relationship	
		Shareholding (As of December 31, 2020)	Management (As of December 31, 2020)
Subsidiaries			
Energy Complex Co., Ltd. (ENCO)	35.70	Wholly owned by PTT Group	PTT’s executive, Ms. Peangpanor Boonklum, is Chairman of the Board of ENCO.
Others	2.34		
Joint Ventures			
Trans Thai-Malaysia (Thailand) Co., Ltd. (TTM(T))	383.24	PTT Group owns 50% of TTM(T)’s shares.  No shares held by PTT’s related parties with potential conflicts.	–
Total	421.28		

## Liabilities under Long-Term Leases

Related Party	2020 (THB million)	Relationship	
		Shareholding (As of December 31, 2020)	Management (As of December 31, 2020)
Subsidiaries			
Business Services Alliance Co., Ltd. (BSA)	2.15	Wholly owned by PTT Group	PTT’s executive, Mr. Terdkiat Prommool, is Chairman of the Board of BSA.
Joint Ventures			
Trans Thai-Malaysia (Thailand) Co., Ltd. (TTM(T))	2,811.94	PTT Group owns 50% of TTM(T)’s shares. No shares held by PTT’s related parties with potential conflicts.	–
Total	2,814.09		

## 9.2.4 PTT's Connected Transactions Resulted from the Following Agreements with Key Conditions Being Summarized below:

### (1) Transactions between PTT and state enterprises

#### Transactions

- **Sales of natural gas**

PTT signed gas sales agreements (GSAs) with a state enterprise, the Electricity Generating of Thailand (EGAT). During January - June, 2020, there were 3 GSAs as follows:

1. GSA between PTT and EGAT, dated November 7, 1996
2. GSA for Nam Phong Power Plant between PTT and EGAT, dated February 2, 2006
3. GSA for Chana Power Plant between PTT and EGAT, dated November 2, 2007.

However, PTT and EGAT have settled on the terms of the new GSA to replace GSAs No. 1 and No. 3. The new GSA has been in effect since July 2020, and as a result there are currently 2 GSAs as follows:

1. GSA for Nam Phong Power Plant between PTT and EGAT, dated February 2, 2006
2. GSA between PTT and EGAT, dated June 19, 2020.

- **Sales of fuels and petroleum products**

The ministerial regulation prescribing state-promoted or state-supported supply and procurement procedures through the selection and specific procurement methods B.E. 2560 (2017), Division 7, required central and provincial government agencies and state enterprises (excluding EGAT) to purchase state-supported energy and natural resource supply of 10,000 liters or more by specific procurement methods from PTT, or otherwise they can buy such supply through selection or invitation to bid. Currently, PTT sells fuels to the following state enterprises which still insisted on buying fuels from PTT: Bangkok Mass Transit Authority (BMTA), State Railway of Thailand (SRT), EGAT, and the Transport Company Limited. As for state enterprises having outstanding payment, PTT could charge interest at the rate according to the contractual terms.

## (2) Transactions between PTT and subsidiary PTTEP

### Transactions

PTTEP and subsidiaries produce and sell crude oil, natural gas, condensate, and LPG. In 2020, PTT was the major buyer (74% by volume) of these. PTT had a long-term purchase agreement of natural gas with PTTEP for 25 - 30 years with the annual minimum contractual quantities. PTT also entered into an agreement with PTTEP for the supply of crude oil and condensate, whereas PTT sold natural gas to PTTEP. The pricing for those petroleum products that PTT sold to PTTEP aligns with global market prices and identical to the project partners' selling prices sold to PTT. For the fuels price that PTT purchase from PTTEP is also under competitive standard reference prices and sensible conditions.

### Normal business transactions or those supporting normal business transactions

Item				Amount as of December 31, 2020 (THB million)	Justification and Sensibility
<b>1.1 Sale of petroleum products</b>				160,401	Pricing of petroleum products aligns with global market prices and identical to the project partners' selling prices sold to PTT.
Natural gas	559,020.29	million cubic feet			
Crude oil	14.63	million barrels			
Condensate	11.72	million barrels			
LPG	66,571.46	metric tons			
<b>1.2 Purchase of fuels</b>				6.66	PTTEP's Board of Directors approved a 5-year (2019 - 2023) fuel supply agreement with PTT. The prices under the agreement were based on competitive standard reference market prices and sensible terms.
Natural gas	27.67	MMSCF			

## (3) Transactions between PTT and Petrochemical and Refining Affiliates

### Transactions

PTT signed crude oil and feedstock supply agreements, refined-product purchase agreements and gas sales agreements for its process feedstock with its petrochemical and refining affiliates. PTT also signed LNG sales agreement, service agreement for storage and distribution of refined products, leases and subleases of oil terminals for its subsidiaries in the oil and retail business, as summarized below.

### Agreements with Thai Oil Plc. (TOP)

- PTT has secured crude oil at least 49.99% of TOP's refining capacity at market prices under a 10-year minimum contract starting in 2014. After the 10<sup>th</sup> year, either party may end the agreement through a written notice sent at least 12 months in advance under the Product Offtake and Crude Supply Agreement (POCSA) terms.
- PTT has secured natural gas for TOP's feed in its refinery as required by an agreement between them at market prices, considered normal business practices, under a 10-year contract (January 1, 2014 - December 31, 2023).

### Transactions and agreements with IRPC Plc. (IRPC)

- PTT has secured crude oil for IRPC in both term and spot equivalent to 100% of IRPC's capacity at market prices under a 3-year contract effective from 2021.
- PTT has signed a 10-year GSA with IRPC for gas, power generation and cogeneration, effective from January 14, 2011, to January 13, 2021, and for IRPC's processes under a 5-year GSA (November 10, 2015 - October 31, 2020) at market prices.

### Transactions and agreements with PTT Global Chemical Plc. (GC)

#### Petrochemical and chemical business

- PTT secures main feedstock supply for GC's processes, namely ethane, propane, LPG, and NGL. Under these agreements, the price structure of ethane varies with that of film-grade HDPE in Southeast Asian markets – reflecting the entire petrochemical chain and the HDPE market. The price structures of propane, LPG and NGL are, as agreed, based on reference market prices.
- PTT supplies 4.6 - 6.1 million tons per year of condensate to GC under a long-term agreement at the basket of crude referenced prices.
- PTT entered into a long-term agreement under which it buys GC's outputs of aromatics and naphtha for sale to export customers, effective from 2001.

### Refining business and petroleum product supply

- PTT has secured crude oil and other raw material supply under a feedstock supply agreement, effective from February 1, 2009. Under the agreement, PTT is to secure crude oil grades and volumes at market prices, whether imported or from indigenous sources.
- PTT has bought LPG at domestic market prices under an 18-year agreement, effective from February 9, 2006, beyond which the agreement is assumed to remain valid unless otherwise notified at least 12 months in advance under the terms and conditions of the product offtake agreement.
- PTT signed a GSA with GC for the gas consumed in product refining and processing and power generation as well as in its commercial undertakings, which is due to expire in 2029.

### Transactions and Agreements with PTT Oil and Retail Business Public Company Limited (OR)

- PTT sells liquefied petroleum gas (LPG) to OR in designated volumes and at defined delivery points. The agreement will expire in 2021, and both parties can negotiate to extend the terms of the agreement.
- PTT signed an agreement with OR regarding petroleum product storage and distribution services. Under the agreement, PTT will provide the services in receiving, storing, transporting, pumping and distributing OR's refined products through transmission pipelines, vessels, trucks and rails of all PTT's owned 13 LPG terminals, oil depots and aircraft refueling service stations. The agreement for the services of 12 aircraft refueling service stations will expire in 2021 as well as the agreement of Sriracha Petroleum Terminal will expire in 2023, these agreements are subjected to 1-year extension based on mutual agreement of the parties and the negotiation of new terms and conditions.
- PTT will prepare lease agreements and sublease agreements for its 12 oil terminal to be used in petroleum business operations, packaging, receiving, storage and distribution of petroleum products, raw materials and other related supplies and products to promote the sale and operation under OR's other business plans. The terms of the agreement will not exceed 3 years or as PTT is entitled to.



#### (4) Transactions between PTT and its affiliates of the Technology and Engineering Group

##### Transactions and agreements with Global Power Synergy Plc. (GPSC)

PTT signed a Gas Sales Agreement with GPSC's in order to feed gas for power generation, which considered as a normal business transaction, with prices and conditions based on competitive standard referenced market prices.

#### 9.2.5 Sensibility of Connected Transactions

Procurement of goods, raw materials, or services from related entities aims to maximize mutual benefits in business operations within PTT Group and support national energy security. Such transactions are regarded as normal business practices. The volumes of goods or raw materials bought or sold by PTT or services provided or received by related parties are in accordance with PTT's needs and business operations. Such prices and services are as agreed in contracts, leading to commercial benefit to both PTT and related parties without any benefits transferring or irregular transaction.

#### 9.2.6 Policy Relating to Future Connected Transactions

PTT's future connected transactions will be conducted as part of its normal businesses without special favors or transfers of benefit between PTT, subsidiaries, associated companies, related companies, or shareholders. Pricing policy will continue to be at arm's length, and the prices of products supplied by PTT's subsidiaries will be at the market-based. Disclosure of connected transactions are according to SEC's and SET's regulations and the accounting standard for related parties/ entities disclosures announced by the Federation of Accounting Professions.

#### 9.2.7 Appraisal Price for Related Transactions

-None-





## Financial Report

Details of Financial Report, see in  
56-1 One Report 2020 (Financial Report)  
PTT Public Company Limited



## Attachment

### Attachment 1

#### Information of the Board of Directors, Executives, Controlling Persons and Company Secretary

As of December 31, 2020

# PTT Board of Directors

As of December 31, 2020



- |  |  |   |   |
|--|--|---|---|
| <p><b>1. Professor Dr. Thosaporn Sirisumphand</b><br/>Independent Director/ Chairman</p> <p><b>2. Professor Dr. Kittipong Kittayarak</b><br/>Independent Director/ Chairman of the Audit Committee</p> <p><b>3. Mr. Don Wasantapruet</b><br/>Independent Director/<br/>Chairman of the Nomination Committee/<br/>Authorized Director</p> | <p><b>4. GEN. Teerawat Boonyawat</b><br/>Independent Director/<br/>Chairman of the Remuneration Committee</p> <p><b>5. Mrs. Nuntawan Sakuntanaga</b><br/>Independent Director/<br/>Chairman of the Corporate Governance Committee</p> <p><b>6. Dr. Pailin Chuchottaworn</b><br/>Independent Director/ Chairman of the Enterprise<br/>Risk Management Committee</p> <p><b>7. Mr. Danucha Pichayanan</b><br/>Independent Director/ Member of the Audit Committee</p> | <p><b>8. Mr. Krishna Boonyachai</b><br/>Independent Director/ Member of the Audit Committee</p> <p><b>9. Professor Dr. Surapon Nitikraipot</b><br/>Independent Director/ Member of the Nomination Committee/<br/>Member of the Corporate Governance Committee/<br/>Authorized Director</p> <p><b>10. POL. GEN. Rungroj Sangkram</b><br/>Independent Director/<br/>Member of the Remuneration Committee/<br/>Member of the Nominating Committee/ Authorized Director</p> <p><b>11. Dr. Thon Thamrongnawasawat</b><br/>Independent Director/<br/>Member of the Corporate Governance Committee/<br/>Member of the Enterprise Risk Management Committee</p> | <p><b>12. Mr. Chumpol Rimsakorn</b><br/>Director/ Member of the Remuneration Committee/<br/>Member of the Enterprise Risk Management Committee</p> <p><b>13. Mrs. Premrutai Vinaiphath</b><br/>Director/<br/>Member of the Enterprise Risk Management Committee</p> <p><b>14. M.L. Chayotid Kridakon</b><br/>Director</p> <p><b>15. Mr. Auttapol Rerkpiboon</b><br/>Director/ Secretary to the Board/<br/>President and Chief Executive Officer</p> |
|--|--|---|---|

The details of PTT Board of Directors' Profile, see on page 336 - 358




# PTT Executives

As of December 31, 2020




1. **Mr. Auttapol Rerkpiboon**  
President and Chief Executive Officer
2. **Mr. Atikom Terbsiri**  
Chief Operating Officer,  
Upstream Petroleum and Gas Business Group
3. **Mr. Kris Imsang**  
Chief Operating Officer,  
Downstream Petroleum Business Group
4. **Mr. Wittawat Svasti-Xuto**  
Chief Technology and Engineering Officer
5. **Miss Pannalin Mahawongtikul**  
Chief Financial Officer
6. **Mrs. Arawadee Phtisaro**  
Senior Executive Vice President, Corporate Strategy
7. **Mr. Terdkiat Prommool**  
Senior Executive Vice President,  
Organization Management and Sustainability
8. **Miss Duangporn Thiengwatanatham**  
Senior Executive Vice President,  
Corporate Governance and Regulatory Affairs
9. **Miss Peangpanor Boonklum**  
Senior Executive Vice President, Office of General Counsel
10. **Mr. Wuttikorn Stithit**  
Senior Executive Vice President, Gas Business Unit
11. **Dr. Buranin Rattanasombat**  
Senior Executive Vice President,  
Downstream Business Group Alignment
12. **Mr. Disathat Panyarachun**  
Senior Executive Vice President,  
International Trading Business Unit
13. **Mr. Noppadol Pinsupa**  
Senior Executive Vice President, Innovation and Digital
14. **Mr. Montri Rawanchaikul**  
President and Acting Executive Vice President,  
Production Asset Group,  
PTT Exploration and Production Public Company Limited
15. **Mr. Kongkrapan Intarajang**  
Chief Executive Officer,  
PTT Global Chemical Public Company Limited
16. **Mr. Wirat Uanarumit**  
Chief Executive Officer and President,  
Thai Oil Public Company Limited
17. **Mr. Chawalit Tippawanich**  
President and Chief Executive Officer,  
IRPC Public Company Limited
18. **Mr. Worawat Pitayasiri**  
President and Chief Executive Officer,  
Global Power Synergy Public Company Limited
19. **Miss Jiraphon Kawswat**  
Acting President and Chief Executive Officer,  
PTT Oil and Retail Business Public Company Limited
20. **Mr. Yongyos Krongphanich**  
Executive Vice President, Corporate Finance and Strategy  
(Transferred to PTT Exploration and Production  
Public Company Limited, effective from December 31, 2020)
21. **Mrs. Chanamas Sasnanand**  
Executive Vice President, Corporate Finance and Strategy  
(Effective from January 1, 2021)
22. **Miss Wilaiwan Kanjanakanti**  
Executive Vice President, Group Finance and Accounting  
Policy (changed the name of the position to Executive  
Vice President, Group Accounting and Tax Policy effective  
from January 1, 2021)
23. **Ms. Jaroonsri Wankertphon**  
Executive Vice President, Global Business Services

The details of PTT Executives' Profile, see on page 356 - 397


Name/ Position	Age (Year)	(%) of Share Possession	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<div>Professor Dr. Thosaporn Sirisumphand</div> <div>Independent Director/ Chairman</div> <div></div> <div><ul style="list-style-type: none"><li>Appointed as Independent Director - November 6, 2020</li><li>Appointed as Chairman - November 18, 2020</li></ul></div>	60	0.000063 (own 0; spouse 0.000063)	None	<div>Education</div> <ul style="list-style-type: none"><li>Bachelor of Public Administration (Honors), Chulalongkorn University</li><li>Master of Public Administration, Pi Alpha Alpha (National Honor Society for Public Affairs and Administration), Northern Illinois University, USA</li><li>Ph.D. in Policy Analysis, Public Administration and Comparative Politics, Northern Illinois University, USA</li></ul> <div>Certification</div> <ul style="list-style-type: none"><li>Director Certification Program (DCP 80/2006), Finance for Non-Finance Directors (FND 30/2006), Director Certification Program Update (DCPU 4/2015), Thai Institute of Directors Association (IOD)</li><li>Capital Market Academy Leader Program, (Class of 10<sup>th</sup>), Capital Market Academy (CMA)</li><li>The Program for Senior Executives on Justice Administration, Batch 15, Judicial Training Institute, National Justice Academy</li><li>Certificate, Executive Program in Energy Literacy for a Sustainable Future, Class of 4<sup>th</sup>, Thailand Energy Academy (TEA)</li></ul>	June 29, 2018 - September 30, 2020	Secretary General	Office of the National Economic and Social Development Council (NESDC)
					Octotber 1, 2016 - June 28, 2018	Secretary General	Office of the Public Sector Development Commission (OPDC)
					2014 - September 30, 2016	Advisor	Prime Minister’s Office
					Relevant Important Positions in Listed Companies - The Stock Exchange of Thailand (In the Previous Year)		
					November 6, 2020 - Present	Independent Director, PTT Public Company Limited	
					November 18, 2020 - Present	Chairman, PTT Public Company Limited	
					August 23, 2018 - November 30, 2020	Director / Chairman, Thai Oil Public Company Limited	
					Relevant Important Positions in Non Listed Company/ Other Organizations (In the Previous Year)		
					March 12, 2019 - Present	Chairman of the Board, Tourism Authority of Thailand	
					Other Experiences/ Other Activities (In the Previous Year)		
					July 29, 2020 - Present	Commission Member (Public Administration), Office of the Public Sector Development Commission (OPDC)	
					January 29, 2016 - Present	Member of Chulalongkorn University Council	
					December 25, 2018 - Present	Member of Council of State	
					June 5, 2018 - Present	Advisor to the Board, Thailand Institute of Justice (Public Organization)	





Name/ Position	Age (Year)	(%) of Share Possession	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<b>Professor Dr. Thosaporn Sirisumphand (Continued)</b> Independent Director/ Chairman				<ul style="list-style-type: none"> <li>Corporate Governance: Effectiveness and Accountability in the Boardroom 2014, Kellogg School of Management, Northwestern University, USA</li> <li>IOD Chairman Forum: "The Role of Chairman in Leading Strategic Risk Oversight"</li> <li>Global Anti-Corruption and Integrity Forum 2018, OECD, Paris, France</li> <li>Seminar: "How to Transform Your Business to Become an Exponential Company in a Digital Era", Faculty of Commerce and Accountancy, Chulalongkorn University</li> <li>IOD Chairman Forum: "Leading Boardroom Through Disruption: What Directors Should Know?"</li> </ul>	July 1, 2018 - September 30, 2020	Director and Chairman of Corporate Governance Committee, the Bank of Thailand	
					December 1, 2020 - Present	Director, National Strategy Committee	
					November 17, 2020 - Present	Director, National Science and Technology Development Board	

Name/ Position	Age (Year)	(%) of Share Possession	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<b>Professor Dr. Kittipong Kittayarak</b> Independent Director/ Chairman of the Audit Committee  <ul style="list-style-type: none"> <li>• <b>Appointed as Independent Director</b> - July 1, 2014 - April 28, 2017 (re-elected) - July 3, 2020 (re-elected)</li> <li>• <b>Appointed as Chairman of the Audit Committee</b> - July 3, 2020</li> </ul>	62	None	None	<b>Education</b> <ul style="list-style-type: none"> <li>• Bachelor of Laws (Honor), Chulalongkorn University</li> <li>• Master of Laws (LL.M.), Cornell University, USA (Royal Thai Government Scholarship)</li> <li>• Master of Laws (LL.M.), Harvard University, USA (Fulbright Scholarship)</li> <li>• Doctor of the Science of Laws (J.S.D.), Stanford University, USA (Fulbright Scholarship)</li> </ul> <b>Certification</b> <ul style="list-style-type: none"> <li>• Director Accreditation Program (DAP 112/2014), Advanced Audit Committee Program (AACP 18/2015), Thai Institute of Directors Association (IOD)</li> <li>• Barrister-at-Law, Institute of Legal Education Thai Bar Association</li> <li>• Politics and Government in Democracy for Executives (Class of 5<sup>th</sup>), King Prajadhipok's Institute</li> <li>• Diploma, The National Defence Course (Class of 49<sup>th</sup>), National Defence College</li> <li>• Top Executive Program, (Class of 8<sup>th</sup>), Capital Market Academy (CMA)</li> </ul>	2015 - Present	Executive Director	Thailand Institute of Justice (TIJ)
					2016 - August 10, 2018	Audit Committee Member	Dusit Thani Public Company Limited
					2014 - 2017	Chairman of the Audit Committee	Krungthai Bank Public Company Limited
					2014 - 2015	Advisor to the Prime Minister	Secretariat of the Prime Minister
					<b>Relevant Important Positions in Listed Companies - The Stock Exchange of Thailand (In the Previous Year)</b>		
					2014 - Present	Independent Director, PTT Public Company Limited	
					2014 - April 11, 2019 and July 3, 2020 - Present	Chairman of the Audit Committee, PTT Public Company Limited	
					April 11, 2019 - July 3, 2020	Chairman of the Corporate Governance Committee, PTT Public Company Limited	
					2014 - Present	Independent Director, Krungthai Bank Public Company Limited	
					April 2019 - Present	Chairman of the Corporate Governance and Social Responsibility Committee/ Member of the Compliance Committee, Krungthai Bank Public Company Limited	
					2016 - Present	Independent Director, Dusit Thani Public Company Limited	
					June 2019 - Present	Nomination, Remuneration and Corporate Governance Committee Member, Dusit Thani Public Company Limited	
					<b>Relevant Important Positions in Non Listed Company/ Other Organizations (In the Previous Year)</b>		
					August 1, 2018 - Present	Committee, Ramathibodi Foundation Under the Royal Patronage of His Majesty the King, Her Royal Highness Princess Maha Chakri Sirindhorn	
					2018 - Present	Director, Chakri Naruebodindra Medical Institute and Ramathibodi Chakri Naruebodindra Hospital	
					2017 - Present	Executive Director/ Vice Chairman, Friends in Need (of "PA") Volunteers Foundation Thai Red Cross	

Name/ Position	Age (Year)	(%) of Share Possession	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<b>Professor Dr. Kittipong Kittayarak (Continued)</b> Independent Director/ Chairman of the Audit Committee				<ul style="list-style-type: none"> <li>Certificate, Executive Program in Energy Literacy for a Sustainable Future, (Class of 1<sup>st</sup>), Thailand Energy Academy (TEA)</li> <li>Certificate in Rule of Law and Democracy (Class 1/2013), Office of the Constitutional Court</li> <li>Top Executive Program in Justice Administration (Class 10/2006), Judicial Training Institute</li> <li>Cybersecurity, Cyber Resilience &amp; Privacy Risk in the Era of Digital Transformation Year 2018, ACIS Professional Center</li> <li>Thailand's 5<sup>th</sup> National Conference on Collective Action Against Corruption "Tackling Corruption through Public-Private Collaboration" (October 16, 2014)</li> <li>Seminar "Role and Function of Board of Directors of State Enterprise", State Enterprise Policy Office (June 5, 2015)</li> <li>Seminar Strengthen Good Governance of Directors of Public Enterprises, State Enterprise Policy Office (September 30, 2016)</li> <li>Seminar PTT Group AC Forum 2015</li> <li>PTT Board Briefing</li> </ul>	2011 - Present	Executive Director/ Chairman (Thailand Branch), Asia Crime Prevention Foundation (ACPF)	
					2010 - Present	Member of the Board of Committee, Thai Bar under the Royal Patronage	
					<b>Other Experiences/ Other Activities (In the Previous Year)</b>		
					November 2019 - Present	Chairman, Board of Trustees, King Mongkut's Institute of Technology Ladkrabang	
					2017 - Present	Sub-Committee on Foreign Affairs, The Court of Justice	
					August 26, 2016 - Present	Professor of Law, Faculty of Law, Chulalongkorn University	
					2014 - Present	Chairman, Board of Trustees, Bangkok University	
					2006 - Present	The Committee on the Bajrakitiyabha Fund for Legal Education	
					2011 - Present	Board of Directors, Siriraj Piyamaharajkarun Hospital	
					2019 - Present	Deputy Chairman, the Legal Committee, Thai Red Cross Organ Donation Center	


Name/ Position	Age (Year)	(%) of Share Possession	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<b>Mr. Don Wasantapruerk</b> Independent Director/ Chairman of the Nomination Committee/ Authorized Director  <ul style="list-style-type: none"> <li>• <b>Appointed as Independent Director</b> - July 26, 2014 - April 11, 2016 (re-elected) - April 11, 2019 (re-elected)</li> <li>• <b>Appointed as Chairman of the Nomination Committee</b> - December 23, 2018</li> <li>• <b>Appointed as Authorized Director</b> - August 19, 2016</li> </ul>	62	None	None	<b>Education</b> <ul style="list-style-type: none"> <li>• Bachelor of Industrial Engineering, University of New South Wales, Sydney, Australia</li> <li>• Master of Industrial Engineering, University of New South Wales, Sydney, Australia</li> </ul>	2018 - 2019	Director to the Nomination and Remuneration Committee	PTT Global Chemical Public Company Limited
					2015 - 2018	Director to the Corporate Governance Committee	PTT Global Chemical Public Company Limited
					2014 - 2018	Member of the Corporate Governance Committee	PTT Public Company Limited
					2009 - Present	Self-employed	-
				<b>Certification</b> <ul style="list-style-type: none"> <li>• Director Accreditation Program (DAP 117/2015), Role of the Nomination and Governance Committee Program (RNG 7/2015), Thai Institute of Directors Association (IOD)</li> <li>• Thailand's 5<sup>th</sup> National Conference on Collective Action Against Corruption "Tackling Corruption through Public-Private Collaboration" (October 16, 2014)</li> <li>• Certificate, Executive Program in Energy Literacy for a Sustainable Future (Class of 6<sup>th</sup>), Thailand Energy Academy (TEA)</li> <li>• Seminar "Incorporation of State Investment Corporation" (July 13, 2015)</li> <li>• Briefing on International Anti-Corruption... International Cases and Practices, IOD (October 14, 2015)</li> <li>• Seminar Anti-Corruption: Leadership Role of the Board in Driven the Organization toward the Draft of the Development of Corporate Governance and Enterprise Management Act... and Good Corporate Governance (October 17, 2016)</li> <li>• PTT Board Briefing</li> </ul>	<b>Relevant Important Positions in Listed Companies - The Stock Exchange of Thailand (In the Previous Year)</b>		
					2014 - Present	Independent Director, PTT Public Company Limited	
					December 23, 2018 - Present	Chairman of the Nomination Committee, PTT Public Company Limited	
					November 1, 2015 - Present	Independent Director, PTT Global Chemical Public Company Limited	
					November 1, 2019 - Present	Chairman of the Nomination and Remuneration Committee, PTT Global Chemical Public Company Limited	
					<b>Relevant Important Positions in Non Listed Company/ Other Organizations (In the Previous Year)</b>		
					-	-	
					<b>Other Experiences/ Other Activities (In the Previous Year)</b>		
					-	-	

Name/ Position	Age (Year)	(%) of Share Possession	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<b>GEN Teerawat Boonyawat</b> Independent Director/ Chairman of the Remuneration Committee   <ul style="list-style-type: none"> <li>Appointed as Independent Director - April 11, 2019</li> <li>Appointed as Chairman of the Remuneration Committee - April 11, 2019</li> </ul>	60	None	None	<b>Education</b> <ul style="list-style-type: none"> <li>Bachelor of Science Program, Chulachomklao Royal Military Academy</li> <li>Master of Business Administration, Kasetsart University</li> </ul> <b>Certification</b> <ul style="list-style-type: none"> <li>Director Accreditation Program (DAP 169/2020), Thai Institute of Directors Association (IOD)</li> <li>Diploma, The National Defence Course (Class of 58<sup>th</sup>), National Defence College</li> <li>Joint War College (Class of 41<sup>st</sup>)</li> </ul>	October 2020 - Present	Deputy Commander-in-Chief	Royal Thai Army
					2018 - September 2020	Chief of Staff	Royal Thai Army
					2017	Deputy Chief of Staff	Royal Thai Army
					2015	Director of Civil Affairs	Directorate of Civil Affairs
					2014	Director of the Operation Office	Directorate of Operations
					2012 - Present	Royal Guard	
					<b>Relevant Important Positions in Listed Companies - The Stock Exchange of Thailand (In the Previous Year)</b>		
					April 11, 2019 - Present	Independent Director/ Chairman of the Remuneration Committee, PTT Public Company Limited	
					<b>Relevant Important Positions in Non Listed Company/ Other Organizations (In the Previous Year)</b>		
					October 2018 - September 2020	Member of Defence Technology Institute Board of Directors	
					<b>Other Experiences/ Other Activities (In the Previous Year)</b>		
					October 2018 - September 2020	Secretary, General of Internal Security Operations Command (ISOC)	

Name/ Position	Age (Year)	(%) of Share Possession	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<div>Mrs. Nuntawan Sakuntanaga</div> <div>Independent Director/ Chairman of the Corporate Governance Committee</div> <div></div> <div><ul style="list-style-type: none"><li>Appointed as Independent Director<ul style="list-style-type: none"><li>July 1, 2014</li><li>April 9, 2015 (re-elected)</li><li>April 12, 2018 (re-elected)</li></ul></li><li>Appointed as Chairman of the Corporate Governance Committee<ul style="list-style-type: none"><li>July 3, 2020</li></ul></li></ul></div>	62	None	None	Education	October 17, 2018 - March 2019	Sub-Committee on State Revenue Collection	The Committee on Economics, Monetary Affairs and Finance, National Legislative Assembly
				<ul style="list-style-type: none"><li>Bachelor of Accounting, in Finance and Banking, Chulalongkorn University</li><li>MBA in Marketing and International Business, University of Wisconsin at Madison, Wisconsin, USA</li></ul>	October 2017 - September 2018	Permanent Secretary	Ministry of Commerce
				Certification	October 2016	Director General	Department of Internal Trade, Ministry of Commerce
				<ul style="list-style-type: none"><li>Director Certification Program (DCP 166/2012), Audit Committee Program (ACP 43/2013), Financial Statements for Directors (FSD 31/2016), Boardroom Success through Financing and Investment (BFI 7/2019), Boards that Make a Difference (BMD 9/2019), Thai Institute of Directors Association (IOD)</li><li>Diploma, The National Defence Course (Class of 49<sup>th</sup>) (2006 - 2007), National Defence College</li><li>Leaders in Development Program-Managing Political &amp; Economic Reform 2008, Kennedy School of Government, Harvard University, Boston, USA</li><li>Top Executive Program in Commerce and Trade (TEPCoT 2/2009), Commerce Academy</li></ul>	October 2015	Director General	Department of Intellectual Property, Ministry of Commerce
				Relevant Important Positions in Listed Companies - The Stock Exchange of Thailand (In the Previous Year)			
				2014 - Present	Independent Director, PTT Public Company Limited		
				July 5, 2014 - July 3, 2020	Member of the Audit Committee, PTT Public Company Limited		
				July 3, 2020 - Present	Chairman of the Corporate Governance Committee, PTT Public Company Limited		
				September 18, 2018 - Present	Independent Director/ Chairman of the Corporate Governance Committee, Asset World Corp Public Company Limited		
				January 1, 2020 - Present	Independent Director/ Chairman of the Audit Committee, Union Pioneer Public Company Limited		
				Relevant Important Positions in Non Listed Company/ Other Organizations (In the Previous Year)			
				May 11, 2019 - Present	Commissioner, Securities and Exchange Commission, Thailand		
				April 2019 - Present	Chairman, The Gem and Jewelry Institute of Thailand (Public Organization)		
				Other Experiences/ Other Activities (In the Previous Year)			
				-	-		


Name/ Position	Age (Year)	(% of Share Possession	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<b>Mrs. Nuntawan Sakuntanaga (Continued)</b> Independent Director/ Chairman of the Corporate Governance Committee				<ul style="list-style-type: none"> <li>• Top Executive Program, Capital Market Academy (CMA 14/2012)</li> <li>• Corporate Governance Program for Directors and Executives of State Enterprises and Public Organization, Public Director Institute (PDI 12/2013)</li> <li>• Certificate, Executive Program in Energy Literacy for a Sustainable Future, Thailand Energy Academy (TEA 5/2014)</li> <li>• Seminar PTT Group AC Forum 2018</li> <li>• Briefing on International Anti-Corruption...International Cases and Practices, IOD (October 14, 2015)</li> <li>• Seminar Global Financial Market Outlook 2016, IOD (November 17, 2015)</li> <li>• Seminar "Electric Vehicles &amp; Future Energy System: Recent Development and Implications" Petroleum Institute of Thailand (PTIT) (June 26, 2017)</li> </ul>			





Name/ Position	Age (Year)	(%) of Share Possession	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<b>Dr. Pailin Chuchottaworn</b> Independent Director/ Chairman of the Enterprise Risk Management Committee    <ul style="list-style-type: none"> <li>• <b>Appointed as Independent Director</b> - September 11, 2020</li> <li>• <b>Appointed as Chairman of the Enterprise Risk Management Committee</b> - September 11, 2020</li> </ul>	64	0.00035 (own 0.00035; spouse 0)	None	<b>Education</b>	2017 - July 15, 2019	Deputy Minister of Transport	Ministry of Transport
				<ul style="list-style-type: none"> <li>• Bachelor of Engineering in Chemical Engineering with 1<sup>st</sup> Class Honor, Chulalongkorn University</li> <li>• Master of Engineering in Chemical Engineering from Tokyo Institute of Technology, Japan (Japanese government scholarship)</li> <li>• Doctor of Engineering in Chemical Engineering from Tokyo Institute of Technology, Japan (Japanese government scholarship)</li> </ul>	March 11, 2019 - July 15, 2019	Advisor to the Prime Minister	Secretariat of the Prime Minister
					2017 - November 17, 2017	Director	Power of Innovation Foundation and Power of Learning Foundation
					2017 - November 17, 2017	Director of the University Council	Kasetsart University
					2017 - November 17, 2017	Subcommittee on Personnel Development, Research and Innovation	National Research and Innovation Policy Council
				<b>Certification</b>	2017 - November 17, 2017	Member	Independent Committee for Education Reform
				<ul style="list-style-type: none"> <li>• Director Certification Program (DCP 51/2004), Director Accreditation Program (DAP 24/2004), Finance for Non-Finance Directors (FND 14/2004), Anti-Corruption for Executive Program (ACEP 4/2012), Thai Institute of Directors Association (IOD)</li> <li>• Diploma, The Joint State-Private Sector Course (Class of 22<sup>nd</sup>), National Defence College</li> <li>• Corporate Governance Program for Directors and Executives of State Enterprises and Public Organizations (Class of 7<sup>th</sup>), King Prajadhipok's Institute</li> <li>• Certificate, Executive Program in Energy Literacy for a Sustainable Future (Class of 1<sup>st</sup>), Thailand Energy Academy (TEA)</li> <li>• PTT-GE Executive Leadership Program 2008, GE Crotonville, USA</li> </ul>	2017 - November 17, 2017	Expert Member	National Digital Economy and Society Commission
					2017 - November 17, 2017	Expert Member	Committee on Education Management Development Collaboration with High-Potential Foreign Higher Education Institutions
					2017 - November 17, 2017	Director, Committee National Quality Award	Office Institute for Productivity
					2017 - November 17, 2017	Advisor	Chulabhorn Royal Academy Council
					2017	Board of Commissioners	Digital Economy Promotion Agency
					2016 - November 17, 2017	Expert Commissioners	Public Organization Development and Promotion Committee
					2016 - November 17, 2017	Expert Commissioners	The Securities and Exchange Commission
					2016 - November 17, 2017	Expert Commissioners	National Research Council of Thailand


Name/ Position	Age (Year)	(%) of Share Possession	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<b>Dr. Pailin Chuchottaworn (Continued)</b> Independent Director/ Chairman of the Enterprise Risk Management Committee				<ul style="list-style-type: none"> <li>NIDA-Wharton Executive Leadership Program 2007, Wharton University of Pennsylvania, USA</li> <li>Top Executive Program (Class of 8<sup>th</sup>), Capital Market Academy (CMA)</li> <li>Top Executive Program in Commerce and Trade (TEPCoT) (Class of 1<sup>st</sup>), Commerce Academy</li> <li>Industrial Liaison Program (ILP) 2005, Massachusetts Institute of Technology, USA</li> </ul>	2016 - July 31, 2017	Director	Bangkok Bank Public Company Limited
					2016 - 2017	Director	The Faculty of Economics, Thammasat University
					2015 - November 17, 2017	Director	Thai Institute of Directors
					2015 - November 17, 2017	Chairman of VISTEC Council	Vidyasirimedhi Institute
					2015 - November 17, 2017	Chairman of the Board of Governors	Kamnoetvidya Science Academy
					2015 - 2017	Member	The Committee for Special Economic Zone Development Bureau of Industrial Potential of the Nation Office of Industrial Economics, Ministry of Industry
					2014 - 2017	Advisor	Sasin Graduate Institute of Business Administration of Chulalongkorn University
					2012 - July 31, 2017	Honorary Members	Mahidol University Council
					<b>Relevant Important Positions in Listed Companies - The Stock Exchange of Thailand (In the Previous Year)</b>		
					September 11, 2020 - Present	Independent Director/ Chairman of the Enterprise Risk Management Committee, PTT Public Company Limited	
					September 1, 2019 - Present	Chairman of the Board/ Independent Director, Global Power Synergy Public Company Limited	
					September 19, 2019 - Present	Independent Director/ Member of the Executive Committee/ Member of the Technology Committee, The Siam Commercial Bank Public Company Limited	

Name/ Position	Age (Year)	(%) of Share Possession	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<b>Dr. Pailin Chuchottaworn (Continued)</b> Independent Director/ Chairman of the Enterprise Risk Management Committee					<b>Relevant Important Positions in Non Listed Company/ Other Organizations (In the Previous Year)</b>		
					January 21, 2020 - Present	Board Member, SCB 10X Company Limited	
					June 20, 2020 - Present	Board Member, Oman Oil Company S.A.O.C.	
					<b>Other Experiences/ Other Activities (In the Previous Year)</b>		
					August 11, 2020 - Present	Chairman, Committee on Economic Steering	
					August 15, 2019 - Present	Chairman of the Governing Board, Kamnoetvidya Science Academy (KVIS)	
					November 1, 2019 - Present	Chairman, Vidyasirimedhi Institute of Science and Technology Council (VISTEC)	
					September 22, 2020 - Present	Board Member, National Higher Education Science Research and Innovation Policy Council	
					October 12, 2020 - Present	Board Member, The Board of Investment of Thailand (BOI)	
					October 9, 2020 - Present	Advisor to the Prime Minister	


Name/ Position	Age (Year)	(% of Share Possession)	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<b>Mr. Danucha Pichayanan</b> Independent Director/ Member of the Audit Committee   <ul style="list-style-type: none"> <li>• <b>Appointed as Independent Director</b> - April 12, 2018</li> <li>• <b>Appointed as Member of the Audit Committee</b> - April 11, 2019</li> </ul>	50	None	None	<b>Education</b> <ul style="list-style-type: none"> <li>• Bachelor of Engineering, Chulalongkorn University</li> <li>• M.S. Engineering Management, George Washington University, USA</li> </ul> <b>Certification</b> <ul style="list-style-type: none"> <li>• Director Certification Program (DCP 211/2015), Thai Institute of Directors Association (IOD)</li> <li>• Certificate, Executive Program in Energy Literacy for a Sustainable Future (Class of 10<sup>th</sup>), Thailand Energy Academy (TEA)</li> <li>• Certificate, The Civil Service Executive Program for Senior Civil Servants (Class 78/2013), Office of the Civil Service Commission</li> <li>• Senior Executive Certificate in Anti-Corruption Strategic Management (Class 7/2016), Office of the National Anti-Corruption Commission</li> </ul>	October 1, 2020 - Present	Secretary General	Office of the National Economic and Social Development Council (NESDC)
					October 1, 2016 - September 30, 2020	Deputy Secretary - General National Economic and Social Development Council	Office of the National Economic and Social Development Council (NESDC)
					April 25, 2018 - April 11, 2019	Member of the Enterprise Risk Management Committee	PTT Public Company Limited
					2016 - June 2019	Board Member	Broadcasting and Telecommunications Research and Development Fund for the Public Interest (BTFP)
					2016 - June 2019	Sub-Committee of the Project Evaluation and Research Fund	Broadcasting and Telecommunications Research and Development Fund for the Public Interest (BTFP)
					2016 - June 2019	Sub-Committee of the Research Fund Policy and Strategic	Broadcasting and Telecommunications Research and Development Fund for the Public Interest (BTFP)
					<b>Relevant Important Positions in Listed Companies - The Stock Exchange of Thailand (In the Previous Year)</b>		
					April 12, 2018 - Present	Independent Director, PTT Public Company Limited	
					April 11, 2019 - Present	Member of the Audit Committee, PTT Public Company Limited	
					2019 - January 31, 2020	Director/ Member of the Risk Management Committee/ Chairman of the Steering Committee of TG MRO Campus Project and TG Business Development at U-Tapao Airport Project, Thai Airways International Public Company Limited	


Name/ Position	Age (Year)	(%) of Share Possession	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<b>Mr. Danucha Pichayanan (Continued)</b> Independent Director/ Member of the Audit Committee					<b>Relevant Important Positions in Non Listed Company/ Other Organizations (In the Previous Year)</b>		
					2013 - Present	Director, Provincial Electricity Authority	
					October 1, 2020 - Present	Director, Bank of Thailand	
					<b>Other Experiences/ Other Activities (In the Previous Year)</b>		
					October 12, 2020 - Present	Board Member, The Board of Investment of Thailand (BOI)	
<b>Mr. Krishna Boonyachai</b> Independent Director/ Member of the Audit Committee   <ul style="list-style-type: none"> <li>Appointed as Independent Director - July 3, 2020</li> <li>Appointed as Member of the Audit Committee - July 3, 2020</li> </ul>	56	None	None	<b>Education</b>	2010 - 2020	Chief Relationship Officer	Thai Management Association (TMA)
					2014 - 2016	Director	Industrial Engineering, The Engineering Institute of Thailand Under H.M. The King's Patronage
					<b>Relevant Important Positions in Listed Companies - The Stock Exchange of Thailand (In the Previous Year)</b>		
					July 3, 2020 - Present	Independent Director/ Member of the Audit Committee,	PTT Public Company Limited
					<b>Relevant Important Positions in Non Listed Company/ Other Organizations (In the Previous Year)</b>		
					2020 - Present	Independent Director/ Chairman/ Member of Audit Committee,	TQR Public Company Limited
					2020 - Present	Independent Director/ Member of the Audit Committee,	Primo Service Solutions Company Limited
					2020 - Present	Chief Consulting Officer, TKI Perpetual Company Limited	
					<b>Other Experiences/ Other Activities (In the Previous Year)</b>		
					2020 - Present	Chief Consulting Officer, Nuttabhum Foundation	
					2020 - July 2020	Sub-Committee on Corporate Governance and Corporate Social Responsibility, Metropolitan Waterworks Authority	
					September 26, 2019 - Present	Sub-Committee on Supporting the Affairs of Commerce, Committee of Commerce and Industry, The Senate	
					2018 - Present	Advisor to the Sub-Committee on Monitoring National Reform on Economic, Committee on Monitoring National Reform on Economics, Monetary and Finance, The Senate	
				<b>Certification</b>	<ul style="list-style-type: none"> <li>Director Certification Program (DCP 288/2020), Advanced Audit Committee Program (AACP 38/2020), Role of the Chairman Programme (RCP 46/2020), Thai Institute of Directors Association (IOD)</li> <li>Top Executive Program (Class of 24<sup>th</sup>), Capital Market Academy (CMA)</li> <li>Top Executive Program in Commerce and Trade (TEPCoT) (Class of 11<sup>st</sup>), Commerce Academy, The University of the Thai Chamber of Commerce</li> </ul>		

Name/ Position	Age (Year)	(%) of Share Possession	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<b>Professor Dr. Surapon Nitikraipot</b> Independent Director/ Member of the Nomination Committee/ Member of the Corporate Governance Committee/ Authorized Director   <ul style="list-style-type: none"> <li>• <b>Appointed as Independent Director</b> - April 12, 2018</li> <li>• <b>Appointed as Authorized Director</b> - April 25, 2018</li> <li>• <b>Appointed as Member of the Corporate Governance Committee</b> - December 23, 2018</li> <li>• <b>Appointed as Member of the Nomination Committee</b> - October 1, 2019</li> </ul>	60	None	None	<b>Education</b> <ul style="list-style-type: none"> <li>• Bachelor of Laws (Second Class Honors), Thammasat University</li> <li>• Diplôme d'études approfondies (D.E.A.) de droit Public, Strasbourg III, France</li> <li>• Doctorat en droit (mention très honorable), l'Université Robert Schuman de Strasbourg, France</li> <li>• Honorary Doctoral, Soka University, Japan</li> </ul> <b>Certification</b> <ul style="list-style-type: none"> <li>• Director Certification Program (DCP 102/2008), Role of the Chairman Program (RCP 25/2011), Board Nomination and Compensation Program (BNCP 5/2018), Thai Institute of Directors Association (IOD)</li> <li>• Barrister-at-Law, (Class of 35<sup>th</sup>), Institute of Thai Bar Association of Thailand</li> <li>• Certificate, La Décentralisation et l'Administration Locale, Institut International d' Administration Publique (IIAP), Paris, France</li> <li>• Capital Market Academy Leadership Program, (Class of 4<sup>th</sup>), Capital Market Academy (CMA)</li> </ul>	Present	Professor of Public Laws	Faculty of Law, Thammasat University
					April 11, 2019 - September 30, 2019	Member of the Remuneration Committee	PTT Public Company Limited
					2017 - 2019	Chairman of the Board	Kamnoetvidya Science Academy
					2014 - April 9, 2018	Independent Director/ Chairman of the Corporate Governance Committee/ Director to the Nomination and Remuneration Committee	PTT Global Chemical Public Company Limited
					2014 - 2016	Chairman	The Krungthep Thanakom Company Limited (Community Enterprise of Bangkok)
					<b>Relevant Important Positions in Listed Companies - The Stock Exchange of Thailand (In the Previous Year)</b>		
					2018 - Present	Independent Director, PTT Public Company Limited	
					December 23, 2018 - Present	Member of the Corporate Governance Committee, PTT Public Company Limited	
					April 25, 2018 - April 10, 2019 and October 1, 2019 - Present	Member of the Nomination Committee, PTT Public Company Limited	
					<b>Relevant Important Positions in Non Listed Company/ Other Organizations (In the Previous Year)</b>		
					2018 - Present	Independent Director/ Chairman, Heng Leasing Company Limited	
					2017 - Present	Chairman, J.D. Food Products Company Limited	
					2019 - Present	Vice Chairman of the Board/ Chairman of the Subcommittee, Kamnoetvidya Science Academy	
					2007 - Present	Chairman of the Executive Directors, Thammasat University Hospital	


Name/ Position	Age (Year)	(%) of Share Possession	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<b>Professor Dr. Surapon Nitikraipot (Continued)</b> Independent Director/ Member of the Nomination Committee/ Member of the Corporate Governance Committee/ Authorized Director				<ul style="list-style-type: none"><li>Diploma, National Defence Course for the Joint State-Private Sector, (Class of 23<sup>rd</sup>), The National Defence College, 2010</li><li>Certificate, Executive Program in Energy Literacy for a Sustainable Future, (Class of 7<sup>th</sup>), Thailand Energy Academy (TEA)</li></ul>	<b>Other Experiences/ Other Activities (In the Previous Year)</b>		
					Present	Board Member of the Commission for the Development of Public Organization	
					2016 - Present	Chairman, Navamindradhiraj University Council	
					2012 - Present	Member of the 8 <sup>th</sup> Committee of Council of State, Office of the Council of State	
<b>POL. GEN. Rungroj Sangkram</b> Independent Director/ Member of the Remuneration Committee/ Member of the Nominating Committee/ Authorized Director	61	None	None	<b>Education</b> <ul style="list-style-type: none"><li>Bachelor of Art, Public Administration, Faculty of Social Science, (Class of 34<sup>th</sup>), Royal Police Cadet Academy</li><li>Master of Art, Faculty of Social Science, Kasetsart University</li></ul> <b>Certification</b> <ul style="list-style-type: none"><li>Director Certification Program (DCP 298/2020), Thai Institute of Directors Association (IOD)</li><li>Diploma, The National Defence Course (Class of 53<sup>rd</sup>), National Defence College</li><li>Advanced Police Administration Program (Class of 23<sup>rd</sup>), Institute of Police Administration Development</li></ul>	2016 - 2019	Deputy National Police Chief	Royal Thai Police
 <ul style="list-style-type: none"><li><b>Appointed as Independent Director</b> - July 3, 2020</li><li><b>Appointed as Member of the Remuneration Committee</b> - July 3, 2020</li><li><b>Appointed as Member of the Nominating Committee</b> - December 17, 2020</li><li><b>Appointed as Authorized Director</b> - December 17, 2020</li></ul>					2015	Assistant Directors General	Royal Thai Police
					<b>Relevant Important Positions in Listed Companies - The Stock Exchange of Thailand (In the Previous Year)</b>		
					December 17, 2020 - Present	Member of the Nominating Committee, PTT Public Company Limited	
					July 3, 2020 - Present	Independent Director/ Member of the Remuneration Committee, PTT Public Company Limited	
					July 10, 2020 - Present	Independent Director, Asset World Corp Public Company Limited	
					<b>Relevant Important Positions in Non Listed Company/ Other Organizations (In the Previous Year)</b>		
					-	-	
					<b>Other Experiences/ Other Activities (In the Previous Year)</b>		
					-	-	





Name/ Position	Age (Year)	(%) of Share Possession	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<div>Dr. Thon Thamrongnawasawat</div> <div>Independent Director/ Member of the Corporate Governance Committee/ Member of the Enterprise Risk Management Committee</div> <div></div> <div><ul style="list-style-type: none"><li>Appointed as Independent Director - November 18, 2016 - April 12, 2018 (re-elected)</li><li>Appointed as Member of the Corporate Governance Committee - October 1, 2019</li><li>Appointed as Chairman of the Enterprise Risk Management Committee - April 25, 2018</li><li>Changed to Member of the Enterprise Risk Management Committee - since October 1, 2019</li></ul></div>	54	None	None	Education	July 2015 - Present	Deputy Dean	Faculty of Fisheries, Kasetsart University
				<ul style="list-style-type: none"><li>Bachelor of Science, Marine Science, Chulalongkorn University</li><li>Master of Science, Marine Science, Chulalongkorn University</li><li>Ph.D, Marine Science, James Cook University, Australia</li></ul>	April 25, 2018 - September 30, 2019	Chairman of the Enterprise Risk Management Committee	PTT Public Company Limited
					October 2014 - September 2015	Member of the Committee on Environment and Natural Resources	National Legislative Assembly
					October 2014 - September 2015	Member of Energy Reform and Internal Affair of the National Reform Council	
				Certification	October 6, 2014 - September 6, 2015	Member of the National Reform Council	
					Relevant Important Positions in Listed Companies - The Stock Exchange of Thailand (In the Previous Year)		
					2016 - Present	Independent Director, PTT Public Company Limited	
				<ul style="list-style-type: none"><li>Risk Management Program for Corporate Leader (RCL 21/2020), Thai Institute of Directors Association (IOD)</li><li>Certificate, Executive Program in Energy Literacy for a Sustainable Future (Class of 9<sup>th</sup>), Thailand Energy Academy (TEA)</li><li>Certificate, Corporate Governance for Director and Senior Executive of State Enterprises and Public Organization (PDI), (Class 22/2020), King Prajadhipok's Institute</li><li>Seminar “Electric Vehicles &amp; Future Energy System: Recent Development and Implications” Petroleum Institute of Thailand (PTIT)</li></ul>	October 1, 2019 - Present	Member of the Corporate Governance Committee/ Member of the Enterprise Risk Management Committee, PTT Public Company Limited	
					Relevant Important Positions in Non Listed Company/ Other Organizations (In the Previous Year)		
					-	-	
				Other Experiences/ Other Activities (In the Previous Year)			
				2017 - Present	Reform Commission of Thailand on Natural Resources and Environment Management		
				2017 - Present	National Strategic Plan Committee		
				July 5, 2016 - Present	Honorary Board Member, Marine and Coastal Resources Policy Committee, Department of Marine and Coastal Resources		

Name/ Position	Age (Year)	(%) of Share Possession	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<div>Mr. Chumpol Rimsakorn</div> <div>Director/ Member of the Remuneration Committee/ Member of the Enterprise Risk Management Committee</div> <div></div> <div><ul style="list-style-type: none"><li>• <b>Appointed as Director</b> - December 21, 2018 - April 11, 2019 (re-elected)</li><li>• <b>Appointed as Member of the Remuneration Committee</b> - December 23, 2018</li><li>• <b>Appointed as Member of the Enterprise Risk Management Committee</b> - October 17, 2019</li></ul></div>	60	None	None	Education	2015 - Present	Deputy Permanent Secretary	Ministry of Finance
				<ul style="list-style-type: none"><li>• Bachelor of Laws, Ramkhamhaeng University</li><li>• Master of Public and Private Management Program, National Institute of Development Administration (NIDA)</li></ul>	June 2017 - May 2018	Chairman	Public Debt Restructuring and Domestic Bond Market Development Fund
					June 2017 - May 2018	Board Member	National Health Security Committee
				Certification	June 2017 - May 2018	Board Member	Emergency Medicine Committee
				<ul style="list-style-type: none"><li>• Director Certification Program (DCP 221/2016), Financial Statements for Directors (FSD 30/2016), Role of the Chairman Program (RCP 39/2016), Advanced Audit Committee Program (AACP 24/2016), IT Governance and Cyber Resilience Program (ITG 9/2018) and Risk Management Program for Corporate Leader (RCL 19/2020), Thai Institute of Directors Association (IOD)</li></ul>	June 2017 - May 2018	Board Member	National Metrology Committee
					February 2016 - November 30, 2018	Director	Electricity Generating Authority of Thailand
					July 2014 - July 2018	Director	Thailand Tobacco Monopoly
				<ul style="list-style-type: none"><li>• National Defence College Program, The Joint State - Private Sector Course, Thailand National Defence College</li><li>• Top Executive Program, (Class of 19<sup>th</sup>), Capital Market Academy (CMA)</li><li>• Certificate, Executive Program in Energy Literacy for a Sustainable Future (Class of 7<sup>th</sup>), 2015 - 2016, Thailand Energy Academy (TEA)</li><li>• Inspector General Program, The Prime Minister's Office</li><li>• Senior Executive Program (Class of 60<sup>th</sup>), Office of the Civil Service Commission</li></ul>	2015 - 2017	Director	Thailand Post Company Limited
					Relevant Important Positions in Listed Companies - The Stock Exchange of Thailand (In the Previous Year)		
					December 21, 2018 - Present	Director, PTT Public Company Limited	
				December 23, 2018 - Present	Member of the Remuneration Committee, PTT Public Company Limited		
				October 17, 2019 - Present	Member of the Enterprise Risk Management Committee, PTT Public Company Limited		
				April 7, 2017 - Present	Director/ Chairman of the Credit Committee/ Member of the Board of Executive Directors/ Member of the Nomination, Remuneration and Corporate Governance Committee, TMB Bank Public Company Limited		

Name/ Position	Age (Year)	(%) of Share Possession	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<b>Mr. Chumpol Rimsakorn (Continued)</b> Director/ Member of the Remuneration Committee/ Member of the Enterprise Risk Management Committee				<ul style="list-style-type: none"> <li>Good Governance for Directors and Executives of State Enterprises and Public Organization (Class of 10<sup>th</sup>), King Prajadhipok's Institute</li> <li>Advanced Master of Management Program (AMM) (Class 1/2018), Graduate School of Public Administration, National Institute of Development Administration (NIDA)</li> <li>Bangkok Sustainable Banking Forum 2018, Bank of Thailand</li> </ul>	<b>Relevant Important Positions in Non Listed Company/ Other Organizations (In the Previous Year)</b>		
					December 17, 2019 - Present	Director/ Chairman of the Credit Committee/ Member of the Board of Executive Directors/ Member of the Nomination, Remuneration and Corporate Governance Committee, Thanachart Bank Public Company Limited	
					December 18, 2018 - Present	Director, Don Muang Tollway Public Company Limited	
					<b>Other Experiences/ Other Activities (In the Previous Year)</b>		
					May 2018 - Present	Chairman, Vayupak 1 Mutual Fund Investment Committee	
					May 2018 - Present	Chairman, Performance Assessment Committee (PAC)	
					May 2018 - Present	Chairman, Public Service Obligation Committee (PSO)	
					May 2018 - Present	Board Member, Vayupak Mutual Fund Supervisory Committee	
					May 2018 - Present	Board Member, Thailand Future Fund Steering Committee	
					October 2020 - Present	Chairman, Computer Committee, Ministry of Finance	

Name/ Position	Age (Year)	(%) of Share Possession	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<div><div><div>Mrs. Premrutai Vinaiphat</div><div>Director/ Member of the Enterprise Risk Management Committee</div></div><div></div><div><ul style="list-style-type: none"><li>• <b>Appointed as Director</b> - July 3, 2020</li><li>• <b>Appointed as Member of the Enterprise Risk Management Committee</b> - July 3, 2020</li></ul></div></div>	58	None	None	<b>Education</b>	October 1, 2020 - Present	Deputy Permanent Secretary	Ministry of Energy
				<ul style="list-style-type: none"><li>• Bachelor of Science (Geology), Chiang Mai University</li><li>• Master of Engineering in Mining Engineering (Mineral Economics), McGill University, Montreal, Canada</li></ul>	2020	Inspector General	Ministry of Energy
					2019	Director-General	Department of Mineral Fuels, Ministry of Energy
				<b>Certification</b>	2018	Inspector General	Ministry of Energy
				<ul style="list-style-type: none"><li>• Director Certification Program (DCP 269/2019), Risk Management Program for Corporate Leaders (RCL 20/2020), Boardroom Success through Financing and Investment (BFI 9/2020) Thai Institute of Directors Association (IOD)</li><li>• Certificate, Executive Program in Energy Literacy for Sustainable Future, (Class of 13<sup>rd</sup>), 2019, Thailand Energy Academy (TEA)</li><li>• The Program of Senior Executives on Justice Administration (Class of 22<sup>nd</sup>), Judicial Training Institute</li><li>• Leadership 4.0 Program, The ICT Society for Social Development Association</li><li>• Diploma, National Defence College, The National Defence Course (Class 57/2014), National Defence College of Thailand (NDC)</li><li>• World Fiscal Systems for Oil and Gas, UK</li><li>• Executive Development Program “Leadership with Vision and Virtue” (Class of 71<sup>st</sup>), Office of the Civil Service Commission</li></ul>	2018	Independent Director and Member of the Corporate Governance and Social Responsibility Committee	Ratchaburi Electricity Generating Holding Public Company Limited
					2016 - 2018	Deputy Director-General	Department of Mineral Fuels, Ministry of Energy
					2015 - 2016	Director	Petroleum Concession Management Bureau, Department of Mineral Fuels, Ministry of Energy
					2011 - 2015	Director	International Petroleum Bureau, Department of Mineral Fuels, Ministry of Energy
				<b>Relevant Important Positions in Listed Companies - The Stock Exchange of Thailand (In the Previous Year)</b>			
				July 3, 2020 - Present	Director/ Member of the Enterprise Risk Management Committee, PTT Public Company Limited		
				Febuary 18, 2019 - July 15, 2020	Director/ Director to the Risk Management Committee, PTT Global Chemical Public Company Limited		
				<b>Relevant Important Positions in Non Listed Company/ Other Organizations (In the Previous Year)</b>			
				-	-		
				<b>Other Experiences/ Other Activities (In the Previous Year)</b>			
				-	-		


Name/ Position	Age (Year)	(%) of Share Possession	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<b>Mrs. Premrutai Vinaiphath (Continued)</b> Director/ Member of the Enterprise Risk Management Committee				<ul style="list-style-type: none"> <li>Development of Management Competency and Leadership Program for Talent Network “Leadership &amp; Change”, Office of the Civil Service Commission, Japan</li> <li>Top Level Energy Administration (Class of 2<sup>nd</sup>), Ministry of Energy</li> <li>International Petroleum Management Certificate Program, USA</li> <li>Law of the Sea, Malaysia</li> <li>Managing Managers in the Energy Industry, USA</li> </ul>			
<b>M.L. Chayotid Kridakon</b> Director  <ul style="list-style-type: none"> <li>Appointed as Director - December 16, 2020</li> </ul>	53	None	None	<b>Education</b> <ul style="list-style-type: none"> <li>Bachelor of Economy History, University of London, UK</li> </ul>	October 1, 2009 - November 18, 2020	Managing Director	JPMorgan Securities Co., Ltd.
				<b>Certification</b> <ul style="list-style-type: none"> <li>Top Executive Program (Class of 4<sup>th</sup>), Capital Market Academy (CMA)</li> </ul>	October 1, 2009 - November 18, 2020	Senior Country Officer	JPMorgan Chase Bank
				<b>Relevant Important Positions in Listed Companies - The Stock Exchange of Thailand (In the Previous Year)</b>			
					December 16, 2020 - Present	Director, PTT Public Company Limited	
				<b>Relevant Important Positions in Non Listed Company/ Other Organizations (In the Previous Year)</b>			
					October 1, 2009 - November 18, 2020	Director, JPMORGAN Securities (Thailand) Limited	
					August 1, 2004 - Present	Director, The Thai Silk Company Limited	
					May 11, 2007 - Present	Member of Assets Management Committee, Vajiravudh College	
				<b>Other Experiences/ Other Activities (In the Previous Year)</b>			
					-	-	

Name/ Position	Age (Year)	(%) of Share Possession	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<div>Mr. Auttapol Rerkpiboon</div> <div>Director/ Secretary to the Board/ President and Chief Executive Officer</div> <div></div> <div><div>• <b>Appointed as Director/ Secretary to the Board</b> - May 13, 2020</div><div>• <b>Appointed as Authorized Director</b> - May 13, 2020</div><div>• <b>Appointed as President and Chief Executive Officer, PTT Public Company Limited</b> - May 13, 2020</div></div>	55	0.000939 (own 0.000788; spouse 0.000151)	None	<b>Education</b>	May 13, 2020 - Present	President and Chief Executive Officer	PTT Public Company Limited
				<ul style="list-style-type: none"><li>• Bachelor of Engineering (Civil Engineering), Chulalongkorn University</li><li>• Master of Economics Program, National Institute of Development Administration</li><li>• Diploma of Petroleum Management, College of Petroleum Studies, Oxford, UK (British Council Scholarship)</li></ul>	October 1, 2017 - May 12, 2020	Chief Operating Officer, Downstream Petroleum Business Group (October 1, 2017 - September 30, 2018) Acting Senior Executive Vice President, Downstream Business Group Alignment, PTT)	PTT Public Company Limited
				<b>Certification</b>	October 1, 2015 - October 1, 2018	Director/ Director to the Corporate Governance Committee/ Director to the Risk Management Committee	PTT Global Chemical Public Company Limited
				<ul style="list-style-type: none"><li>• Director Certification Program (DCP 173/ 2013), Company Secretary Program (CSP 14/2005), Thai Institute of Directors Association (IOD)</li><li>• Executive Development Program (EDP), (Class of 1<sup>st</sup>), Thai Listed Companies Association (TLCA)</li><li>• The National Defence Course (Class of 58<sup>th</sup>), National Defence College</li><li>• Advanced Certificate Course in Politics and Governance in Democratic System for Executives, (Class of 14<sup>th</sup>), King Prajadhipok's Institute</li><li>• Capital Market Academy Leadership Program, (Class of 20<sup>nd</sup>), Capital Market Academy (CMA)</li><li>• Certificate, Executive Program in Energy Literacy for a Sustainable Future, (Class of 12<sup>nd</sup>), Thailand Energy Academy (TEA)</li></ul>	November 2015 - September 2017	Chairman	PTT Retail Management Company Limited
					October 1, 2015 - September 30, 2017	Senior Executive Vice President - Oil Business Unit	PTT Public Company Limited
				<b>Relevant Important Positions in Listed Companies - The Stock Exchange of Thailand (In the Previous Year)</b>			
				May 13, 2020 - Present	Director/ Secretary to the Board/ President and Chief Executive Officer, PTT Public Company Limited		
				August 1, 2020 - Present	Director, PTT Exploration and Production Public Company Limited		
				April 11, 2018 - July 31, 2020	Director/ Chairman of the Risk Management Committee/ Member of the Nomination and Remuneration Committee, Thai Oil Public Company Limited		


Name/ Position	Age (Year)	(%) of Share Possession	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<b>Mr. Auttapol Rerkpiboon (Continued)</b> Director/ Secretary to the Board/ President and Chief Executive Officer				<ul style="list-style-type: none"> <li>Executive Program on Rule of Law and Development: RoLD (Class of 2<sup>nd</sup>), Thailand Institute of Justice (TIJ)</li> <li>NIDA-Wharton Executive Leadership Program 2009, The Wharton School of the University of Pennsylvania, USA</li> <li>PTT Executive Leadership, General Electric, GE, New York, USA</li> <li>Rule of Law for Democracy (Class of 8<sup>th</sup>), College of the Constitutional Court</li> </ul>	<b>Relevant Important Positions in Non Listed Company/ Other Organizations (In the Previous Year)</b>		
					December 12, 2018 - May 12, 2020	Chairman, PTT Tank Terminal Company Limited	
					December 22, 2015 - Present	Chairman, PTT Oil and Retail Business Public Company Limited	
					<b>Other Experiences/ Other Activities (In the Previous Year)</b>		
					October 9, 2020 - Present	Committee Member, Suan Luang Rama IX Foundation	
					September 29, 2020 - December 22, 2020	Advisor, Committee of Red Cross Lottery Tickets Supporting the Thai Redcross Society 2020	
					October 2, 2020 - Present	Advisory Board, The Institute of Energy for Industry	
					June 2020 - Present	Committee Member, Ruamchit Normklao Foundation for Thai Youth under the Patronage of H.R.H. the Queen	
					July 27, 2018 - Present	Committee Member, Payment Systems Committee (PSC), Bank of Thailand	
					May 1, 2018 - July 16, 2020	President, Marketing Association of Thailand	
					October 6, 2017 - September 29, 2020	Director, The Royal Automobile Association of Thailand under Royal Patronage	
					November 6, 2016 - Present	Vice President, Swimming Association Thailand (Term 2021 - 2024, Re-elected)	
					2019 - Present	Honorary Advisor, The National Institute of Development Administration Alumni Association under the Royal Patronage (NIDA)	
					March 2020 - Present	Expert Committee of NIDA Council, The National Institute of Development Administration (NIDA)	



Name/ Position	Age (Year)	(%) of Share Possession	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<b>Mr. Auttapol Rerkpiboon (Continued)</b> Director/ Secretary to the Board/ President and Chief Executive Officer					2018 - Present	Honorary Advisor, Thai-Laos Business Council	
					May 29, 2020 - Present	Member of Trustee, Petroleum Institute of Thailand	
					May 13, 2020 - Present	Vice Chairman, Thailand Energy Academy	
					May 2020 - Present	Committee Member, OUR Khung BangKachao	
					May 13, 2020 - Present	Committee Member, Green Globe Institute	
					June 8, 2020 - Present	Director, Power of Innovation Foundation	
					June 8, 2020 - Present	Director, Power of Learning Foundation	
					August 24, 2020 - Present	Director, Power For Sustainable Future Foundation	
					August 31, 2020 - Present	Expert Committee of Vidyasirimedhi Institute Council, Vidyasirimedhi Institute of Science and Technology (VISTEC)	
					May 13, 2020 - November 17, 2020	Advisory Board, PTT Natural Gas Business Saving Co-Operative, Limited	
					May 22, 2020 - Present	President, PTT Group Employee Association	


Name/ Position	Age (Year)	(%) of Share Possession	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<div>Mr. Atikom Terbsiri</div> <div><ul style="list-style-type: none"><li>Chief Operating Officer, Upstream Petroleum and Gas Business Group</li></ul></div> <div>Appointed: - September 1, 2019</div> <div></div>	58	None	None	Education	September 1, 2019 - Present	Chief Operating Officer, Upstream Petroleum and Gas Business Group	PTT Public Company Limited
				<ul style="list-style-type: none"><li>Bachelor of Business Administration, Assumption University</li><li>Master of Business Administration (Finance &amp; International Business), High Distinction, Armstrong University, USA</li></ul>	October 1, 2019 - December 31, 2019	Chairman	Sakari Resources Limited
				Certification	January 9, 2018 - August 31, 2019	Executive Director	Thailand Swimming Association
				<ul style="list-style-type: none"><li>Director Certification Program (DCP 125/2009), Risk Management Program for Corporate Leaders (RCL 4/2016), Role of the Chairman Program (RCP 41/2017), Thai Institute of Directors Association (IOD)</li><li>Executive Education Program, Harvard Business School, Harvard University, USA</li><li>Advanced Security Management Program, (Class of 1<sup>st</sup>), National Defence College</li><li>The State, Private Sector and Political Sectors Course, (Class of 5<sup>th</sup>), National Defence College</li><li>Capital Market Academy Leader Program, (Class of 17<sup>th</sup>), Capital Market Academy (CMA)</li><li>Certificate, Executive Program on Energy Literacy for a Sustainable Future, (Class of 6<sup>th</sup>), Thailand Energy Academy (TEA)</li></ul>	February 2018 - February 2019	Chairman of Petroleum Refining Industry Club	The Federation of Thai Industries
				April 2017 - April 2019	Director	Thai Listed Companies Association	
				2015 - August 31, 2019	Member of the Risk Management Committee	Global Power Synergy Public Company Limited	
				2014 - August 31, 2019	Director	Global Power Synergy Public Company Limited	
				May 18, 2015 - August 31, 2019	Member of Council	Vidyasirimedhi Institute of Science and Technology	
				2014 - August 31, 2019	Director/ Member of the Risk Management Committee and the Secretary to the Board of Directors	Thai Oil Public Company Limited	
				October 1, 2014 - August 31, 2019	Senior Executive Vice President, PTT, working on a secondment as President and Chief Executive Officer	Thai Oil Public Company Limited	

Name/ Position	Age (Year)	(%) of Share Possession	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<b>Mr. Atikom Terbsiri (Continued)</b> Chief Operating Officer, Upstream Petroleum and Gas Business Group					2014 - September 14, 2019	Chairman	TOP SPP Company Limited
					2014 - August 31, 2019	Chairman	Thai Lube Base Public Company Limited
					2014 - August 31, 2019	Chairman	Thaioil Marine Company Limited
					2014 - August 31, 2019	Chairman	Thaioil Solvent Company Limited
					2014 - August 31, 2019	Chairman	Thaioil Power Company Limited
					2014 - August 31, 2019	Chairman	LABIX Company Limited
					2014 - August 31, 2019	Chairman	Thai Paraxylene Company Limited
					2014 - March 29, 2019	Chairman	TOP Solvent Company Limited
					November 20, 2014 - 2012 - August 31, 2019	Director	Power of Innovation Foundation and Power of Learning Foundation
					2012 - August 31, 2019	Member of Trustee (as Company representative)	Petroleum Institute of Thailand
					<b>Relevant Important Positions in Listed Companies - The Stock Exchange of Thailand (In the Previous Year)</b>		
					October 1, 2019 - Present	Director/ Member of the Risk Management Committee, PTT Exploration and Production Public Company Limited	
					January 1, 2020 - Present	Director, Global Power Synergy Public Company Limited	
					June 18, 2020 - Present	Member of the Nomination and Remuneration Committee, Global Power Synergy Public Company Limited	

Name/ Position	Age (Year)	(%) of Share Possession	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<b>Mr. Atikom Terbsiri (Continued)</b> Chief Operating Officer, Upstream Petroleum and Gas Business Group					<b>Relevant Important Positions in Non Listed Company/ Other Organizations (In the Previous Year)</b>		
					October 1, 2019 - Present	Chairman, PTT LNG Company Limited	
					<b>Other Experiences/ Other Activities (In the Previous Year)</b>		
					2018 - Present	Member, Backdoor Listing Transaction Committee, The Stock Exchange of Thailand	
					2018 - Present	Director, The Federation of Thai Industries (Term 2018 - 2020 and Term 2020 - 2022)	
<b>Mr. Kris Imsang</b> • Chief Operating Officer, Downstream Petroleum Business Group  <b>Appointed:</b> <i>June 1, 2020</i>  	55	0.00035 (own 0.00035; spouse 0)	None	<b>Education</b>	June 1, 2020 - Present	Chief Operating Officer, Downstream Petroleum Business Group	PTT Public Company Limited
				• Bachelor of Engineering (Civil Engineering), Chulalongkorn University			
				<b>Certification</b>	November 1, 2019 - May 31, 2020	Senior Executive Vice President, Downstream Business Group Alignment	PTT Public Company Limited
				• Director Certification Program (DCP 139/2010), Thai Institute of Directors Association (IOD)	October 1, 2018 - October 31, 2019	Senior Executive Vice President, Corporate Governance and Regulatory Affairs	PTT Public Company Limited
				• Leadership Development Program III, (Class of 2 <sup>nd</sup> ), PTT Leadership and Learning Institute (PLLI)	2017 - 2019	Member of Corporate Governance Committee	IRPC Public Company Limited
				• Certificate in Top Executives in the PoomPalungPandin Program, Chulalongkorn University	December 2018 - October 31, 2019	Director	Sport Services Alliance Company Limited
				• Top Executive Program, (Class of 23 <sup>rd</sup> ), Capital Market Academy (CMA)	September 8, 2017 - October 31, 2019	Chairman	Sarn Palung Social Enterprise Company Limited
				• Certificate, Executive Program in Energy Literacy for a Sustainable Future, (Class of 9 <sup>th</sup> ), Thailand Energy Academy (TEA)	December 23, 2015 - November 30, 2019	Chairman	Energy Complex Company Limited


Name/ Position	Age (Year)	(%) of Share Possession	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<b>Mr. Kris Imsang (Continued)</b> Chief Operating Officer, Downstream Petroleum Business Group					July 2, 2019 - October 31, 2019	Strategic Committee	Anti-corruption and Good Governance Enhancement (Term 2019 - 2020)
					August 9, 2019 - October 31, 2019	Executive Board	Green Globe Institute
					August 9, 2019 - October 31, 2019	Member	Green Globe Institute
					July 18, 2019 - October 31, 2019	Sustainable OUR Khung BangKaChao Working Team	OUR Khung BangKaChao
					July 3, 2019 - October 31, 2019	Sustainable OUR Khung BangKaChao Advisory Board	OUR Khung BangKaChao
					July 3, 2019 - October 31, 2019	Sustainable OUR Khung BangKaChao Steering Committee	OUR Khung BangKaChao
					July 11, 2018 - October 31, 2019	Chairman	Water Resource Management Committee (TBCSD)
					March 30, 2016 - August 31, 2019	Committee	Kamnoetvidya Science Academy
					January 1, 2018 - September 30, 2018	Senior Executive Vice President, Organization Management and Sustainability	PTT Public Company Limited
					February 1, 2016 - December 31, 2017	Senior Executive Vice President, Human Resources and Organization Excellence	PTT Public Company Limited
					2017 - 2019	Advisor	Chulalongkorn University Alumni Association

Name/ Position	Age (Year)	(%) of Share Possession	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<b>Mr. Kris Imsang (Continued)</b> Chief Operating Officer, Downstream Petroleum Business Group					2015 - 2017	Deputy Secretary General (Term 2015 - 2017)	Chulalongkorn University Alumni Association
					2015 - January 31, 2016	Executive Vice President, Retail Marketing	PTT Public Company Limited
					Relevant Important Positions in Listed Companies - The Stock Exchange of Thailand (In the Previous Year)		
					December 2, 2017 - Present	Director, IRPC Public Company Limited	
					March, 2019 - Present	Member of Nomination and Remuneration Committee, IRPC Public Company Limited	
					Relevant Important Positions in Non Listed Company/ Other Organizations (In the Previous Year)		
					September 11, 2020 - Present	Chairman, PTT Tank Terminal Company Limited	
					Other Experiences/ Other Activities (In the Previous Year)		
					August 22, 2019 - Present	Honorary Board Member, Social Enterprise Promotion Board	
					August 20, 2020 - Present	Vice President - FTI Academy Board Jobs, The Federation of Thai Industries (Term 2020 - 2022)	
					January 23, 2019 - Febuary 5, 2020	Vice Chairman, Power For Sustainable Future Foundation	
					November 8, 2018 - October 31, 2020	Chairman, Social Enterprise Club	
					Febuary 28, 2019 - July 13, 2020	Committee, Vidyasirimedhi Institute of Science and Technology	
					June 1, 2020 - Present	Executive Director, Thailand Energy Academy	

Name/ Position	Age (Year)	(%) of Share Possession	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<b>Mr. Wittawat Svasti-Xuto</b> • Chief Technology and Engineering Officer  <b>Appointed:</b> September 16, 2018  	59	0.001941 (own 0.001941; spouse 0)	None	<b>Education</b>	September 16, 2018 - Present	Chief Technology and Engineering Officer	PTT Public Company Limited
				• Bachelor of Engineering (Chemical Engineering), Chulalongkorn University	July 26, 2019 - November 30, 2019	Chairman of the Nomination and Remuneration Committee	Global Power Synergy Public Company Limited
				• Master of Science (Industrial Engineering), The University of Rhode Island, USA	February 23, 2018 - 2019	Member	Chulalongkorn Engineering Alumni (Term 2018 - 2019)
				<b>Certification</b>	2017 - 2019	Chairman	PTT Digital Solutions Company Limited
				• Director Certification Program (DCP 146/2011), Financial Statements for Director (FSD 12/2011), Thai Institute of Directors Association (IOD)	January 1, 2018 - September 15, 2018	Senior Executive Vice President, Innovation and Digital	PTT Public Company Limited
				• Capital Market Academy Leadership Program, (Class of 27 <sup>th</sup> ), Capital Market Academy (CMA)	2017 - 2018	Director	Business Professional Solutions Recruitment Company Limited (Former company name: "Business Professional Solutions Company Limited", changed to the current name on December 30, 2020)
				• Certificate, Executive Program in Energy Literacy for a Sustainable Future, (Class of 11 <sup>st</sup> ), Thailand Energy Academy (TEA)	2017 - 2018	Director	District Cooling System and Power Plant Company Limited
				• The National Defence Course (Class of 59 <sup>th</sup> ), National Defence College	2016 - 2018	Director	Business Services Alliance Company Limited
				• Strategy and Innovation for Business in Asia (SIBA) (Class 5/2016)	2015 - 2018	Director	Energy Complex Company Limited
					January 1, 2017 - December 31, 2017	Senior Executive Vice President, Sustainability Management and Project Engineering	PTT Public Company Limited
					October 1, 2016 - December 31, 2016	Senior Executive Vice President, Sustainability Management	PTT Public Company Limited
					January 1, 2016 - September 30, 2016	Executive Vice President, Downstream Business Group Alignment	PTT Public Company Limited




Name/ Position	Age (Year)	(%) of Share Possession	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<b>Mr. Wittawat Svasti-Xuto (Continued)</b> Chief Technology and Engineering Officer					<b>Relevant Important Positions in Listed Companies - The Stock Exchange of Thailand (In the Previous Year)</b>		
					September 19, 2018 - Present	Director, Global Power Synergy Public Company Limited	
					December 1, 2019 - Present	Director/ Member of the Nomination and Remuneration Committee/ Member of the Risk Management Committee, Global Power Synergy Public Company Limited	
					February 19, 2018 - Present	Director/ Director to the Nomination and Remuneration Committee, PTT Global Chemical Public Company Limited	
					<b>Relevant Important Positions in Non Listed Company/ Other Organizations (In the Previous Year)</b>		
					2019 - Present	Chairman, PTT Energy Solutions Company Limited	
					<b>Other Experiences/ Other Activities (In the Previous Year)</b>		
					2020 - Present	Advisor, Chulalongkorn University Engineering Alumni (Term 2020 - 2021)	
					May 23, 2019 - Present	Executive Director, Thailand Energy Academy	
					August 20, 2020 - Present	Member of University Council, Advisory Level, University of Phayao	
					October 1, 2020 - Present	Board Member of National Energy Technology Center (ENTEC)	
					November 27, 2020 - Present	Member of Vidyasirimedhi Institute Council, Vidyasirimedhi Institute of Science and Technology (VISTEC)	


Name/ Position	Age (Year)	(% of Share Possession	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<b>Miss Pannalin Mahawongtikul</b> • Chief Financial Officer  <b>Appointed:</b> <i>October 1, 2018</i>    (The person supervising Finance and Accounting)	56	0.001009 (own 0.001009)	None	<b>Education</b> <ul style="list-style-type: none"> <li>Bachelor of Accounting, Thammasat University</li> <li>Master of Business Administration, Thammasat University</li> </ul> <b>Certification</b> <ul style="list-style-type: none"> <li>Director Certification Program (DCP 279/2019), Thai Institute of Directors Association (IOD)</li> <li>Capital Market Academy Leader Program, (Class of 24<sup>th</sup>), Capital Market Academy (CMA)</li> <li>Certificate, Executive Program in Energy Literacy for a Sustainable Future, (Class of 15<sup>th</sup>), Thailand Energy Academy (TEA)</li> <li>Leadership Succession Program (LSP), (Class of 6<sup>th</sup>), Institute of Research and Development for Public Enterprises</li> <li>CMA-Greater Mekong Subregion (CMA-GMS), (Class of 1<sup>st</sup>), Capital Market Academy</li> <li>PTT-HBS Leadership Development Program II, Harvard Business School</li> <li>NIDA-Wharton Executive Leadership Program (ELP), The Wharton School, University of Pennsylvania</li> <li>Executive Program for Senior Management (EX-PSM), (Class of 3<sup>rd</sup>), Fiscal Policy Research Institute Foundation</li> <li>Executive Development Program (EDP) (Class of 2<sup>nd</sup>), Thai Listed Companies Association</li> </ul>	October 1, 2018 - Present	Chief Financial Officer	PTT Public Company Limited
					May 8, 2018 - September 30, 2018	Director	PTTEP Energy Holding (Thailand) Company Limited
					January 1, 2016 - September 30, 2018	Executive Vice President, PTT, working on a secondment as Executive Vice President, Finance and Accounting Group	PTT Exploration and Production Public Company Limited
					January 1, 2016 - September 30, 2018	Director	Energy Complex Company Limited
					January 1, 2016 - September 30, 2018	Director	PTTEP Canada International Finance Limited
					January 1, 2016 - March 19, 2017	Director	PTTEP Australia International Finance Pty Ltd.
					October 20, 2014 - February 1, 2016	Director	PTT Green Energy Pte. Ltd.
					September 1, 2014 - February 1, 2016	Director	PTT Regional Treasury Center Pte. Ltd.
					<b>Relevant Important Positions in Listed Companies - The Stock Exchange of Thailand (In the Previous Year)</b>		
					October 1, 2018 - Present	Director/ Member of the Risk Management Committee,	Thai Oil Public Company Limited
					<b>Relevant Important Positions in Non Listed Company/ Other Organizations (In the Previous Year)</b>		
					-	-	
					<b>Other Experiences/ Other Activities (In the Previous Year)</b>		
					October 1, 2018 - Present	Executive Director, Thailand Energy Academy	


Name/ Position	Age (Year)	(%) of Share Possession	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<b>Miss Pannalin Mahawongtikul (Continued)</b> Chief Financial Officer				<ul style="list-style-type: none"> <li>Leadership Development Program (LDP) III, PTT Leadership and Learning Institute (PLLI)</li> <li>Seminar “Board of the Future”, IOD National Director Conference 2019</li> </ul>			
<b>Mrs. Arawadee Photisar</b> <ul style="list-style-type: none"> <li>Senior Executive Vice President, Corporate Strategy</li> </ul> <b>Appointed:</b> <i>October 1, 2018</i>	59	0.000004 (own 0; spouse 0.000004)	None	<b>Education</b>	October 1, 2018 - Present	Senior Executive Vice President, Corporate Strategy	PTT Public Company Limited
				<ul style="list-style-type: none"> <li>Bachelor of Accounting, Thammasat University</li> <li>Master of Business Administration (Management Information System), The University of Dallas, USA</li> </ul>	2017 - 2019	Director	PTT Digital Solutions Company Limited
				<b>Certification</b>	2017 - September 30, 2018	Executive Vice President, PTT, working on a secondment as Managing Director	PTT Digital Solutions Company Limited
				<ul style="list-style-type: none"> <li>Director Certification Program (DCP 253/2018), Thai Institute of Directors Association (IOD)</li> <li>Leadership Development Program for Sustainability (LDP) III, PTT Leadership and Learning Institute (PLLI)</li> <li>Breakthrough Program for Senior Executives, International Leading Business School (IMD), Lausanne, Switzerland</li> <li>Study Mission to a Nonmember Country on Regional Innovation Strategies and Knowledge Productivity, Office of Thailand Quality Award</li> <li>Leadership Succession Program (LSP), (Class of 4<sup>th</sup>), Institute of Research and Development for Public Enterprises (IRDP)</li> <li>TLCA Executive Development Program (EDP) (Class of 5<sup>th</sup>), Thai Listed Companies Association</li> </ul>	2016 - 2017	Executive Vice President, Strategy and Portfolio Management and Director of ExpresSo Project	PTT Public Company Limited
					2013 - 2016	Executive Vice President, Strategy and Portfolio Management	PTT Public Company Limited
				<b>Relevant Important Positions in Listed Companies - The Stock Exchange of Thailand (In the Previous Year)</b>			
					October 22, 2018 - Present	Director/ Director to the Risk Management Committee, PTT Global Chemical Public Company Limited	
				<b>Relevant Important Positions in Non Listed Company/ Other Organizations (In the Previous Year)</b>			
					January 1, 2020 - Present	Chairman, Sakari Resources Limited	
					March 3, 2020 - Present	Chairman, Alpha Com Company Limited	



Name/ Position	Age (Year)	(%) of Share Possession	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<b>Mrs. Arawadee Photisaro (Continued)</b> Senior Executive Vice President, Corporate Strategy				<ul style="list-style-type: none"><li>Mitsui-HBS Global Management Academy, Harvard Business School, USA</li><li>Top Management Program in Governmental Legal (Class of 3<sup>rd</sup>), Office of the Council of State</li><li>Certificate, Executive Program in Energy Literacy for a Sustainable Future, (Class of 13<sup>rd</sup>), Thailand Energy Academy (TEA)</li></ul>	October 1, 2020 - Present	Chairman, Tiger Energy Trading Pte., Ltd.	
					<b>Other Experiences/ Other Activities (In the Previous Year)</b>		
					November 1, 2018 - Present	Executive Director, Thailand Energy Academy	
					July 14, 2020 - Present	Member of the Executive Board, Vidyasirimedhi Institute of Science and Technology	
<b>Mr. Terdkiat Prommool</b> <ul style="list-style-type: none"><li>Senior Executive Vice President, Organization Management and Sustainability</li></ul> <b>Appointed:</b> October 1, 2020 	55	None	None	<b>Education</b> <ul style="list-style-type: none"><li>Bachelor of Engineering in Chemical Engineering, Chulalongkorn University</li><li>Master of Engineering in Industrial &amp; Manufacturing Systems Engineering, The University of Missouri, Columbia, USA</li></ul> <b>Certification</b> <ul style="list-style-type: none"><li>Director Certification Program (DCP 223/2016), Thai Institute of Directors Association (IOD)</li><li>Leadership Succession Program (LSP), (Class 10/2019), Institute of Research and Development for Public Enterprises (IRDP)</li></ul>	October 1, 2020 - Present	Senior Executive Vice President, Organization Management and Sustainability	PTT Public Company Limited
					2018 - September 30, 2020	Executive Vice President, PTT, working on a secondment as Managing Director	PTT Digital Solutions Company Limited
					2015 - 2018	Executive Vice President, Planning and Risk Control	PTT Public Company Limited
					<b>Relevant Important Positions in Listed Companies - The Stock Exchange of Thailand (In the Previous Year)</b>		
					October 1, 2020 - Present	Director, Thai Oil Public Company Limited	
					<b>Relevant Important Positions in Non Listed Company/ Other Organizations (In the Previous Year)</b>		
					October 1, 2018 - September 30, 2020	Committee Member, PTT Digital Solutions Company Limited	
					October 1, 2020 - Present	Chairman, Business Services Alliance Company Limited	
					October 1, 2020 - Present	Chairman, Business Professional Solutions Recruitment Company Limited (Former company name: “Business Professional Solutions Company Limited”, changed to the current name on December 30, 2020)	
					<b>Other Experiences/ Other Activities (In the Previous Year)</b>		
					-	-	





Name/ Position	Age (Year)	(%) of Share Possession	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<b>Miss Duangporn Thiengwatanatham</b> • Senior Executive Vice President, Corporate Governance and Regulatory Affairs  <b>Appointed:</b> <i>November 1, 2019</i>  	59	0.00027 (own 0.00027)	None	<b>Education</b> • Bachelor of Engineering (Chemical Engineering), Chulalongkorn University • Master of Engineering (Chemical Engineering), The University of British Columbia, Canada • Master of Management (Management), Sasun Graduate Institute of Business Administration of Chulalongkorn University  <b>Certification</b> • Director Certification Program (DCP 135/2010), Financial Statements for Directors (FSD 8/2010) and Board Matters and Trends (BMT 8/2019), Thai Institute of Directors Association (IOD) • Leadership Development Program (LDP) III, PTT Leadership and Learning Institute (PLLI) • PTT Executive Leadership Program, General Electric, New York, USA • Enterprise Risk Management Framework, PricewaterhouseCoopers • Strategic Marketing Management, Stanford Graduate School of Business, USA • Director Development Program (DDP) (Class 1/2019), PTT • 2018 PTIT Annual Dinner: Clean Energy and Smart Transportation: Global Trend for Sustainable World • 2019 PTIT Special Lecture : Revisiting the Resource Revolution Arsenal & Defining Thailand's Destiny	November 1, 2019 - Present	Senior Executive Vice President, Corporate Governance and Regulatory Affairs	PTT Public Company Limited
					October 1, 2018 - October 31, 2019	Senior Executive Vice President, Downstream Business Group Alignment	PTT Public Company Limited
					March 31, 2017 - 2019	Director	PTT Energy Solutions Company Limited
					2017 - September 30, 2018	Executive Vice President, Innovation Institute	PTT Public Company Limited
					2016 - 2017	Executive Vice President, Downstream Business Group Collaboration	PTT Public Company Limited
					2016	Executive Vice President, Downstream Business Group Planning	PTT Public Company Limited
					<b>Relevant Important Positions in Listed Companies - The Stock Exchange of Thailand (In the Previous Year)</b>		
					October 1, 2018 - Present	Director, Thai Oil Public Company Limited	
					<b>Relevant Important Positions in Non Listed Company/ Other Organizations (In the Previous Year)</b>		
					2019 - Present	Chairman, Sarn Palung Social Enterprise Company Limited	
					<b>Other Experiences/ Other Activities (In the Previous Year)</b>		
					November 1, 2019 - Present	Executive Director, Thailand Energy Academy	
					2020 - Present	Member, Chulalongkorn University Engineering Alumni (Term 2020 - 2021)	
					November 1, 2019 - Present	Committee Member, Green Globe Institute	
					November 1, 2019 - Present	Secretary to the Sustainable OUR Khung BangKaChao Advisory Board, OUR Khung BangKachao	

Name/ Position	Age (Year)	(%) of Share Possession	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<div>Miss Peangpanor Boonklum</div> <div><ul style="list-style-type: none"><li>Senior Executive Vice President, Office of General Counsel</li></ul></div> <div>Appointed: October 1, 2017</div> <div></div> <div>(The person supervising Compliance Unit)</div>	54	None	None	Education	October 1, 2017 - Present	Senior Executive Vice President, Office of General Counsel	PTT Public Company Limited
				<ul style="list-style-type: none"><li>Bachelor of Laws (Second Class Honor), Chulalongkorn University</li><li>Master of Laws (Business Law), Chulalongkorn University</li><li>Master of Laws (LL.M.), Columbia University School of Law, New York, USA</li></ul>	2019	Lecturer, “Role of the Promotion, Prevention, and Respect for Human Rights”, Certificate of Human Rights for Executives	King Prajadhipok’s Institute
				Certification	April 27, 2019 - December 31, 2019	Member of the Corporate Governance Committee	Global Power Synergy Public Company Limited
				<ul style="list-style-type: none"><li>Director Certification Program (DCP 7/2001), Anti-Corruption: The Practical Guide (ACPG 38/2017), Ethical Leadership Program (ELP 15/2019), Risk Management Program for Corporate Leaders (RCL 18/2019), Board Nomination and Compensation Program (BNCP 7/2019), Thai Institute of Directors Association (IOD)</li><li>Certificate, Executive Program in Energy Literacy for a Sustainable Future, (Class of 15<sup>th</sup>), Thailand Energy Academy (TEA)</li><li>Leadership Development Program 3 (LDP3) (Class 4/2019), PTT Leadership and Learning Institute (PLLI)</li><li>TIJ Executive Program on The Rule of Law and Development (TIJ RoLD 3/2019), Thailand Institute of Justice (TIJ)</li><li>TIJ Workshop for Emerging Leaders on the Rule of Law and Policy (Class 3/2019), Thailand Institute of Justice (TIJ)</li><li>Certificate in Anti-Corruption Strategic Management for Senior Executives (Class 9/2018), Office of the National Anti-Corruption Commission</li></ul>	April 3, 2017 - December 31, 2019	Director	Global Power Synergy Public Company Limited
					October 30, 2017 - September 30, 2018	Director	East Mediterranean Gas Company S.A.E.
					February 2017 - January 2018	Member - Legal Expert	Finances and Assets Policy Committee, Srinakharinwirot University
					2013 - March 15, 2018	Advisor/ Lecturer	Investment Banking Club, Association of Thai Securities Companies
					July 1, 2017 - September 30, 2017	Executive Vice President, Office of Corporate Legal	PTT Public Company Limited
					February 3 - August 31, 2017	Independent Director/ Audit Committee	Bangkok Commercial Asset Management Public Company Limited
					March 2016 - June 2017	Senior Counsel	Weerawong, Chinnavat & Partners Company Limited (Former company name: “Weerawong, Chinnavat & Peangpanor Company Limited”, changed to the current name on April 3, 2017)


Name/ Position	Age (Year)	(%) of Share Possession	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<b>Miss Peangpanor Boonklum (Continued)</b> Senior Executive Vice President, Office of General Counsel				<ul style="list-style-type: none"> <li>TLCA Executive Development Program (Class 1/2008), Thai Listed Companies Association (TLCA)</li> </ul>	2009 - February 29, 2016	Partner and Associate	Weerawong, Chinnavat & Peangpanor Company Limited
					<b>Relevant Important Positions in Listed Companies - The Stock Exchange of Thailand (In the Previous Year)</b>		
					-	-	
					<b>Relevant Important Positions in Non Listed Company/ Other Organizations (In the Previous Year)</b>		
					December 4, 2019 - Present	Chairman, Energy Complex Company Limited	
					May 14, 2019 - Present	Member of the Enterprise Risk Management Committee, PTT Oil and Retail Business Public Company Limited	
					October 24, 2018 - Present	Member of the Nomination and Remuneration Committee, PTT Oil and Retail Business Public Company Limited	
					March 9, 2018 - Present	Director, PTT Oil and Retail Business Public Company Limited (Resigned from the directorship effective from January 1, 2021)	
					<b>Other Experiences/ Other Activities (In the Previous Year)</b>		
					June 18, 2019 - Present	Vice President, Chulalongkorn University Alumni Association Under the Royal Patronage of His Majesty the King (CUAA) (Term 2019 - 2021)	
					2020	Lecturer, "Roles and Involvement of State Enterprises and Private Sectors in Reduction of Fraud", Anti-Corruption Strategic Management for Senior Executives (Class 11/2020), Office of The National Anti-Corruption Commission (NACC)	
					2020	Advisor, "The Capital Market Regulatory Guillotine Task Force", The Securities and Exchange Commission, Thailand (SEC)	




Name/ Position	Age (Year)	(%) of Share Possession	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<b>Mr. Wuttikorn Stithit</b> <ul style="list-style-type: none"><li>Senior Executive Vice President, Gas Business Unit</li></ul> <b>Appointed:</b> <i>February 1, 2019</i> 	56	0.000812 (own 0.000494; spouse 0.000318)	None	<b>Education</b>	February 1, 2019 - Present	Senior Executive Vice President, Gas Business Unit	PTT Public Company Limited
				<ul style="list-style-type: none"><li>Bachelor of Engineering (Electrical Engineering), King Mongkut's Institute of Technology Ladkrabang</li><li>Master of Science (Industrial and System Engineering), Ohio University, USA</li><li>Master of Business Administration (Finance and Banking), Kasetsart University</li></ul>	2017 - 2019	Director	TTM Sukuk Berhad
					November 1, 2015 - January 31, 2019	Executive Vice President, Natural Gas Supply and Trading	PTT Public Company Limited
					March 30, 2015 - 2019	Chairman	Trans Thai-Malaysia (Thailand) Limited
					March 30, 2015 - 2019	Chairman	Trans Thai-Malaysia (Malaysia) Sdn Bhd
					<b>Relevant Important Positions in Listed Companies - The Stock Exchange of Thailand (In the Previous Year)</b>		
				April 1, 2019 - Present	Director, Global Power Synergy Public Company Limited		
				<b>Relevant Important Positions in Non Listed Company/ Other Organizations (In the Previous Year)</b>			
				September 30, 2019 - Present	Chairman, PTT Natural Gas Distribution Company Limited		
				2019 - Present	Chairman, PTT Global LNG Company Limited		
<b>Other Experiences/ Other Activities (In the Previous Year)</b>							
-	-						


Name/ Position	Age (Year)	(%) of Share Possession	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<div>Dr. Buranin Rattanasombat</div> <div><ul style="list-style-type: none"><li>Senior Executive Vice President, Downstream Business Group Alignment</li></ul></div> <div>Appointed: June 1, 2020</div> <div></div>	53	0.00075 (own 0.00075; spouse 0)	None	Education	June 1, 2020 - Present	Senior Executive Vice President, Downstream Business Group Alignment	PTT Public Company Limited
				<ul style="list-style-type: none"><li>Bachelor of Science, Prince of Songkhla University</li><li>MBA, Chulalongkorn University</li><li>Ph.D. (Management), Silpakorn University</li></ul>	2019 - May 2020	Senior Executive Vice President, Corporate Strategy, Innovation and Sustainability and Chief Transformation Officer (CTO)	PTT Oil and Retail Business Public Company Limited
				Certification	August 2018 - June 1, 2019	Chairman	PTTOR China (Shanghai) Company Limited
				<ul style="list-style-type: none"><li>Director Certification Program (DCP 174/2013), Company Secretary Program (CSP 40/2011), Thai Institute of Directors Association (IOD)</li><li>Top Executive Program (Class of 30<sup>th</sup>), Capital Market Academy (CMA)</li><li>Public and Private Chief Innovation Leadership, National Innovation Agency</li><li>Advanced Security Management Program, (Class of 10<sup>th</sup>), The National Defence College Association of Thailand (NDCAT)</li><li>PTT Leadership Development Program (IMD Business School), PTT Leadership and Learning Institute (PLLI)</li><li>Senior Executive Education Program on Strategy and Innovation, School of Management, MIT</li><li>Leadership Succession Program (LDP8), Institute of Research and Development for Public Enterprises (IRDPE)</li><li>CMA-GMS International Program 2016, Capital Market Academy</li><li>Foreign Affairs Executive Programme (Class of 7<sup>th</sup>), Devawongse Varopakarn Institute of Foreign Affairs, Ministry of Foreign Affairs</li></ul>	April 2017 - November 2019	Director	Thappline Company Limited
				October 2015 - March 2019	Chairman	Thai Lube Blending Company Limited	
				2018 - 2019	Senior Executive Vice President, Lubricant Business	PTT Oil and Retail Business Public Company Limited	
				2016 - 2018	Vice President	Marketing Association of Thailand	
				2015 - 2018	Executive Vice President, Lubricant Business	PTT Public Company Limited	
				May 2017 - November 2017	Chairman	PTT Oil Myanmar Company Limited	
				August 2012 - March 2017	Director	PTT (LAO) Company Limited	
				April 2015 - September 2016	Director	PTT Retail Management Company Limited	
				2014 - 2015	Executive Vice President, Retail Marketing	PTT Public Company Limited	

Name/ Position	Age (Year)	(%) of Share Possession	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<b>Dr. Buranin Rattanasombat (Continued)</b> Senior Executive Vice President, Downstream Business Group Alignment				<ul style="list-style-type: none"> <li>• PTT Leadership Development Program, Harvard Business School, USA</li> <li>• Advance Certificate Course in Public Administration and Law for Executives, King Prajadhipok's Institute (Class of 12<sup>nd</sup>)</li> <li>• Executive Development Program, Thai Listed Companies Association</li> </ul>	<b>Relevant Important Positions in Listed Companies - The Stock Exchange of Thailand (In the Previous Year)</b>		
					September 18, 2020 - Present	Director/ Member of the Nomination and Remuneration Committee,	Thai Oil Public Company Limited
					<b>Relevant Important Positions in Non Listed Company/ Other Organizations (In the Previous Year)</b>		
					December 2020 - Present	Chairman, Innobic (Asia) Company Limited	
					November 2020 - Present	Director, Thappline Company Limited	
					November 2019 - October 2020	Chairman, Thappline Company Limited	
					July 2019 - May 2020	Chairman, PTT (Cambodia) Limited	
					<b>Other Experiences/ Other Activities (In the Previous Year)</b>		
					2020 - Present	President Representative in IMT-GT Joint Business Council, Indonesia-Malaysia-Thailand Growth Triangle	
					2020 - Present	Vice President, Industry Promotion Division, The Federation of Thai Industries	
					2020 - Present	Director, Asia Logistics & Supply Chain Council	
					2018 - 2020	Secretary General, Marketing Association of Thailand	

Name/ Position	Age (Year)	(%) of Share Possession	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<b>Mr. Disathat Panyarachun</b> <ul style="list-style-type: none"> <li>Senior Executive Vice President, International Trading Business Unit</li> </ul> <p><b>Appointed:</b> October 1, 2018</p> 	56	None	None	<b>Education</b> <ul style="list-style-type: none"> <li>Bachelor of Social Science, Silpakorn University</li> <li>Master of Public Administration (Political Science), National University, San Diego, USA</li> </ul> <b>Certification</b> <ul style="list-style-type: none"> <li>Director Certification Program (DCP 206/2015), Ethical Leadership Program (ELP 19/2020), Thai Institute of Directors Association (IOD)</li> <li>Leadership Development Program III, PTT Leadership and Learning Institute (PLLI)</li> <li>Certification of Oil Futures Program, The Oxford Princeton, UK</li> <li>Certificate, Executive Program in Energy Literacy for a Sustainable Future, (Class of 14<sup>th</sup>), Thailand Energy Academy (TEA)</li> <li>Capital Market Academy Leader Program, (Class of 30<sup>th</sup>), Capital Market Academy (CMA)</li> </ul>	October 1, 2018 - Present	Senior Executive Vice President, International Trading Business Unit	PTT Public Company Limited
					February 1, 2016 - September 30, 2018	Executive Vice President, International Trading	PTT Public Company Limited
					August 1, 2015 - January 31, 2016	Vice President acting as Executive Vice President, International Trading	PTT Public Company Limited
					2012 - 2015	Vice President, PTT, working on a secondment as Managing Director	PTT International Trading Pte. Ltd.
					November 1, 2011 - 2018	Chairman	PTT International Trading DMCC
					<b>Relevant Important Positions in Listed Companies - The Stock Exchange of Thailand (In the Previous Year)</b>		
					June 22, 2020 - Present	Director/ Director to the Risk Management Committee,	PTT Global Chemical Public Company Limited
					October 22, 2018 - June 22, 2020	Director/ Director to the Corporate Governance Committee,	PTT Global Chemical Public Company Limited
					<b>Relevant Important Positions in Non Listed Company/ Other Organizations (In the Previous Year)</b>		
					October 24, 2016 - Present	Chairman, PTT International Trading London Ltd. (PTTT LDN)	
					November 1, 2012 - January 8, 2020	Director/ Acting Chairman, PTT International Trading Pte. Ltd. (PTTT) (Acting Chairman since October 3, 2018)	
					January 9, 2020 - Present	Director/ Chairman, PTT International Trading Pte. Ltd. (PTTT)	
					<b>Other Experiences/ Other Activities (In the Previous Year)</b>		
					-	-	


Name/ Position	Age (Year)	(%) of Share Possession	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<b>Mr. Noppadol Pinsupa</b> • Senior Executive Vice President, Innovation and Digital  <b>Appointed:</b> <i>December 1, 2020</i>  	56	0.002255 (own 0.000476; spouse 0.001779)	None	<b>Education</b> • Bachelor of Engineering (Electrical Engineering), Chulalongkorn University • Master of Engineering (Electrical Engineering), Chulalongkorn University	December 1, 2020 - Present	Senior Executive Vice President, Innovation and Digital	PTT Public Company Limited
					July 3, 2020 - November 30, 2020	Senior Executive Vice President, PTT, reporting to Chief Operating Officer, Downstream Petroleum Business Group working on a secondment as President and Chief Executive Officer	IRPC Public Company Limited
				<b>Certification</b> • Director Certification Program (DCP 146/2011), Financial Statements for Directors (FSD 12/2011) Thai Institute of Directors Association (IOD) • Leadership Development Program III, PTT Leadership and Learning Institute • Breakthrough Program For Senior Executives International Leading Business School (IMD), Lausanne, Switzerland • Assessor Training Program, Thailand Quality Award (TQA) • Financial Statement for Directors, PTT Public Company Limited • Seminar “Briefing on International Anti-Corruption...International Cases and Practices” (October 14, 2015), Thai Institute of Director Association (IOD) • Mitsui-Harvard Business School Global Management Academy 2015 Japan - USA • G-20Y Summit 2015 France • Program for Senior Executive on Justice Administration, (Class of 19 <sup>th</sup> ), Judicial Training Institute • Top Executives Program, (Class of 22 <sup>nd</sup> ), Capital Market Academy (CMA)	February 1, 2019 - July 3, 2020	Senior Executive Vice President, PTT, reporting to Chief Operating Officer, Downstream Petroleum Business Group working on a secondment as President	IRPC Public Company Limited
					February 1, 2019 - August, 2019	Chairman	PTT Energy Solutions Company Limited
					October 2017 - January 2019	Chairman	PTT Global LNG Company Limited
					2017	Chairman	PTTLNG Company Limited
					2015 - January 30, 2019	Director/ Member of the Risk Management Committee	Thai Oil Public Company Limited
					October 1, 2015 - January 31, 2019	Senior Executive Vice President, Gas Business Unit	PTT Public Company Limited
					2014 - 2018	Chairman	PTT Natural Gas Distribution Company Limited

Name/ Position	Age (Year)	(%) of Share Possession	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<b>Mr. Noppadol Pinsupa (Continued)</b> Senior Executive Vice President, Innovation and Digital				<ul style="list-style-type: none"> <li>The National Defence Course, (Class of 60<sup>th</sup>), National Defence College</li> <li>Executive Program on Rule of Law and Development (RoLD Program), Thailand Institute of Justice (TIJ) (2017)</li> <li>Certificate, Executive Program in Energy Literacy for a Sustainable Future, (Class of 14<sup>th</sup>), Thailand Energy Academy (TEA)</li> </ul>	<b>Relevant Important Positions in Listed Companies - The Stock Exchange of Thailand (In the Previous Year)</b>		
					December, 2020 - Present	Director/ Member of the Corporate Governance Committee,	IRPC Public Company Limited
					July 3, 2020 - November 30, 2020	Director/ Member of the Risk Management Committee/ President and Chief Executive/ Secretary of the Board of Directors,	IRPC Public Company Limited
					February 1, 2019 - July 3, 2020	Director/ Member of the Risk Management Committee/ President/ Secretary of the Board of Directors,	IRPC Public Company Limited
					<b>Relevant Important Positions in Non Listed Company/ Other Organizations (In the Previous Year)</b>		
					December 2, 2020 - Present	Chairman,	PTT Digital Solutions Company Limited
					December 2020 - Present	Director,	Alpha Com Company Limited
					May 2019 - November 2020	Chairman,	IRPC Oil Company Limited
					April 2019 - Present	Chairman,	IRPC Polyol Company Limited
					March 2019 - November 2020	Director,	IRPC Oil Company Limited
					March 2019 - December 2020	Chairman,	IRPC A&L Company Limited
					March 2019 - November 2020	Chairman,	IRPC Technology Company Limited
					March 2019 - December 2020	Chairman,	iPolymer Company Limited
					January 2019 - November 2020	Director,	UBE Chemicals (Asia) Public Company Limited
					August 2019 - November 2020	Vice Chairman,	PTT Energy Solutions Company Limited

Name/ Position	Age (Year)	(%) of Share Possession	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<b>Mr. Noppadol Pinsupa (Continued)</b> Senior Executive Vice President, Innovation and Digital					<b>Other Experiences/ Other Activities (In the Previous Year)</b>		
					February 1, 2019 - November 30, 2020	Executive Director, Thailand Energy Academy	
					2019 - Present	Advisor, Chulalongkorn University Alumni Association Under The Royal Patronage of His Majesty The King (Term 2019 - 2021)	
					November 1, 2019 - December 24, 2020	Member of Vidyasirimedhi Institute Council, Vidyasirimedhi Institute of Science and Technology (VISTEC)	
<b>Mr. Montri Rawanchaikul</b> • President and Acting Executive Vice President, Production Asset Group, PTT Exploration and Production Public Company Limited  <b>Appointed:</b> <i>October 1, 2020</i>  	56	0.000224 (own 0.000224; spouse 0)	None	<b>Education</b>	October 1, 2020 - Present	Senior Executive Vice President, PTT, Reporting to Chief Operating Officer, Upstream Petroleum and Gas Business Group working on a secondment as President and acting as Executive Vice President, Production Asset Group	PTT Exploration and Production Public Company Limited
				<ul style="list-style-type: none"> <li>Bachelor of Science (Physics), Chiang Mai University</li> <li>Master of Applied Science (Exploration Geophysics), University of New South Wales, Australia</li> </ul>			
				<b>Certification</b>	January 1, 2020 - September 30, 2020	Executive Vice President, Production Asset Group	PTT Exploration and Production Public Company Limited
				<ul style="list-style-type: none"> <li>Leadership Development Program III (LDP III), PTT Leadership and Learning Institute</li> <li>Certificate, Executive Program in Energy Literacy for a Sustainable Future, Thailand Energy Academy (TEA)</li> <li>The Corporate Governance: Regulation and Disclosure Training, The Thai Institute of Directors Association</li> <li>Leadership Development Program II (LDP II), PTT Leadership and Learning Institute</li> <li>EP LEAD III Leadership Development Program, IMD</li> </ul>	October 1, 2017 - December 31, 2019	Executive Vice President, Strategy and Business Development Group	PTT Exploration and Production Public Company Limited
					November 1, 2017 - September 30, 2018	Executive Vice President, Strategy and Business Development Group and Acting Senior Vice President, New Business Unit, and additional assigned as Project Champion, Spend Smart	PTT Exploration and Production Public Company Limited
					October 16, 2016 - September 30, 2017	Acting Executive Vice President, Strategy and Business Development Group	PTT Exploration and Production Public Company Limited




Name/ Position	Age (Year)	(%) of Share Possession	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<b>Mr. Montri Rawanchaikul (Continued)</b> President and Acting Executive Vice President, Production Asset Group, PTT Exploration and Production Public Company Limited					September 1, 2016 - October 15, 2016	Senior Vice President, International Asset	PTT Exploration and Production Public Company Limited
					July 15, 2016 - August 31, 2016	Senior Vice President, attached to Production Asset and Operations Support Group	PTT Exploration and Production Public Company Limited
					January 1, 2015 - July 14, 2016	Senior Vice President, Australia Asset and seconded as General Manager	PTTEP Australasia Limited
					<b>Relevant Important Positions in Listed Companies - The Stock Exchange of Thailand (In the Previous Year)</b>		
					-	-	
					<b>Relevant Important Positions in Non Listed Company/ Other Organizations (In the Previous Year)</b>		
					September 13, 2019 - January 8, 2020	Director, PTTEP HK Holding Limited	
					June 22, 2017 - Present	Director, PTT Global LNG Company Limited	
					<b>Other Experiences/ Other Activities (In the Previous Year)</b>		
					-	-	


Name/ Position	Age (Year)	(%) of Share Possession	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<b>Dr. Kongkrapan Intarajang</b> <ul style="list-style-type: none"> <li>Chief Executive Officer, PTT Global Chemical Public Company Limited</li> </ul> <b>Appointed:</b> October 1, 2019 	53	None	None	<b>Education</b> <ul style="list-style-type: none"> <li>Bachelor of Engineering (Chemical Engineering) (2<sup>nd</sup> Class Honor), Chulalongkorn University</li> <li>Ph.D. Chemical Engineering, University of Houston, USA</li> </ul>	October 1, 2019 - Present	Senior Executive Vice President, PTT, reporting to Chief Operating Officer, Downstream Petroleum Business Group working on a secondment as Chief Executive Officer	PTT Global Chemical Public Company Limited
				<b>Certification</b> <ul style="list-style-type: none"> <li>Director Certification Program (DCP 119/2009), Role of the Chairman Program (RCP 21/2009), Thai Institute of Directors Association (IOD)</li> <li>Breakthrough Program for Senior Executives, IMD Business School</li> <li>Diploma, The National Defence College of Thailand, (Class of 60<sup>th</sup>) (NDC 60)</li> <li>The Executive Program in Energy Literacy for a Sustainable Future, (Class of 14<sup>th</sup>), Thailand Energy Academy (TEA)</li> <li>Leadership Development Program III (LDP 3) (Class 4/2019), PTT Leadership and Learning Institute (PLLI)</li> <li>Capital Market Academy Leader Program, (Class of 30<sup>th</sup>), Capital Market Academy (CMA)</li> <li>Executive Development Training Program, the Royal Thai Police</li> </ul>	April 2017 - September 30, 2019	Chief Operating Officer - Upstream Petrochemical Business	PTT Global Chemical Public Company Limited
					July 2015 - September 2019	Director/ President & CEO	PTTGC America Corporation
					April 2015 - September 2019	Director	PTTGC Innovation America Corporation
					February 2015 - September 2019	Director	PTTGC International (Netherlands) B.V.
					January 2015 - September 2019	Director	Vencorex Holding
					November 2008 - September 2019	Director	Emery Oleochemicals (M) Sdn. Bhd.
					November 2008 - September 2019	Director	Emery Specialty Chemicals Sdn. Bhd.
					October 2014 - March 2017	Executive Vice President - International Business Operations	PTT Global Chemical Public Company Limited
					September 2014 - December 2018	Director	NatureWorks LLC
					September 2014 - December 2018	Director/ Vice President	PTTGC International (USA) Inc.

Name/ Position	Age (Year)	(%) of Share Possession	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<b>Dr. Kongkrapan Intarajang (Continued)</b> Chief Executive Officer, PTT Global Chemical Public Company Limited					<b>Relavant Important Positions in Listed Companies - The Stock Exchange of Thailand (In the Previous Year)</b>		
					October 21, 2020 - Present	Chairman, Global Green Chemicals Public Company Limited	
					November 6, 2019 - October 20, 2020	Director, Global Green Chemicals Public Company Limited	
					October 1, 2019 - Present	Director/ Secretary to the Board of Directors/ Director to the Risk Management Committee/ Chief Executive Officer, PTT Global Chemical Public Company Limited	
					August 15, 2017 - Present	Director/ Member of the Risk Management Committee, Global Power Synergy Public Company Limited	
					<b>Relevant Important Positions in Non Listed Company/ Other Organizations (In the Previous Year)</b>		
					September 1, 2020 - Present	Chairman, GC International Corporation (GCI)	
					May 2017 - January 2020	Director, Thai Tank Terminal Limited	
					July 1, 2015 - Present	Chairman, PTTGC America LLC	
					July 1, 2015 - Present	Chairman, PTTGC America Corporation	
					September 1, 2020 - Present	Chairman, PTTGC International Private Limited	
					<b>Other Experiences/ Other Activities (In the Previous Year)</b>		
					October 22, 2020 - Present	Director, Association of Capital Market Academy Alumni	
					October 1, 2020 - Present	Advisor of the Member Relations, the Federation of Thai Industries	
					September 30, 2020 - Present	Director, The Federation of Thai Industries	
					August 24, 2020 - Present	Committee Member of Sustainable Energy Foundation	

Name/ Position	Age (Year)	(% of Share Possession	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<b>Dr. Kongkrapan Intarajang (Continued)</b> Chief Executive Officer, PTT Global Chemical Public Company Limited					March 11, 2020 - Present	Vice President (Supporting), Thailand Swimming Association	
					January 30, 2020 - Present	Member of Vidyasirimedhi Institute Council, Vidyasirimedhi Institute of Science and Technology (VISTEC)	
					October 30, 2019 - Present	Member of Trustee, The Petroleum Institute of Thailand (PTIT)	
					October 3, 2019 - Present	Council of Trustee, Thailand Business Council of Sustainable Development (TBCSD)	
					October 1, 2019 - Present	Executive Director, Thailand Energy Academy	
					August 15, 2019 - Present	Director, Kamnoetvidya Science Academy (KVIS)	
					July 2017 - Present	Co-Chairman, France - Thailand Business Forum	
					November 2019 - September 2020	Director, Power of Innovation Foundation	
					October 2019 - September 2020	Director, Power of Learning Foundation	

Name/ Position	Age (Year)	(%) of Share Possession	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<b>Mr. Wirat Uanarumit</b> • Chief Executive Officer and President, Thai Oil Public Company Limited  <b>Appointed:</b> <i>September 1, 2019</i>  	58	0.000599 (own 0.000557; spouse 0.000042)	None	<b>Education</b> • Bachelor of Engineering (Electrical Engineering), Chulalongkorn University • Master of Business Administration, with emphasis in Financial Management, Pennsylvania State University, Pennsylvania, USA	September 1, 2019 - Present	Chief Operating Officer reporting to Chief Operating Officer, Downstream Petroleum Business Group, PTT, working on a secondment as Chief Executive Officer and President	Thai Oil Public Company Limited
				<b>Certification</b> • Director Certification Program (DCP 8/2001), Director Certification Program Update (DCPU 5/2015), Audit Committee Program (ACP 38/2012), Ethical Leadership Program (ELP 7/2017), Thai Institute of Directors Association (IOD) • GE Global Customer Summit Crotonville • Member, Beta Gamma Sigma (US National Scholastic Honour Society in Business) • Advance Management Programme, INSEAD Business School, Fontainebleau, France • Advanced Management Program (Class of 184 <sup>th</sup> ), Harvard Business School, USA • Capital Market Academy Leader Program, (Class of 4 <sup>th</sup> ), Capital Market Academy (CMA) • The Programme for Senior Executives on Justice Administration, (Class of 16 <sup>th</sup> ), Judicial Training Institute, National Justice Academy • Advanced Security Management Program, (Class of 2 <sup>nd</sup> ), The National Defence College Association of Thailand (NDCAT)	October 1, 2016 - August 31, 2019	Chief Operating Officer, Upstream Petroleum and Gas Business Group	PTT Public Company Limited
					2015 - August 31, 2019	Director/ Member of the Risk Management Committee	PTT Exploration and Production Public Company Limited
					November 30, 2018 - 2019	Director/ Chairman of the Board	PTTLNG Company Limited
					October 2016 - 2019	Director	Sakari Resources Limited
					June 2017 - October 2017	Chairman	PTT Global LNG Company Limited
					2016 - 2017	Chairman	PTT Energy Resources Company Limited
					January - September 2016	Director	Thai Oil Public Company Limited
					May 1, 2014 - September 30, 2016	Chief Financial Officer	PTT Public Company Limited
					<b>Relevant Important Positions in Listed Companies - The Stock Exchange of Thailand (In the Previous Year)</b>		
					September 1, 2019 - Present	Director/ Secretary to the Board of Directors/ Member of the Risk Management Committee/ Chief Executive Officer and President, Thai Oil Public Company Limited	
					September 1, 2019 - Present	Director/ Member of the Risk Management Committee, Global Power Synergy Public Company Limited	


Name/ Position	Age (Year)	(%) of Share Possession	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<b>Mr. Wirat Uanarumit (Continued)</b> Chief Executive Officer and President, Thai Oil Public Company Limited				<ul style="list-style-type: none"> <li>Executive Development Program (EDP), (Class of 1<sup>st</sup>), Thai Listed Companies Association (TLCA)</li> <li>The Joint State - Private Sector Course (Class 2013), National Defence College</li> <li>Executive Management with Business Development and Investment (Class of 2<sup>nd</sup>), Institute of Business and Industrial Development (IBID)</li> <li>Advanced Certificate Course in Politics and Governance in Democratic Systems for Executives, (Class of 20<sup>th</sup>), King Prajadhipok's Institute</li> <li>The Rules of Law for Democracy (Class of 6<sup>th</sup>), College of the Constitutional Court</li> <li>Certificate, Executive Program in Energy Literacy for a Sustainable Future, (Class of 13<sup>rd</sup>), Thailand Energy Academy (TEA)</li> <li>Thailand CG Forum: Governance as a Driving Force for Business Sustainability, The Stock Exchange of Thailand</li> </ul>	<b>Relevant Important Positions in Non Listed Company/ Other Organizations (In the Previous Year)</b>		
					November 2019 - Present	Director/ Chairman, Labix Company Limited	
					September 2019 - Present	Director/ Chairman of the Board, Thailoil Power Company Limited	
					September 2019 - Present	Director/ Chairman of the Board, Thai Paraxylene Company Limited	
					November 2019 - March 2020	Director, Thailoil Solvent Company Limited	
					September 2019 - April 2020	Director/ Chairman of the Board, TOP SPP Company Limited	
					September 2019 - April 2020	Director/ Chairman of the Board, Thai Lube Base Public Company Limited	
					September 2019 - April 2020	Director/ Chairman of the Board, Thailoil Marine Company Limited	
					<b>Other Experiences/ Other Activities (In the Previous Year)</b>		
					2020 - Present	Director, The Federation of Thai Industries (FTI) (Term 2020 - 2022)	
					2020 - Present	Vice President - Economic and Academic Work, The Federation of Thai Industries (FTI)	
					2020 - Present	Director, The Joint Standing Committee on Commerce, Industry and Banking (JSCCB)	
					2020 - Present	Director, National Economic Reform Steering Committee	
					2020 - Present	Advisory Committee, Promoting and Supporting Office of Industries, The Federation of Thai Industries (FTI)	
					March 2020 - Present	Director, Power for Sustainable Future Foundation (PSF)	
					November 2019 - Present	Member of Council, Vidyasirimedhi Institute of Science and Technology (VISTEC)	

Name/ Position	Age (Year)	(%) of Share Possession	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<b>Mr. Wirat Uanarumit (Continued)</b> Chief Executive Officer and President, Thai Oil Public Company Limited					September 2019 - Present	Executive Director, Thailand Swimming Association (TSA)	
					September 2019 - Present	Member of Trustee (as Company Representative), Petroleum Institute of Thailand (PTIT)	
					September 2019 - Present	Council of Trustee, Thailand Business Council of Sustainable Development (TBCSD)	
					September 2019 - Present	Executive Director, Thailand Energy Academy (TEA)	
					August 2016 - Present	Advisor to the President, Association of Capital Market Academy (ACMA)	
					2013 - Present	Director/ Member of Audit Committee, Thailand Management Association (TMA)	
<b>Mr. Chawalit Tippawanich</b> • President and Chief Executive Officer, IRPC Public Company Limited  <b>Appointed:</b> <i>December 1, 2020</i>  	58	0.000035 (own 0.000035; spouse 0)	None	<b>Education</b> • Bachelor of Engineering (Electrical - Telecommunication Engineering) (Second-Class Honors), King Mongkut's Institute of Technology Ladkrabang • Master of Engineering (Industrial Engineering and Management), Asian Institute of Technology (AIT)	December 1, 2020 - Present	Senior Executive Vice President, PTT, reporting to Chief Operating Officer, Downstream Petroleum Business Group working on a secondment as President and Chief Executive Officer	IRPC Public Company Limited
				<b>Certification</b> • Advance Management Program (AMP 187) - Harvard Business School, Executive Education, USA • GE Energy Customer Executive Leadership Program (GE: PTT Executive Leadership) - GE Global Learning Crotonville Leadership Institute, USA	October 1, 2018 - November 30, 2020	Senior Executive Vice President, PTT, reporting to Chief Technology and Engineering Officer working on a secondment as President and Chief Executive Officer	Global Power Synergy Public Company Limited
					2017 - September 30, 2018	Executive Vice President, Downstream Business Group Alignment, PTT, working on a secondment as Executive Vice President - Organization Effectiveness	Thai Oil Public Company Limited



Name/ Position	Age (Year)	(%) of Share Possession	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<b>Mr. Chawalit Tippawanich (Continued)</b> President and Chief Executive Officer, IRPC Public Company Limited				<ul style="list-style-type: none"> <li>Advanced Certificate Course in Politics and Governance in Democratic Systems for Executives (Batch 23)</li> <li>Top Executives in the Energy Education Program (Batch 12), Thailand Energy Academy</li> <li>The Joint State-Private Sector Course (Batch 5), Police College</li> <li>Leadership Development Program III (Batch 2), PTT Leadership and Learning Institute</li> <li>Director Certification Program (DCP), Class 152/2011, Thai Institute of Directors Association (IOD)</li> </ul>	2015 - 2016	Executive Vice President, Downstream Business Group Alignment, PTT, working on a secondment as President	HMC Polymers Co., Ltd. (JV with LyondellBasell)
					<b>Relavant Important Positions in Listed Companies - The Stock Exchange of Thailand (In the Previous Year)</b>		
					December 1, 2020 - Present	Director/ Member of the Risk Management Committee/ Secretary to the Board/ President and Chief Executive Officer, IRPC Public Company Limited	
					December 4, 2020 - Present	Director, UBE Chemicals (Asia) Public Company Limited	
					October 1, 2018 - November 30, 2020	Director/ Member of the Risk Management Committee/ Secretary to the Board/ President and Chief Executive Officer, Global Power Synergy Public Company Limited	
					<b>Relevant Important Positions in Non Listed Company/ Other Organizations (In the Previous Year)</b>		
					January 7, 2019 - November 30, 2020	Director, Ratchaburi Power Company Limited	
					November 7, 2018 - November 30, 2020	Director, Xayaburi Power Company Limited	
					April 23, 2019 - November 30, 2020	Director, Glow Energy Public Company Limited	
					March 15, 2019 - November 30, 2020	Director, Glow Company Limited	
					March 15, 2019 - November 30, 2020	Director, Glow SPP2 Company Limited	

Name/ Position	Age (Year)	(%) of Share Possession	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<b>Mr. Chawalit Tippawanich (Continued)</b> President and Chief Executive Officer, IRPC Public Company Limited					March 15, 2019 - November 30, 2020	Director, Glow SPP3 Company Limited	
					March 15, 2019 - November 30, 2020	Director, Glow IPP2 Holding Company Limited	
					March 15, 2019 - November 30, 2020	Director, Glow SPP11 Company Limited	
					March 15, 2019 - November 30, 2020	Director, Glow IPP Company Limited	
					December 17, 2020 - Present	Chairman, iPolymer Company Limited	
					December 22, 2020 - Present	Deputy Chairman, PTT Energy Solutions Company Limited	
					December 24, 2020 - Present	Chairman, IRPC Technology Company Limited	
					December 24, 2020 - Present	Chairman, IRPC A&L Company Limited	
					<b>Other Experiences/ Other Activities (In the Previous Year)</b>		
					July 2020 - Present	Director, The Federation of Thai Industries	


Name/ Position	Age (Year)	(%) of Share Possession	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<b>Mr. Worawat Pitayasiri</b> <ul style="list-style-type: none"> <li>President and Chief Executive Officer, Global Power Synergy Public Company Limited</li> </ul> <b>Appointed:</b> December 1, 2020 	54	None	None	<b>Education</b> <ul style="list-style-type: none"> <li>Bachelor of Engineering (Chemical Engineering), Chulalongkorn University</li> <li>Master of Business Administration (Management), Thammasat University</li> </ul> <b>Certification</b> <ul style="list-style-type: none"> <li>Director Certification Program (DCP) (class of 2012), Thai Institute of Directors Association (IOD)</li> <li>Asia Petrochemical Industry Conference (APIC) (Class 2/2017), Japan Petrochemicals Industry Association</li> <li>PTT Group VP Leadership Development Program, PTT Public Company Limited</li> <li>NIDA-Wharton Executive Leadership Program (Class of 2009), The Wharton School of the University of Pennsylvania, USA</li> <li>Senior Executive Program (Class 26/2012), Sasin Graduate Institute of Business Administration, Chulalongkorn University</li> <li>Democratic Politics and Governance for High-Level Administrators Program, (Class of 22<sup>nd</sup>), King Prajadhipok's Institute</li> </ul>	December 1, 2020 - Present	Senior Executive Vice President, PTT, reporting to Chief Technology and Engineering Officer working on a secondment as President and Chief Executive Officer	Global Power Synergy Public Company Limited
					September 16, 2018 - November 30, 2020	Senior Executive Vice President, Innovation and Digital	PTT Public Company Limited
					June 2019 - August 2019	Director	PTT Energy Solutions Company Limited
					November 27, 2017 - November 4, 2019	Committee	Community Partnership Association
					May 2018 - November 2018	Director	PTT Tank Terminal Company Limited
					October 1, 2016 - September 15, 2018	Executive Vice President, Downstream Business Group Planning	PTT Public Company Limited
					March 31, 2016 - September 30, 2016	Executive Vice President under Senior Executive Vice President, Downstream Business Group Alignment	PTT Public Company Limited
					July 1, 2015 - March 30, 2016	Executive Vice President, PTT, working on a secondment as President	PTT MCC Biochem Company Limited
					<b>Relevant Important Positions in Listed Companies - The Stock Exchange of Thailand (In the Previous Year)</b>		
					December 1, 2020 - Present	Director/ Secretary to the Board/ Member of the Risk Management Committee/ President and Chief Executive Officer, Global Power Synergy Public Company Limited	
					September 2018 - November 30, 2020	Director/ Member of Risk Management Committee,	IRPC Public Company Limited

Name/ Position	Age (Year)	(%) of Share Possession	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<b>Mr.Worawat Pitayasiri (Continued)</b> President and Chief Executive Officer, Global Power Synergy Public Company Limited					<b>Relevant Important Positions in Non Listed Company/ Other Organizations (In the Previous Year)</b>		
					March 3, 2020 - November 29, 2020	Director, Alpha Com Company Limited	
					February 27, 2020 - November 29, 2020	Chairman, PTT Raise Company Limited	
					October 2019 - November 29, 2020	Director, PTT Digital Solutions Company Limited	
					November 11, 2019 - November 29, 2020	Chairman, PTT Digital Solutions Company Limited	
					November 2019 - February 2020	Director, InnoSpace (Thailand) Company Limited	
					December 1, 2020 - Present	Director, Xayaburi Power Company Limited	
					December 1, 2020 - Present	Director, Ratchaburi Power Company Limited	
					December 1, 2020 - Present	Director, Glow Energy Public Company Limited	
					December 1, 2020 - Present	Director, Glow Company Limited	
					December 1, 2020 - Present	Director, Glow SPP 2 Company Limited	
					December 1, 2020 - Present	Director, Glow SPP 3 Company Limited	
					December 1, 2020 - Present	Director, Glow IPP 2 Holding Company Limited	
					December 1, 2020 - Present	Director, Glow SPP 11 Company Limited	
					December 1, 2020 - Present	Director, Glow IPP Company Limited	

Name/ Position	Age (Year)	(%) of Share Possession	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<b>Mr.Worawat Pitayasiri (Continued)</b> President and Chief Executive Officer, Global Power Synergy Public Company Limited					<b>Other Experiences/ Other Activities (In the Previous Year)</b>		
					February 28, 2019 - November 30, 2020	Member of the Executive Board, Vidyasirimedhi Institute of Science and Technology	
					December 2020 - Present	Advisory to the Board of Director, Alpha Com Company Limited	
<b>Miss Jiraphon Kawswat</b> <ul style="list-style-type: none"> <li>Acting President and Chief Executive Officer, PTT Oil and Retail Business Public Company Limited</li> </ul> <b>Appointed:</b> <i>July 1, 2018</i>	58	None	None	<b>Education</b> <ul style="list-style-type: none"> <li>Bachelor of Science (Accounting), Kasetsart University</li> <li>Master of Accountancy (Cost Accounting), Chulalongkorn University</li> <li>Master of Business Administration (Financial Management), Kasetsart University</li> </ul>	July 1, 2018 - Present	Senior Executive Vice President, PTT, reporting to Chief Operating Officer, Downstream Petroleum Business Group working on a secondment as Acting President and Chief Executive Officer	PTT Oil and Retail Business Public Company Limited
				<b>Certification</b> <ul style="list-style-type: none"> <li>Director Certification Program (DCP 180/2013), Director Certification Program Update (DCPU 2/2014), How to Develop a Risk Management Plan (HRP 6/2014), Successful Formulation &amp; Execution of Strategy (SFE 21/2014), Thai Institute of Directors Association (IOD)</li> <li>Senior Executive Program, London Business School, UK</li> <li>Leadership Development Program III, (Class 2/2015), PTT Leadership and Learning Institute</li> </ul>	February 14, 2018 - August 20, 2018	Director	IRPC Public Company Limited
					October 1, 2017 - June 30, 2018	Senior Executive Vice President, Oil Business Unit	PTT Public Company Limited
					2015 - October 15, 2019	Chairman	PTT Retail Management Company Limited
					2016 - September 30, 2017	Executive Vice President, PTT, working on a secondment as Managing Director	PTT Retail Management Company Limited
					2012 - 2016	Executive Vice President, Planning, Oil Business Unit	PTT Public Company Limited
					<b>Relevant Important Positions in Listed Companies - The Stock Exchange of Thailand (In the Previous Year)</b>		
					-	-	





Name/ Position	Age (Year)	(%) of Share Possession	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<b>Miss Jiraphon Kawswat (Continued)</b> Acting President and Chief Executive Officer, PTT Oil and Retail Business Public Company Limited				<ul style="list-style-type: none"> <li>Strategic Thinking Through Case</li> <li>PTT Group VP Leadership Development Program</li> <li>TLCA Executive Development Program (EDP), Thai Listed Companies Association</li> <li>PTT Group PLLI 3 Leadership Greatness: Great Leaders, Great Teams, Great Results</li> <li>Top Executive Program (Class of 26<sup>th</sup>), Capital Market Academy (CMA)</li> <li>Certificate, Executive Program in Energy Literacy for a Sustainable Future (Class 12/2018), Thailand Energy Academy (TEA)</li> <li>Executive Program on Rule of Law and Development (RoLD Program 3/2019), Thailand Institute of Justice</li> <li>Corporate Governance Program for Directors and Executives of State Enterprises and Public Organization (Class 20/2019), King Prajadhipok's Institute</li> </ul>	<b>Relevant Important Positions in Non Listed Company/ Other Organizations (In the Previous Year)</b>		
					2018 - Present	Director/ Member of the Enterprise Risk Management Committee/ Secretary to the Board/ Acting President and Chief Executive Officer, PTT Oil and Retail Business Public Company Limited	
					<b>Other Experiences/ Other Activities (In the Previous Year)</b>		
					May 2019 - Present	Executive Director, Thailand Energy Academy	

Name/ Position	Age (Year)	(%) of Share Possession	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<b>Mr. Yongyos Krongphanich</b> <ul style="list-style-type: none"> <li>Executive Vice President, Group Corporate Finance and Strategy</li> </ul> <b>Appointed:</b> January 1, 2019 	60	0.000011 (own 0.000011; spouse 0)	None	<b>Education</b> <ul style="list-style-type: none"> <li>Bachelor of Accounting, Chulalongkorn University</li> <li>Master of Accounting, Thammasat University</li> </ul>	January 1, 2019 - December 30, 2020	Executive Vice President, PTT Exploration and Production Public Company Limited, working on a secondment as Executive Vice President, Group Corporate Finance and Strategy*	PTT Public Company Limited
				<b>Certification</b> <ul style="list-style-type: none"> <li>The Corporate Governance: Regulation and Disclosure Training (2017), Thai Institute of Directors Association (IOD)</li> <li>ICT Management for Non-ICT Executive (2013), NSTDA Academy, National Science and Technology Development Agency</li> </ul>	October 1, 2018 - December 31, 2018	Executive Vice President, Finance and Accounting Group/ Acting Senior Vice President, Finance Division	PTT Exploration and Production Public Company Limited
					2014 - 30 September 2018	Senior Vice President, Finance Division/ Acting Senior Vice President, Accounting Division	PTT Exploration and Production Public Company Limited
					<b>Relevant Important Positions in Listed Companies - The Stock Exchange of Thailand (In the Previous Year)</b>		
					-	-	
					<b>Relevant Important Positions in Non Listed Company/ Other Organizations (In the Previous Year)</b>		
					March 3, 2020 - December 15, 2020	Director, Alpha Com Company Limited	
					April 2019 - May 2020	Chairman, PTT Regional Treasury Center Pte. Ltd.	
					April 2019 - April 2020	Chairman, PTT Global Management Company Limited	
					<b>Other Experiences/ Other Activities (In the Previous Year)</b>		
					-	-	


\* Transferred to PTT Exploration and Production Public Company Limited with effect from December 31, 2020.



Name/ Position	Age (Year)	(%) of Share Possession	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<b>Mrs. Chanamas Sasnanand</b> • Executive Vice President, Group Corporate Finance and Strategy  <b>Appointed:</b> <i>January 1, 2021</i>  	51	0.000455 (own 0.000455; spouse 0)	None	<b>Education</b> <ul style="list-style-type: none"> <li>Bachelor of Administration, Chulalongkorn University</li> <li>Master of Business Administration University of South Carolina, USA</li> </ul> <b>Certification</b> <ul style="list-style-type: none"> <li>TLCA Executive Development Program, Thai Listed Companies Association</li> <li>Leadership Development Program II (LDP II), PTT Leadership and Learning Institute</li> <li>EP LEAD III Leadership Development Program, IMD</li> <li>Senior Executive Program, Sasin Graduate Institute of Business Administration of Chulalongkorn University</li> <li>Audit Report Process, Federation of Accounting Professions Under The Royals Patronage of His Majesty The King</li> <li>Audit Process, Federation of Accounting Professions Under The Royals Patronage of His Majesty The King</li> </ul>	January 1, 2021 - Present	Senior Vice President, PTT Exploration and Production Public Company Limited, working on a secondment as Executive Vice President, Group Corporate Finance and Strategy	PTT Public Company Limited
					January 2019 - December 2020	Senior Vice President, Finance Division	PTT Exploration and Production Public Company Limited
					April - December 2018	Senior Vice President, Internal Audit Division	PTT Exploration and Production Public Company Limited
					January - April 2018	Acting Senior Vice President, Internal Audit Division	PTT Exploration and Production Public Company Limited
					July 2014 - December 2017	Vice President, Capital and Investor Relations Department	PTT Exploration and Production Public Company Limited
					March 20, 2015 - January 1, 2018	Director	PTTEP Holding Company Limited
					March 20, 2015 - January 1, 2018	Director	PTTEP Offshore Investment Company Limited
					September 10, 2013 - January 1, 2018	Director	PTTEP HK Holding Limited
					April 22, 2011 - January 1, 2018	Director	PTTEP Romana Company Limited
					<b>Relevant Important Positions in Listed Companies - The Stock Exchange of Thailand (In the Previous Year)</b>		
					-	-	


Name/ Position	Age (Year)	(% of Share Possession	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<b>Mrs. Chanamas Sasnanand (Continued)</b> Executive Vice President, Group Corporate Finance and Strategy					<b>Relevant Important Positions in Non Listed Company/ Other Organizations (In the Previous Year)</b>		
					January 11, 2021 - Present	Director, PTT International Trading Pte. Ltd.	
					January 4, 2021 - Present	Director, PTT Treasury Center Company Limited	
					January 1, 2021 - Present	Director, Alpha Com Company Limited	
					January 1, 2019 - Present	Director, AI and Robotics Ventures Company Limited	
					January 1, 2019 - January 1, 2021	Director, PTTEP Treasury Center Company Limited	
					August 1, 2020 - January 1, 2021	Director, PTTEP Business Center Company Limited	
					<b>Other Experiences/ Other Activities (In the Previous Year)</b>		
<b>Miss Wilaiwan Kanjanakanti</b> • Executive Vice President, Group Finance and Accounting Policy  <b>Appointed:</b> <i>November 1, 2016</i>  	54	0.00013 (own 0.00013)	None	<b>Education</b> • Bachelor of Accountancy, Chulalongkorn University • Master of Science in Accounting Information System (M.S. in AIS), Faculty of Commerce and Accountancy, Chulalongkorn University  <b>Certification</b> • Director Certification Program (DCP 234/2017), Thai Institute of Directors Association (IOD) • Leadership Development Program II (LDP 2), Harvard Business School, Shanghai	November 1, 2016 - Present	Executive Vice President, Group Finance and Accounting Policy (Changed the name of the position to Executive Vice President, Group Accounting and Tax Policy with effect from January 1, 2021)	PTT Public Company Limited
					June 1, 2016 - October 31, 2016	Vice President, Treasury	PTT Public Company Limited
					May 1, 2016 - Mar 31, 2017	Director	PTT Regional Treasury Center Pte. Ltd.
					February 25, 2016 - April 25, 2018	Director	PTT Retail Business Company Limited (Changed company name to PTT Oil and Retail Business Company Limited on December 15, 2016)
					September 1, 2014 - May 31, 2016	Vice President, Managerial Accounting	PTT Public Company Limited

Name/ Position	Age (Year)	(%) of Share Possession	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<b>Miss Wilaiwan Kanjanakanti (Continued)</b> (Changed the name of the position to Executive Vice President, Group Accounting and Tax Policy with effect from January 1, 2021)				<ul style="list-style-type: none"> <li>Executive Development Program, The Stock Exchange of Thailand</li> <li>Executive Development Program 2012 (Class of 8<sup>th</sup>) (EDP-MOF 2012), Fiscal Policy Research Institute Foundation</li> <li>Advanced Management Program 3 (AMP 3), PTT Leadership and Learning Institute (PLLI)</li> <li>Leadership Development Program III (LDP 3), IMD Singapore</li> <li>Financial and Fiscal Management for Senior Executive Program (FME-MOF)</li> </ul>	January 1, 2012 - August 31, 2014	Vice President, Accounting Policy and Advisory	PTT Public Company Limited
					2014 - 2017	Committee of the Accounting Profession in Management Accounting Committee	Federation of Accounting Professions under the Royal Patronage of His Majesty the King
					<b>Relevant Important Positions in Listed Companies - The Stock Exchange of Thailand (In the Previous Year)</b>		
					April 24, 2017 - Present	Director, Dhipaya Insurance Public Company Limited	
					<b>Relevant Important Positions in Non Listed Company/ Other Organizations (In the Previous Year)</b>		
					September 19, 2020 - Present	Director, Dhipaya Group Holdings Public Company Limited	
					April 25, 2018 - December 15, 2020	Director, PTT Oil and Retail Business Public Company Limited	
					February 1, 2017 - Present	Director, PTT Green Energy Pte. Ltd.	
					<b>Other Experiences/ Other Activities (In the Previous Year)</b>		
					July 16, 2018 - August 4, 2020	Treasurer, Marketing Association of Thailand	
					2017 - 2020	Sub-committee of the Accounting Technical Standards Sub-committee, Federation of Accounting Professional, Federation of Accounting Professions under the Royal Patronage of His Majesty the King	

Name/ Position	Age (Year)	(% of Share Possession	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<b>Ms. Jaroonsri Wankertphon</b> • Executive Vice President, Global Business Services  <b>Appointed:</b> October 1, 2020    (The person supervising Accounting)	55	0.000091 (own 0.000091)	None	<b>Education</b> • BBA (Business Administration), Chulalongkorn University • B.B.A. (Accounting), Krirk University • M.Sc. (Financial Accounting), Thammasat University	October 2020 - Present	Senior Vice President, attached to Executive Vice President, PTT Exploration and Production Public Company Limited, working on a secondment as Executive Vice President, Global Business Services	PTT Public Company Limited
				<b>Certification</b> • Director Certification Program (DCP 220/2016), Thai Institute of Directors Association (IOD) • TLCA Executive Development Program, Thai Listed Companies Association • Financial & Fiscal Management Program for Senior Executive (Class 6/2019), The Comptroller General's Department • EP LEAD III Leadership Development Program, IMD	January 2019 - September 2020	Senior Vice President, Accounting Division	PTT Exploration and Production Public Company Limited
				<b>Continuing Professional Development 2019</b> • TFRS 62 - CPD (Accounting) 6 hours • TAS 12 - CPD (Accounting) 7 hours • PwC Thailand's 2019 Symposium: Connecting the dots: Managing corporate challenges in 2020 and beyond - Financial Reporting Update - CPD (Accounting) 6.30 hours • IFRS Masterclass: Updates and Practical Applications 2019/2020	October - December 2018	Senior Vice President, Accounting Division and Acting Vice President, Financial Accounting Department	PTT Exploration and Production Public Company Limited
					July 2016 - September 2018	Senior Vice President, Accounting Division	PTT Exploration and Production Public Company Limited
					October 2015 - June 2016	Vice President, Accounting Policy and Solution Department, and Acting Senior Vice President, Accounting Division	PTT Exploration and Production Public Company Limited
					<b>Relevant Important Positions in Listed Companies - The Stock Exchange of Thailand (In the Previous Year)</b>		
					-	-	

Name/ Position	Age (Year)	(%) of Share Possession	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<b>Ms. Jaroonsri Wankertphon (Continued)</b> Executive Vice President, Global Business Services				<b>Continuing Professional Development 2020</b> <ul style="list-style-type: none"> <li>TFRSs - CPD (Accounting) 6 hours</li> </ul> An Accountant with criteria Specified by the Department of Business Development	<b>Relevant Important Positions in Non Listed Company/ Other Organizations (In the Previous Year)</b>		
					March 20, 2015 - October 1, 2020	Director, PTTEP HK Holding Limited	
					January 1, 2018 - October 1, 2020	Director, PTTEP Holding Company Limited	
					April 22, 2011 - October 1, 2020	Director, PTTEP Sadang Limited	
					February 28, 2019 - September 23, 2020	Director, Energy Complex Company Limited	
					<b>Other Experiences/ Other Activities (In the Previous Year)</b>		
					-	-	

## • Company Secretary

Name/ Position	Age (Year)	(%) of Share Possession	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<b>Mr. Nisit Phongvutirapant</b> • Company Secretary  <b>Appointed:</b> <i>October 1, 2020</i>  • Executive Vice President, Company Secretary and Corporate Relation  <b>Appointed:</b> <i>October 1, 2020</i>  	50	0.000003 (own 0.000003; spouse 0)	None	<b>Education</b> • Bachelor of Economics (Development Economics), Bangkok University  <b>Certification</b> • Director Certification Program (DCP 195/2014), Company Secretary Program (CSP 113/2020), Thai Institute of Directors Association (IOD) • Advanced Management Program II (Batch 1/2018), PTT Leadership and Learning Institute • Leadership Development Program I (2013), PTT Leadership and Learning Institute • Bain Academy Asia Pacific 2019 Program, Bain & Company SE Asia, Inc., Singapore	October 1, 2020 - Present	Senior Executive Vice President, PTT Oil and Retail Business Public Company Limited, working on a secondment as Executive Vice President, Company Secretary and Corporate Relation	PTT Public Company Limited
					June 1, 2020 - September 30, 2020	Senior Executive Vice President, Corporate Strategy, Innovation and Sustainability	PTT Oil and Retail Business Public Company Limited
					February 1, 2020 - May 31, 2020	Vice President, Strategy and Portfolio Management Department	PTT Oil and Retail Business Public Company Limited
					May 1, 2019 - January 31, 2020	Vice President, PTT Oil and Retail Business Public Company Limited, working on a secondment as Managing Director	PTT Oil Myanmar Company Limited
					July 1, 2018 - April 30, 2019	Vice President, International Business Development and Planning Department	PTT Oil and Retail Business Public Company Limited
					May 17, 2017 - April 30, 2019	Director	PTT Philippines Corporation
					2012 - April 30, 2019	Director	PTT (Lao) Company Limited
					January 1, 2017 - June 30, 2018	Vice President, International Business Development and Planning Department	PTT Public Company Limited
					September 1, 2013 - December 31, 2016	Division Manager, PTT Public Company Limited, working on a secondment as Managing Director	PTT (Lao) Company Limited

Name/ Position	Age (Year)	(%) of Share Possession	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<b>Mr. Nisit Phongvutirapant (Continued)</b> Company Secretary Executive Vice President, Company Secretary and Corporate Relation					<b>Relevant Important Positions in Listed Companies - The Stock Exchange of Thailand (In the Previous Year)</b>		
					-	-	
					<b>Relevant Important Positions in Non Listed Company/ Other Organizations (In the Previous Year)</b>		
					June 5, 2020 - September 30, 2020	Director, Modulus Company Limited (Modulus)	
					June 22, 2020 - September 30, 2020	Director, PTT (Cambodia) Ltd. (PTTCL)	
					November 29, 2019 - September 30, 2020	Director, Brighter Energy Company Limited (JV Terminal)	
					August 30, 2019 - May 31, 2020	Director, Brighter PTT Oil and Retail Business Company Limited	
					August 29, 2018 - January 31, 2020	Director, PTT Oil Myanmar Co., Ltd.	
					<b>Other Experiences/ Other Activities (In the Previous Year)</b>		
					November 1, 2020 - Present	Committee Member, Thai Company Secretary Club, Thai Listed Companies Association	
					1992 - Present	Managing Partner, Phuluang Kasetrungrueng (1992) Limited Partnership	



## Attachment 2

### Details of Directors and Subsidiaries

Positions held by The Management and Authorized Controllers of PTT Plc., Subsidiaries, Joint Ventures, Associates and Other Related Companies for 2020

[illegible]


Company* (As of December 31, 2020)				PTT Executive (As of December 31, 2020)																																						
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36			
				Professor Dr. Thosaporn Sirisumpland	Professor Dr. Kittipong Kittayarak	Mr. Don Wisanitpruek	GEN. Teerawat Boonyawat	Mrs. Nuntawan Sakuntanaga	Dr. Palin Chuchottaworn	Mr. Danucha Pichayaran	Mr. Krishna Boonyachai	Dr. Thon Thammongkrawasawat	POL. GEN. Rungroj Sangkham	Mr. Chumpol Rimsakorn	Professor Dr. Suraporn Nitikrajot	Mrs. Premulda Vnaphat	M.L. Chayadit Kidakon	Mr. Auttapol Rerkpiboon	Mr. Atikom Terbsiri	Mr. Kris Imsang	Mr. Witawat Svadikul	Ms. Pannalin Mahawongthikul	Mrs. Aravadee Phitsaro	Mr. Terdkiet Prommod	Ms. Duangporn Thengdalanatham	Ms. Pengpanor Boonkum	Mr. Withikorn Sitthit	Dr. Buranin Rattanasombat	Mr. Disitbat Panyarachun	Mr. Noppadol Pinsupa	Mr. Montri Rawanchakul	Dr. Kongkrapan Intrajang	Mr. Wirat Uanarumit	Mr. Chawalit Tippawerich	Mr. Worawat Piyasiri	Ms. Jiraphon Kawewat	Mr. Yongyos Krongphanich **	Ms. Wilawan Kanjanakanti	Ms. Jaroonsri Wankeethon			
Joint Ventures, Associates and Other Related Companies	Gas	25	Trans Thai-Malaysia (Thailand) Ltd.	TTM(T)																																						
		26	Trans Thai - Malaysia (Malaysia) Sdn. Bhd.	TTM(M)																																						
		27	Map Ta Phut Air Products Co., Ltd.	MAP																																						
	Others	28	Dhipaya Insurance Public Co., Ltd.	TIP																																					/	
		29	Sarn Palung Social Enterprise Co., Ltd.	SPSE																						X																
	Technology and Engineering Business Group	30	District Cooling System and Power Plant Co., Ltd.	DCAP																																						
		31	InnoSpace (Thailand) Co., Ltd.	InnoSpace																																						
		32	Baania (Thailand) Co., Ltd.	Baania																																						
		33	HG Robotics Co., Ltd.	HG Robotics																																						
		34	Sunfolding, Inc.	Sunfolding																																						

## Notes:

- Symbol X = Chairman - = Vice Chairman \* = CEO O = President / = Director // = Executive
- The first four executives, excluding the President & CEO, under SEC's Announcement are Mr. Atikom Terbsiri, Mr. Kris Imsang, Mr. Wittawat Svasti-xuto, and Ms. Pannalin Mahawongtikul
- \* The Company has classified new subsidiary in according to the International Financial Reporting Standards No. 10 Consolidated Financial Statement, effective since January 1, 2015.
- \*\* Mrs. Chanamas Sasnanand PTTEP Senior Vice President, seconded to Executive Vice President, Corporate Finance and Strategy, PTT, with effect from January 1, 2021, replacing Mr. Yongyos Krongphanich

## Attachment 3

## Detail of Head of the Office of Corporate Audit

Name/ Position	Age (Year)	(%) of Share Possession	Family Relationship among Directors and Executives	Education/ Certification	Working Experiences in the 5 Preceding Years (As of December 31, 2020)		
					Time Period	Position	Company
<div>Mr. Chadil Chavanalikhorn</div> <div><ul style="list-style-type: none"><li>Executive Vice President, Office of Corporate Audit</li><li>Head of the Office of Corporate Audit</li></ul></div> <div></div>	54	None	None	Education	2019 - Present	Executive Vice President, Office of Corporate Audit	PTT Public Company Limited
				<ul style="list-style-type: none"><li>Bachelor of Engineering, Kasetsart University</li><li>Master of Business Administration, Ksetsart University</li><li>Certified Internal Auditor (CIA): The Institute of Internal Auditors</li></ul>	2018 - 2019	Executive Vice President, Corporate Governance	PTT Public Company Limited
					2017 - 2018	Executive Vice President, Sustainability Management	PTT Public Company Limited
				Certification	2016 - 2017	Vice President, Internal Audit Department	PTT Public Company Limited
				<ul style="list-style-type: none"><li>Senior Energy Executive, Thailand Energy Academy, Ministry of Energy</li><li>Administrative Psychological Operation: Institute of Security Psychology, National Defence Studies Institute</li><li>Anti-Corruption Training Program fot Public Officials, NACC</li><li>Senior Executive Program (SEP) SASIN Graduate Institute of Business Administration</li><li>Leadership Development Program II, PTT - Harvard Business School PLLI</li><li>Leadership Development Program III, PTT - IMD: PLLI</li><li>Successful Formulation &amp; Execution of Strategy (SFE 17/2013), Anti - Corruption The Practical Guide (ACPG 2/2013), Company Secretary Program (CSP 65/2015), Independent Observer Program (IOP 1/2016), Thai Institute of Directors Association (IOD)</li></ul>	2013 - 2016	Vice President, Strategy & Audit Quality Development Department	PTT Public Company Limited
				Relevant Important Positions in Listed Companies - The Stock Exchange of Thailand (In the Previous Year)			
				-	-		
				Relevant Important Positions in Non - Listed Companies (In the Previous Year)			
				-	-		
				Relevant Important Position in Other Companies/ Organizations (In the Previous Year)			
				-	-		

## Attachment 4

### Businesses Assets and Details on Asset Valuation

-None-

## Attachment 5

### Corporate Governance, Ethical Standards and Code of Business Ethics Handbook of PTT Public Company Limited, including Authorities, Duties and Responsibilities of the Board and Duties and Responsibilities of Specific Committees of PTT Public Company Limited

#### 1. Corporate Governance, Ethical Standards and Code of Business Ethics Handbook of PTT Public Company Limited

PTT Public Company Limited (PTT) has defined the corporate governance policy for the Board of Directors, all executives and employees to adhere to as a guiding principle in their work, to promote PTT as a company with efficient business operations, excellent corporate governance and management, integrity, transparency and auditability.

PTT has announced its good corporate governance principles and formulated the Corporate Governance, Ethical Standards and Code of Business Ethics Handbook for the acknowledgement and adoption of the Board of Directors, all executives and employees as their practical guidelines at work. The Handbook is publicized on PTT Intranet and web site.

Further details related to PTT's corporate governance and Corporate Governance, Ethical Standards and Code of Business Ethics Handbook can be studied in the links below.

<https://www.pttplc.com/en/About/Corporate-Governance.aspx>

and [https://www.pttplc.com/uploads/CG/Publication/CGHandbookforOneReport/PTT\\_CGbookEN\\_rev4.3.pdf](https://www.pttplc.com/uploads/CG/Publication/CGHandbookforOneReport/PTT_CGbookEN_rev4.3.pdf)

#### 2. Authorities, Duties and Responsibilities of the Board and Duties and Responsibilities of Specific Committees of PTT Public Company Limited

##### 2.1 Authorities, Duties and Responsibilities of the Board

(The details are reported under Section 2 “7.2.3 Authorities, Duties and Responsibilities of the Board”)

## Authorities of the Board

1. The Board is authorized to supervise and oversee PTT's management's compliance with applicable laws, objectives, Articles of Association, and resolutions of shareholders' meetings.
2. The Board is authorized to select one director to serve as Chairman and may select a Vice Chairman if appropriate.
3. The Board of Directors is authorized to appoint the President and CEO who has been nominated under the nomination process and procedures under relevant laws and regulations. The President and CEO shall be a director and secretary to the Board of Directors.

## Duties and Responsibilities of the Board

The Board is to:

1. Carry out its duties under PTT's Articles of Association and ensure that management complies with applicable laws, PTT's objectives, Articles of Association, and resolutions of shareholders' meetings.
2. Define PTT's vision, directions, strategies, policies and major plans and consider potential risks so as to ensure that management can effectively drive plans into practice.
3. Monitor and ensure plan implementation in line with PTT's major strategies and policies, including objectives, financial targets and operating plans, and budget.
4. Institute systems for corporate accounting, financial reporting and auditing, as well as the efficient and effective internal control and internal audit systems.
5. Oversee and supervise issues regarding potential conflicts of interest and related-party transactions.

6. Define comprehensive risk management guidelines and ensure an efficient risk management system or process.
7. Ensure a suitable remuneration system or mechanism for senior management to induce short-term and long-term motivation.
8. Assess the performance of the President & CEO and decide suitable remuneration.
9. Ensure suitable communicating channels with each group of shareholders and stakeholders.
10. Ensure accurate, clear, transparent, reliable, and high-quality disclosure of information.
11. Express leadership and be role models for performance excellence.

## The Board's Additional Authority Includes:

1. Approve long-term investment, such as common stocks, preferred stocks, bonds, debentures and warrants, or other financial instruments.
2. Approve financial support, including funds, common stocks, preferred stocks, loans, or others as appropriate for PTT-invested companies.
3. Approve debt financing and issuance of debt instruments such as debentures.
4. Approve the annual budget.
5. Approve procurement and other related matters if the limits exceed the CEO's approval authority.
6. Consent to employ, appoint, transfer, or promote employees serving as senior executive vice presidents or equivalent upward.
7. Appoint the Company Secretary.

## 2.2 Duties and Responsibilities of Specific Committees of PTT Public Company Limited

(The details are reported under Section 2 “7.3 Specific Committees”)

### The Audit Committee

#### Duties and Responsibilities of the Audit Committee

1. Prepare a charter on internal audit for the Audit Committee that is compatible with PTT's scope of work and responsibilities. The charter must be approved by the Board and revised at least once a year.
2. Review the efficiency and effectiveness of CG, risk management, and internal control processes.
3. Review PTT's financial reporting process to ensure accuracy and credibility.
4. Review compliance with laws, regulations, procedures, cabinet resolutions, SET requirements, SEC laws, and announcements or directives relevant to PTT's businesses.
5. Ensure sound internal audit procedures and review the adequacy of the budget and personnel and the independence of the Office of Corporate Audit.
6. Consider connected transactions or transactions of potential conflicts of interest or potential corruption affecting PTT's operations under SET's laws and requirements.
7. Provide recommendations to the Board on the appointment, transfer, promotion, and assessment of the head of the Office of Corporate Audit.
8. Select, nominate and recommend fees for the external auditor to the Board.
9. Coordinate audit findings with the external auditor and recommend reviews or verification of any items, if necessary.
10. Report internal audit performance to the Board at least quarterly, except for the fourth quarter, which is reserved for the annual report. The reports must be submitted to the regulating ministry and the Ministry of Finance for acknowledgment.
11. Evaluate its own internal audit performance at least once a fiscal year and report the results to the Board.
12. Disclose a report on its annual performance and the fees of the external auditor in the annual report.
13. The chairman or members of the Audit Committee must attend shareholders' meetings to address matters related to the committee or the appointment of the external auditor.
14. If independent opinions from advisers or specialists are needed on PTT's assorted operations, the Audit Committee may propose to the Board to invite or to hire such advisers or specialists at PTT's expenses.
15. If internal reports show any sign of violation against laws, regulations, procedures, Cabinet resolutions, announcement, or directives relating to PTT's businesses, senior management must be informed and responsible unit(s) ordered to take due actions.
16. Hold committee meetings at least every quarter and a meeting with the external auditor in the absence of management at least once a year.
17. Hold a formal meeting with management at least once a year.
18. Perform other tasks as required by the law or as assigned by the Board within the committee's scope of duties and responsibilities.

These are in line with PTT's Articles of Association on the Audit Committee and the Office of Corporate Audit 2020.

## The Nominating Committee

### Duties and Responsibilities of the Nominating Committee

1. Define the methods and criteria for directors' nomination for transparency.
2. Select director nominees to fill vacancies (due to resignation or term completion) for the Board's or the shareholders' consideration and appointment with due regard for the composition of the Board, expertise, competencies, and experience useful to PTT in compliance with PTT's Board Skill Matrix and the Director's Pool of the Ministry of Finance and Thai Institute of Directors (IOD). Equally important, nominees must have no conflict of interest with PTT, and the qualifications of desirable directors must prove compatible with PTT's business strategies.
3. Propose directors for specific committee duties with due regard for the committees' compositions, qualifications, expertise, and competencies. Then these names are to be tabled for the Board's appointment. An exception is for the committee itself, which is to be appointed by the Board.
4. Be directly accountable to the Board, while the Board is accountable for PTT's businesses to all stakeholders.
5. Assess its own performance and report the outcomes to the Board for acknowledgment and disclose them in the annual report.
6. Disclose its own performance in the annual report.
7. Hold at least two meetings a year.
8. Perform other tasks as assigned by the Board.

## The Remuneration Committee

### Duties and Responsibilities of the Remuneration Committee

1. Define the criteria for remuneration and propose fair, sensible remuneration for directors and committee members for the Board's and the shareholders' approval.
2. Propose guidelines for assessing performance outcomes and remuneration for the President & CEO to the Board's for approval.

3. Acknowledge and comment on organization restructuring and job levels, and assess and decide remuneration for senior executive vice presidents.
4. Be accountable to the Board directly, while the Board is accountable for PTT's businesses to all stakeholders.
5. Assess its own performance outcomes and report the findings to the Board for acknowledgment and disclose them in the annual report.
6. Disclose its own performance in the annual report.
7. Hold at least two meetings a year.
8. Perform other Board-assigned tasks.

## The Corporate Governance Committee

### Duties and Responsibilities of the Corporate Governance Committee

1. Supervise Corporate Governance, Operational Risk Management and Internal Control, and Compliance (GRC), Anti-Fraud and Corruption, Sustainability Management (SM), and Corporate Social Responsibility (CSR) for society, community and environment.
  - Advise and recommendations to the Board and the management on matters dealing with the PTT Good Corporate Governance, Code of Conduct and Code of Business Ethics.
  - Approve PTT's objectives, goals, strategies, management framework, and provide policy and operational guidelines annually in line with PTT's strategies and objectives as well as international practices.
  - Supervise and monitor CG implementation and report the findings to the Board.
  - Advise the Governance, Risk and Compliance Management Committee (GRCMC).
2. Establish the policy of allowing minor shareholders to nominate directors and propose AGM agenda items.
3. Establish the policies and define the scopes for supervising matters dealing with PTT's whistleblowing mechanism for complaints and anti-fraud and corruption practices.
4. Perform other Board-assigned tasks.
5. Hold at least one meeting each quarter.



## The Enterprise Risk Management Committee

### Duties and Responsibilities of the Enterprise Risk Management Committee

1. Define and review PTT's risk management and corporate stakeholder management policies and scopes
2. Supervise and support risk management and stakeholder management practices in line with strategies and business goals as well as prevailing circumstances
3. Provide recommendations, monitor, and evaluate risk management and stakeholder management for further implementation of the Corporate Plan and Risk Management Committee (CPRC) (management level)
4. Review risk management outcome reports and provide recommendations on risks, including specifications of control measures or mitigation plans and development of the risk management system to CPRC for continued efficiency
5. Review reports of corporate stakeholder management outcomes and provide recommendations on relevant plans to extend positive outcomes or minimize/offset potential impacts on stakeholders, including development of the stakeholder management system for CPRC to ensure continued efficiency
6. Support the Chief Risk Officer (CRO) and Chief Stakeholder Officer (CSO) in achieving PTT's corporate risk management and stakeholder management goals
7. Report risk management outcomes and stakeholder management outcomes to the Board at least every quarter. For factors or events with potential significant impacts on PTT, the Board must be notified immediately.
8. Screen and comment before submitting for the Board's approval contractual items that are complicated businesswise and contain risks potentially affecting PTT or potentially and significantly affecting PTT's stakeholders, as endorsed by the Management Committee.
9. Screen and comment on investment agenda:
  - PTT's and PTT Group's wholly-owned investment projects with investment values exceeding THB 5 billion presented to the Board for approval
  - PTT's investment projects in companies where it holds less than 100% shares and those not SET-listed, with investment values exceeding THB 5 billion, presented to the Board for approval before PTT's representative votes in the shareholders' meetings or board meetings in question
  - Investment with risks potentially significantly impacting PTT or its stakeholders, as endorsed by the Management Committee.
10. Define and review the corporate innovation policy
11. Provide recommendations and guidelines for the monitoring and assessment of the long-term and annual innovation management master plan for further implementation
12. Supervise and promote implementation under the innovation policy and master plan to ensure that the annual operation plan can achieve its goals
13. Report the results of the implementation outcomes of creative thinking and innovation to the Board for acknowledgement at least every quarter
14. Hold at least one meeting each quarter
15. Perform other Board-assigned duties.

The reviewing of the risk management system remains the duty of the Audit Committee and the Office of Corporate Audit

## Attachment 6 Report of the Audit Committee

See the details on page 288 - 290

# About This Report:

## Part 3: Driving Business for Sustainability, Section 1: Business Operations and Performance

PTT has continuously disclosed information on sustainability performance to stakeholders through the Annual Report, Sustainability Report and corporate website at [www.pttplc.com](http://www.pttplc.com) on a yearly basis. In 2020, PTT has changed the pattern of information disclosure to the “2020 Annual Registration Statement/ Annual Report (56-1 One Report)” by merging 56-1 Form, Annual Report and Sustainability Report into a single report. The information on sustainability performance presented in Part 3 Driving Business for Sustainability, Section 1 Business Operations and Performance covers sustainability management strategy in 3 dimensions, namely environmental, social and governance. Moreover, readers may find further details of the performance on the corporate website [www.pttplc.com](http://www.pttplc.com).


### Reporting Scope

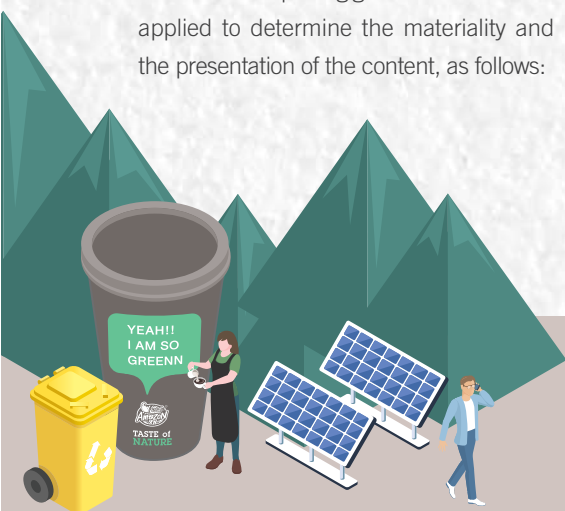
The information presented in Section 3: Driving Business for Sustainability, Part 1: Business Operations and Performance of this “2020 Annual Registration Statement/ Annual Report (56-1 One Report)” covers sustainability performance from January 1 to December 31, 2020, in all business groups, comprising Upstream Petroleum and Natural Gas Business Group, Downstream Petroleum Business Group, Technology and Engineering Business Group, and Business Support Units, as well as the performance of PTT Group companies, namely PTT Exploration and Production Public Company Limited (PTTEP), PTT Global Chemical Public Company Limited (GC), Thailoil Public Company Limited (TOP), IRPC Public Company Limited (IRPC), Global Power Synergy Public Company Limited (GPSC) and PTT Oil and Retail Public Company Limited (OR), as specified in the content of each topic. Relevant domestic and international reporting guidelines have been applied to determine the materiality and the presentation of the content, as follows:

<b>56-1 ONE REPORT</b>	Manual for preparing the Annual Registration Statement/ Annual Report (56-1 One Report) of the Securities and Exchange Commission or the SEC
<b>GRI</b>	The Global Reporting Initiative (GRI) Sustainability Reporting Standards 2016; ‘Core’ option and the Oil and Gas Sector Disclosures (OGSD)
<b>IIRC</b>	The Integrated Reporting <IR> Framework of the International Integrated Reporting Council (IIRC)
<b>UNGC</b>	Communication on Progress on the 10 Principles of the United Nations Global Compact (UNGC), Advanced Level
<b>TCFD</b>	Climate change performance reporting according to the Recommendation of the Task Force on Climate-related Financial Disclosures (TCFD)
<b>SDGs</b>	Progress report on the United Nations Sustainable Development Goals (SDGs)

### Report Assurance

Sustainability performance information in all three dimensions, comprising environmental, social, and governance (ESG), disclosed in Part 3: Driving Business for Sustainability, Section 1: Business Operations and Performance of “2020 Annual Registration Statement/ Annual Report (56-1 One Report)”, has been approved by the senior management of relevant departments. Material sustainability issues have been verified by an independent assurer for the 10<sup>th</sup> consecutive year in order to assure stakeholders that the information disclosed is accurate, complete, correct, credible, consistent with the business operation, and traceable to the source of information.

Readers can click  or scan the QR code in Part 3: Driving Business for Sustainability, Section 1: Business Operations and Performance of the 2020 Annual Registration Statement/ Annual Report (56-1 One Report) for further details of each topic, as well as visit [www.pttplc.com](http://www.pttplc.com) on Sustainability section for more information regarding PTT's sustainability performance.





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# Independent limited assurance report

To the Directors of PTT Public Company Limited (“PTT”)

## Conclusion

Based on the procedures performed, as described below, nothing has come to our attention that causes us to believe that the selected subject matters (“Subject Matters”) identified below and included in the 56-1 One Report 2020 (the “Report”) for the year ended 31 December 2020 or referred to in the Report by way of hyperlinks to PTT’s corporate website (“the Website”), together with the disclosures regarding their adherence to the three AccountAbility Principles of Inclusiveness, Materiality and Responsiveness under AA1000APS (2018), and reliability of Subject Matters, are not, in all material respects, prepared in compliance with the reporting criteria (the “Criteria”).

## Our Responsibilities

We have been engaged by PTT and are responsible for providing a limited assurance conclusion in respect of the Subject Matters for the year ended 31 December 2020 to be included in the Report and the Website as identified below.

Our assurance engagement is conducted in accordance with the International Standard on Assurance Engagements ISAE 3000 *Assurance Engagements other than Audits or Reviews of Historical Financial Information* and ISAE 3410 *Assurance on Greenhouse Gas Statements*. We have also conducted our engagement in accordance with the Accountability Assurance Standard of Sustainability AA1000AS (2008) at moderate level that corresponds to a limited assurance as per ISAE 3000 with a Type 2 engagement, which covers not only the nature and extent of the organisation’s adherence to the AA1000APS (2018), but also evaluates the reliability of Subject Matters as indicated below. These standards require the assurance team to possess the specific knowledge, skills and professional competencies needed to provide assurance on sustainability information, and that we plan and perform the engagement to obtain limited assurance on whether the Subject Matters are prepared, in all material respects, in compliance with the Criteria. We have complied with the independence and other ethical requirements of the International Ethics Standards Board for Accountants’ *International Code of Ethics for Professional Accountants (including International Independence Standards)* (IESBA Code), which is founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality

and professional behavior. The firm applies International Standard on Quality Control 1 and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

We have not been engaged to provide an assurance conclusion on any other information disclosed within the Report and the Website.

## Subject Matters

Subject Matters comprised of the following data expressed numerically or in descriptive text for the year ended 31 December 2020:

- GRI 302-1 Energy consumption within the organization
- GRI 302-3 Energy intensity
- GRI 303-3 Water withdrawal (2018 version)
- GRI 303-4 Water discharge (2018 version)
- GRI 305-1 Direct (Scope 1) GHG emissions
- GRI 305-2 Energy indirect (Scope 2) GHG emissions
- GRI 305-3 Other indirect (Scope 3) GHG emissions
- GRI 305-4 GHG emissions intensity
- GRI 305-7 Nitrogen oxides (NO<sub>x</sub>), Sulfur oxides (Sox), and other significant air emissions (Volatile Organic Compounds: VOCs)
- GRI 306-2 Waste by type and disposal method





- GRI 306-3 Significant spills
- GRI 403-9 Work-related injuries (2018 version)
- GRI 403-10 Work-related ill health (2018 version)
- GRI 404-1 Average hours of training per year per employee
- GRI 201-1 Direct economic value generated and distributed – Community Investment
- OGSD – OG4 Number and percentage of significant operating sites in which biodiversity risk has been assessed and monitored
- OGSD – OG6 Volume of flared and vented hydrocarbon
- OGSD – OG13 Number of process safety events, by business activity

### Criteria

The Subject Matters were assessed according to the following criteria:

- The Sustainability Reporting Standards of the Global Reporting Initiative (“GRI Standards”);
- The Oil and Gas Sector Disclosures (“OGSD”) of the Global Reporting Initiative; and
- AA1000 AccountAbility Principles Standard (2018) (“AA1000APS (2018)”).

### Directors’ and management’s responsibilities

The directors and management of PTT are responsible for the preparation and presentation of the Subject Matters, specifically ensuring that in all material respects the Subject Matters are prepared and presented in accordance with the Criteria. This responsibility also includes the internal controls relevant to the preparation of the Report and the Website to ensure they are free from material misstatement whether due to fraud or error.

### Procedure performed

In forming our limited assurance conclusion over the Subject Matters, our procedures consisted of making enquiries and applying analytical and other evidence gathering procedures including:

- Interviews with senior management and relevant staff at corporate and operating sites;
- Inquiries about the design and implementation of the systems and methods used to collect and process the information reported, including the aggregation of source data into the Subject Matters;
- Inquiries about managements practices and procedures related to identifying stakeholders and their expectations, determining material

sustainability matters and implementing sustainability policies and guidelines;

- Remote site visit to 3 sites; Sriracha Oil Terminal, PTT Operation Center, and Rayong Gas Separation Plant, selected on the basis of risk analysis including the consideration of both quantitative and qualitative criteria;
- Agreeing the Subject Matters to relevant underlying sources on a sample basis to determine whether all the relevant information has been included in the Subject Matters and prepared in accordance with the Criteria.

The procedures performed in a limited assurance engagement vary in nature and timing from, and are less in extent than for, a reasonable assurance engagement and consequently the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had a reasonable assurance engagement been performed. Accordingly, we do not express a reasonable assurance opinion.

### Inherent limitations

Due to the inherent limitations of any internal control structure it is possible that errors or irregularities in the information presented in the Report and the Website may occur and not be detected. Our engagement is not designed to detect all weaknesses in the internal controls over the preparation and presentation of the Report and the Website, as the engagement has not been performed continuously throughout the period and the procedures performed were undertaken on a test basis.

### Restriction of use of our report

Our report should not be regarded as suitable to be used or relied on by any party wishing to acquire rights against us other than PTT, for any purpose or in any other context. Any party other than PTT who obtains access to our report or a copy thereof and chooses to rely on our report (or any part thereof) will do so at its own risk. To the fullest extent permitted by law, we accept or assume no responsibility and deny any liability to any party other than PTT for our work, for this independent limited assurance report, or for the conclusions we have reached.

**KPMG Phoomchai Audit Ltd.**

Bangkok

8 March 2021

# Reader Feedback Survey

## Part 3: Driving Business for Sustainability, Section 1: Business Operations and Performance “2020 Annual Registration Statement/ Annual Report (56-1 One Report)” PTT Public Company Limited

Feedback received from this survey will be used to improve content and disclosure pattern of the future 56-1 One Report in Part 3: Driving Business for Sustainability, Section 1: Business Operations and Performance.

Please indicate an X in the selection box ☐ and provide your feedback in the space provided.



**1.** Please indicate the reader group applicable to you in Part 3: Driving Business for Sustainability of 56-1 One Report.

- ☐ Public sector    ☐ Community & society    ☐ Investor  
☐ Customer    ☐ Supplier & partner    ☐ Employee  
☐ Others, please specify .....

**2.** Through which channel did you receive the information disclosed in Part 3: Driving Business for Sustainability of 56-1 One Report?

- ☐ Annual General Meeting of Shareholders    ☐ PTT employee  
☐ Seminar/ Lecture/ Exhibition    ☐ PTT website  
☐ Others, please specify .....

**3.** What is your purpose in reading the information disclosed in Part 3: Driving Business for Sustainability of 56-1 One Report?

- ☐ To get to know PTT    ☐ For studies/ researches  
☐ To support investment decisions  
☐ To prepare my own 56-1 One Report or corporate sustainability report  
☐ Others, please specify .....

**4.** Please rate the overall satisfaction level of the information disclosure in Part 3: Driving Business for Sustainability of 56-1 One Report.

- Very low    Low    Moderate    High    Very high  
☐    ☐    ☐    ☐    ☐

If your satisfaction level is very low, low, or moderate, please specify additional issues for improvement.

.....  
 .....  
 .....

**5.** Please provide your opinion on the information disclosed in Part 3: Driving Business for Sustainability in 56-1 One Report.

- |  | Very low              | Low                   | Moderate              | High                  | Very high             |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| • Your understanding of PTT's material issues after finishing the report | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| • Alignment between PTT strategy and sustainability performance          | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| • Suitability and credibility of the content                             | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| • Content relevant to your interests                                     | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

**6.** Please indicate the 3 sustainability issues most important to you, ranking from 1-Most important, 2-Moderately important, 3-Slightly important.

- ..... Climate change  
 ..... Application of the circular economy  
 ..... Creating social value  
 ..... Human capital development  
 ..... Innovation and technology  
 ..... Evolving the business model  
 ..... Waste management  
 ..... Governance, Risk management and Compliance  
 ..... Supply chain management  
 ..... Occupational health and safety  
 ..... Environmental management  
 ..... Integrated water management  
 ..... Human rights  
 ..... Customer relationship management  
 ..... Talent attraction and retention  
 ..... Others, please specify .....

**7.** What additional sustainability issues should be included in the future report in Part 3: Driving Business for Sustainability in 56-1 One Report? (If any)

.....  
 .....  
 .....

**8.** Please provide additional suggestions for continuous improvement of information disclosed in Part 3: Driving Business for Sustainability in 56-1 One Report.

.....  
 .....  
 .....

Readers may scan this QR code to complete the survey.



**Thank you very much for your kind cooperation.**





## Sustainability Strategy Department

PTT Public Company Limited  
555 Vibhavadi Rangsit Rd. Chathuchak,  
Chathuchak Bangkok 10900  
Tel. 0-2537-3733  
E-mail: sm@pttplc.com

ในอนุสัญญาที่ ป.พ. 12 ปพ. ๑๒๖  
ถ้าหากส่งในระยะเวลา  
ไม่ต้องส่งงบการเงินประจำปี

บริการธุรกิจต่อมรณ



Member of  
**Dow Jones  
Sustainability Indices**  
Powered by the S&P Global CSA

## ต่อ ยอดความสำเร็จสู่อนาคตที่ยั่งยืน เพื่อสังคมไทยก้าวไกลไปพร้อมกัน

อีกครั้งกับบทพิสูจน์การยอมรับในระดับโลก ปตท. รักษาสถานะเป็นสมาชิกใน  
ดัชนีความยั่งยืน Dow Jones Sustainability Indices (DJSI) ต่อเนื่องเป็นปีที่ 9



Part 3: Driving Business for Sustainability,  
Section 1: Business Operations and Performance  
"2020 Annual Registration Statement/  
Annual Report (56-1 One Report)"  
PTT Public Company Limited

## Reader Feedback Survey





บริษัท ปตท. จำกัด (มหาชน)  
PTT Public Company Limited


Emanating its capability while forging synergy with others,  
PTT continue to strengthen technological and national development,  
including society, community and environment throughout Thailand,  
where it operates with transparency and sustainability.

**PTT is poised to thrive in the midst of changes with confidence.**

**Thus, drives Thailand to stride toward strength and security.**



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