



STRENGTH OF THE LAND

2016 ANNUAL REPORT





NAVAMINDRA PETROLEUM AREA

In 2001, His Majesty Bhumibol Adulyadej graciously bestowed the 'Navamindra Petroleum Area' name to the area covering the Bongkot and Arthit projects. The Bongkot project is the largest natural gas resource in the Gulf of Thailand which produces approximately 20% of Thailand's natural gas demands. The Arthit project is the first project that was explored and developed solely by Thai people. The Navamindra Petroleum Area covers an area of 4,231 square kilometers and is located approximately 200 kilometers from Songkhla coast.

PTTEP dedicates itself to ensure the energy stability of Thailand and the countries we operate in under the guidance of H.M. Bhumibol Adulyadej the "Father of Energy Development in Thailand" towards a sustainable energy future.



A PIONEER

His Majesty King Bhumibol Adulyadej was an inventor whose initiatives and innovations were inspired to address many of the problems and issues facing his people. His Majesty's Royal Rainmaking Project came about to fight against the devastation from drought and is a fine example of H.M.'s projects which have contributed to improving the quality of life for many of the population today.

AN EXPLORER

His Majesty King Bhumibol Adulyadej journeyed extensively throughout Thailand, applying his principles of "Understand, Reach Out, and Develop" to raise the standard of living of the people whose wellbeing he had placed so close to his heart.



AN ENVIRONMENTALIST

His Majesty King Bhumibol Adulyadej's efforts to protect the forests and the environment have been widely recognized, dedicating his lifetime to innovations to tackle issues like drought, and better manage agriculture resources such as water and soil to maintain and sustain the country's natural wealth and resources.



THE DEVELOPER KING

His Majesty King Bhumibol Adulyadej dedicated himself and worked tirelessly to better the welfare of his people, while holding on firmly to the three key principles - “Understand, Reach Out, and Develop”. To understand is to comprehend the problems; to reach out is to understand the people, and then through this the most effective development can be achieved. As a result, His Majesty’s more than 4,000 Royal Development Projects have resulted in even more development and even further sustainable sufficiency for the country.

FOLLOW H.M.'S INITIATIVES... TO BECOME A SUSTAINABLE ORGANIZATION

PTTEP humbly recalls His Majesty King Bhumibhol Adulyadej the “Father of Energy Development in Thailand” and His Majesty’s boundless and gracious kindness. We will continue to follow his guidance which he graciously gave throughout his 70 years on the throne in dedication and commitment to the people.

PTTEP aspires to conquer each challenge in exploring for energy regardless of all adversities. At the same time we are aware of our responsibilities in the areas we operate to achieve a balance between energy exploration and energy security and the requirements to ensure the wellbeing of those communities and the environment through which we will become a sustainable organization.

SUSTAINABLE ORGANIZATION

OPERATIONAL EXCELLENCE

PTTEP operates its business to ensure we grow sustainably and through this strategy will lead to organization excellence. PTTEP has placed technology, innovation, and knowledge as the keys to the sustainable success of the business in terms of values, productivity, opportunities, and future prosperity.

GOOD CORPORATE GOVERNANCE AND BUSINESS ETHICS

PTTEP strongly believes in responsibility, transparency, and equality as reflected in the principles of our Good Corporate Governance & Business Ethics (CG&BE) guidance which is based on creating and maintaining impartiality for all of the stakeholders. PTTEP’s effort under the leadership of the Board and the Management supported by all employees at the Company will only lead to growth, prosperity, stability, sustainability, and dignity.





RESPONSIBILITY TO THE SOCIETY AND THE ENVIRONMENT

PTTEP conducts its business, while mindful of our responsibility to the communities, society and the environment by focusing on the four basic fundamentals (basic needs, education, the environment and culture). This will contribute to a more sustainable organization and society and develop more in balance with the environment and the world.

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Financial Highlights

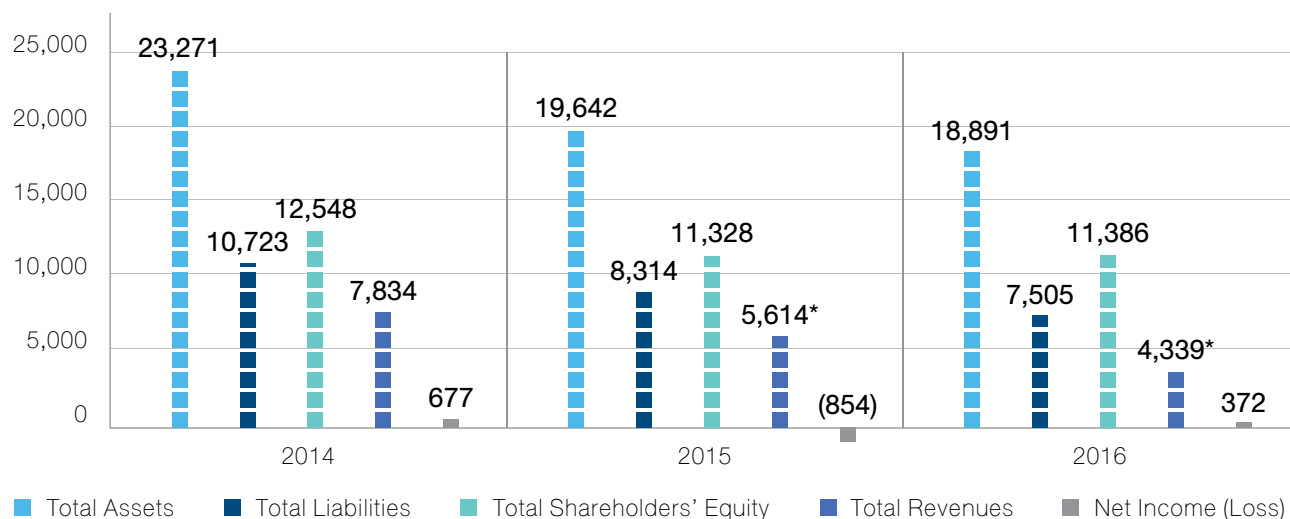
PTTEP continuously manages controllable factors in order to cope with the volatility of the oil prices. As a result of the improvements operational efficiency and cost optimization under the "SPEND SMART to Business Sustainability" campaign, the Company was able to maintain production and profitability levels which is reflected in the healthy business performance and strong financial position, ready to support new investment opportunities to support sustainable growth as well as to ensure the energy security of the country.

Million USD

 Net Cash from Operating Activities* 4,326 2014 2,864 2015 2,308 2016	 Net Cash Used in Investing Activities (3,002) 2014 (1,872) 2015 (1,002) 2016	 Net Cash Used in Financing Activities 255 2014 (1,662) 2015 (544) 2016
 Cash and Cash Equivalent at the Beginning of the Period 2,351 2014 3,930 2015 3,260 2016	 Cash and Cash Equivalent at the End of the Period 3,930 2014 3,260** 2015 4,022** 2016	* Including effect of exchange rate changes ** Including short term investment

Financial Highlights

Million USD



* Revenue of PTTEP OM was represented in discontinued operations

Dividend per Share (Baht)	4.50	3.00	3.25*
Dividend Yield (%)**	4.02	5.24	3.38
	2014	2015	2016

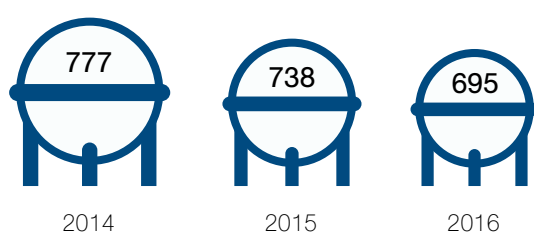
* The total dividend of 2016 will be 3.25 Baht per share including the interim dividend at the rate of 0.75 Baht per share and the second half-year operations dividend at the rate of 2.50 Baht per share. Payment of the interim dividend and the second half-year operation's dividend will be proposed in the 2017 General Shareholder's Meeting on March 29, 2017 for acknowledgement and approval, respectively.

** Calculated from PTTEP's closing share price on period end

Financial Ratios	2014	2015	2016
EBITDA to Revenue from Sales (%)	71	71	71
Debt to Equity (times)	0.34	0.27	0.25
Return on Equity (%)	6	(7)	3
Return on Assets (%)	3	(4)	2

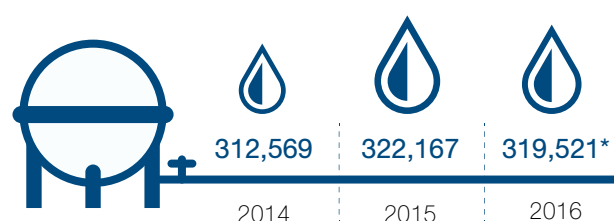
Petroleum Proved Reserves

(MMBOE)



Petroleum Sales Volumes

(BOED)

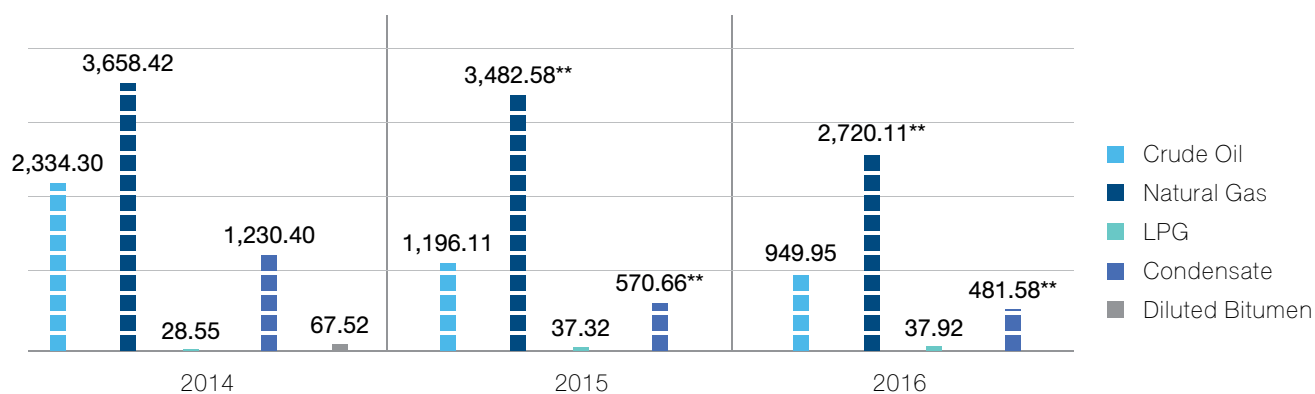


Volume

Products	2014	2015	2016
Crude Oil (MMBBL)	24.38	23.63	23.06
Natural Gas (MMSCF)	464,467.22	505,840.79	505,337.18*
Natural Gas (MMBOE)	75.44	81.05	81.05
LPG (Metric Tons)	93,504.68	96,529.19	96,731.01
LPG (MMBOE)	0.77	0.80	0.80
Condensate (MMBBL)	12.97	12.11	12.03*
Diluted Bitumen (MMBBL)	0.92	-	-

Value

(Million USD)



* Included sales volume of Oman 44 Project until August 2016

** Revenue of PTTEP OM was represented in discontinued operations

Message from Chairman and CEO

Dear Shareholders,

The year 2016 was a period of great sorrow for Thailand after the loss of our beloved King, His Majesty King Bhumibol Adulyadej. With his ever-present sense of immeasurable grace, the late King bestowed the name “Navamindra Petroleum Area” on PTTEP’s petroleum fields of Bongkot and Arthit. All of PTTEP’s Board of Directors, management and employees offer their continuing loyalty and dedication to follow and keep in our thoughts His Majesty King Bhumibol Adulyadej’s guidance in our mission to secure energy security for the maximum benefit of the country with pride, honesty and perseverance.

The past year also presented daunting challenges for the petroleum exploration and production business globally as 2016 experienced relatively low crude oil prices and considerable volatility. During the first quarter of 2016, the Dubai crude price bottomed out at approximately 23 USD/BBL following the lifting of sanctions on Iran. This reflected the increased concerns over oversupply conditions after that crude prices rose slightly in the second quarter and third quarter. Prices ranged from 40 to 50 USD/BBL throughout the third quarter, and then peaked at a year-high record of 54 USD/BBL in December. As a result, the Dubai crude price annual average ultimately stood at 41.27 USD/BBL, lower than the previous year average of 50.91 USD/BBL.

The decline in global crude oil prices naturally continued to significantly affect PTTEP’s financial performance in 2016. The company revised its strategic plan to enhance its competitive advantage and sustainable growth under the



concept of “RESET REFOCUS RENEW”. In more detail, RESET has meant the formulation of a cost structure under the SAVE TO BE SAFE project which resulted in cost savings of USD 300 million to maintain competitiveness in the industry and the prioritization of investment in projects with competitive cost structures under present oil price conditions. This consequently has brought down overall unit costs from 38.88 USD/BOE in 2015 to 30.46 USD/BOE, representing a 22% reduction. REFOCUS has focused investment towards core areas in which PTTEP has extensive experience, and areas that demonstrate low cost structures and low risks, such as in Thailand and other nations in Southeast Asia, especially Myanmar. RENEW has adopted the development of technology as part of a long-term strategy for sustainable growth, so as to diversify sources of revenues and return on investment as well as to explore new business by synergizing with PTT Group in the LNG business.

By adhering to the strategic plan above, conducted with professional management and strong financial discipline, PTTEP recorded a recurring net profit for 2016 of 466 MMUSD and a non-recurring loss of 94 MMUSD. These results can be mainly attributed to losses on oil price hedging, which partly is the mark-to-market valuation of outstanding oil price hedging positions that has no impact on the company’s cash flow but was booked in accordance with internationally accepted accounting standards. The company also recognized asset impairment losses of 47 MMUSD as a result of adjustments



to the production profiles of the Yetagun and Natuna Sea A projects. However, the company recorded non-recurring gains and tax saving, arising from the appreciation of Thai Baht relative to the US Dollar over the year. Consequently, the company improved to a net profit of 372 MMUSD for 2016, compared to a net loss 854 MMUSD in 2015. Given this performance, the company's financial position remained robust with cash on hand and short-term investments of 4,022 MMUSD to maintain planned production levels, to develop future projects in the pipeline as well as to support new investment opportunities through merger and acquisition activities in line with the company's business plan.

Besides the year-end performance discussed above, it needs to be noted that PTTEP places great focus on organization development. In fact, we're proud that the company has been selected as a member of 2016 Dow Jones Sustainability Indices (DJSI) for the third consecutive year, and named as the industry leader in the World Oil and Gas Upstream & Integrated Industry. This recognition underlines our ongoing commitment to being a sustainable organization and our effort to balance our growth in business, with the benefits to society and environmental protection. In 2016 PTTEP was also selected as a member of Thailand Sustainability Investment

by the Stock Exchange of Thailand (SET) as one of the listed companies exhibiting outstanding business performance and corporate governance as well as responsibility to society and environment.

Looking forward PTTEP expects the crude oil price during the first half of 2017 to be range-bound between 50-60 USD/BBL due to bullish support for the agreement on production cuts between OPEC and non-OPEC members in the fourth quarter last year. However, everyone in the market will be closely monitoring events leading up to as well as the subsequent discussion between OPEC and non-OPEC members as they consider the renewal of the agreement during the second half of the year. Further, it is prudent that we keep an eye on US policy under the new government administration, particularly in the area of energy sector policies, which will affect the movement of oil prices in the global market.

PTTEP remains confident that the company's performance will stay solid with the potential for future growth in reserves and production driven by various project development in alignment with our portfolio management strategy which would support projected rising gas demand in Asia. This will be pursued with good corporate governance and transparency in risk and corporate management as well as through professionalism of the PTTEP team.

To further capitalize on rising gas demand in Thailand and globally, PTTEP is orientating its strategy to capture potential opportunities for joint investment with the PTT Group in the LNG chain in different regions to effectively serve increased future domestic and global gas demand.

PTTEP's Board of Directors, management and employees would like to express our sincere thanks for your continued trust. We commit to perform our duty effectively and efficiently and offer our profound loyalty to His Majesty King Bhumibol Adulyadej's guidance in order to lead PTTEP towards a sustainable future.

(Prajya Phinyawat)

Chairman

(Somporn Vongvuthipornchai)

President and Chief Executive Officer

Section 1

Business Overview



1.1 Vision, Mission, Objective and Strategy

PTTEP Group is one of the leading E&P companies in Thailand, exploring for sustainable sources of petroleum supplies for the country and other countries in which the Company operates or invests in, and generating return that would satisfy the shareholders and stakeholders. In the midst of external complexities, low oil price environment, rapidly changing environment, depleting petroleum resources, and geographical complexity, a more advanced technology with a greater capability is required, and so is the need to maintain environmental and social equilibrium. The Company's mission and vision have then been reviewed and identified.

Mission: PTTEP operates globally to provide reliable energy supply and sustainable value to all stakeholders.

Vision: Leading Asian E&P company driven by competitive performance, advanced technology, and green practices.

Goal and Objective: PTTEP Group continuously and consistently monitors domestic and global economies to conduct energy trend and situation analysis in order to develop effective strategy and execution plan. The Company's objective is to create the balance between strong performance and business sustainability aspects to the following goals:

Strong Performance: Target to have a Return on Capital Employed (ROCE) at a level better than the industry's average and to have unit cost in the top quartile of Asian peer companies.

Business Sustainability: Target to maintain the proved reserves to production ratio (R/P Ratio or Proved Reserve/Production) of no less than 7 years by 2025 and to achieve production target of 600,000 barrels of oil equivalent per day (BOED) in the same year.

Strategy: To attain the above, we have formulated our strategic directions as follows:

(1) **RESET:** To enhance competitiveness and performance efficiency under low oil price environment, strategy in reducing operating cost is applied to all three phases of the Company's existing assets

(1.1) **Producing Assets:** Focusing on maintaining the production level and increasing petroleum reserves through technological advancement, while reducing costs of all major projects and work plans to ensure their economic return under the ongoing low oil price environment

(1.2) **Development Projects:** Focusing on increasing proved reserves and replacing existing producing assets which are declining by ensuring that our development projects are executed as planned and able to generate revenues and positive economic value under the low oil price environment

(1.3) **Exploration Projects:** Focusing on increasing reserves and production for the future to sustain the Company's growth by managing the exploration portfolio, implementing of higher technology, and enhancing capability and efficiency for higher exploration success rate

(1.4) **Organizational Capability Development:** To support corporate strategy, PTTEP Group has enhanced our organizational capabilities and developed new capability enablers in four main areas namely, funding and financial management, human resources management, systems & process development, and acceleration of knowledge base, and technology and innovation.

From RESET strategy under “SAVE to be SAFE” and “SPEND SMART” campaigns, there are more than 200 initiatives in reducing cost and increasing performance efficiency which help the Company to reduce 2016 expense by USD 330 million above target which is USD 115 million as well as to reduce 2017 budget for USD 324 million from the Company’s activities, such as logistics and supply chain management, drilling operation, engineering and modification, and maintenance process.

(2) **REFOCUS:** Strategy to expand growth driven through portfolio rationalization which is divided in two dimensions as follows:

(2.1) **E&P Conventional:** Focusing on value creation from new exploration acreage, and merger and acquisition (M&A) in Southeast Asia which is the Company’s experienced area by targeting to increase gas portion in the Company’s portfolio as well as to invest in low cost producing country.

(2.2) **E&P Transformative:** Focusing on expanding investment in LNG projects and increasing investment in the United States to increase competitive capability in US unconventional.

(3) **RENEW:** For long-term sustainability and growth, RENEW is a strategy which is driven from technology and business opportunities. To expand the range of PTTEP Group’s future growth, we have also studied other business investment opportunities. Currently, there are three major aspects that we are focusing on, namely, to increase exploration success rate, to enhance the Production as well as the green practices.

Procedure to Set the Company’s Vision and Mission

PTTEP Board of Directors (Board) reviews and approves the vision and mission of the Company annually, being accompanied generally by the management and, particularly in this year, taking into account the current low oil price through a systematic planning process. The process is started by updating the current business environment, including the E&P industry trend, together with its implications and impacts on the Company regarding relevant opportunities and risks. The role of the Company as a national oil company to provide a reliable energy supply for Thailand’s energy sustainability is also reviewed. In addition, the Company’s investment portfolio is reviewed and assessed on returns and risks in order to identify the vision, mission, and short- and long-term strategic directions. These allow the Company to achieve sustainable growth and be able to cope with business changes. The management will then develop the Company’s work plan, budget, and Key Performance Indicators (KPIs) based on the given strategic direction and policy to be presented to the Board for approval prior to the implementation.

After the Board approves the vision, mission, and corporate strategy, the management will cascade down the approved strategic direction and corporate target to promote a better understanding among all of the Company’s employees regarding corporate vision, mission, and strategy. In principle, this will subsequently lead to sub work plan development and implementation which are in line with the corporate target, work plan and core values to achieve the Company’s goals at the end.

1.2 PTTEP Sustainability Management

1.2.1 Sustainability Management Overview

Sustainability Management in PTTEP is an integration of business, environmental, and social risks and opportunities to make us a company of choice for investors, shareholders, business partners, host governments, communities, and employees. The Company is continuously emphasizing effective management of the three pillars of sustainability to reflect the ongoing concerns regarding environmental and social issues. Sustainability targets, strategies and implementation are

driven by efficient business processes, funding, Governance, Risk, Control & Compliance (GRC) management, innovation and technology to enhance production, reduce cost, and build human capability to achieve work efficiency. All of these drivers create value for both the Company and all of our stakeholders.

In order to measure and benchmark our sustainability performance with our peers, the Company's goal is to maintain the status as a listed company in the Dow Jones Sustainability Index (DJSI) World Oil and Gas Industry, which is the most internationally accepted measurement for sustainability performance. In 2016 the Company was selected as a DJSI member in the World Oil and Gas Upstream & Integrated Industry for the third consecutive year. In addition, with the highest score in the industry, the Company has also been named the industry leader of the DJSI World Oil and Gas Upstream & Integrated Industry for the first time. We are determined to maintain our DJSI World membership in the upcoming years.

1.2.2 PTTEP Materiality Assessment and 2016 Material Issues

PTTEP's materiality assessment process engages both internal and external stakeholders by using the Global Reporting Initiative (GRI G4) Sustainability Reporting Guideline: Oil and Gas Sector Supplement (OGSS) framework and SASB Materiality Map™ to identify and prioritize the Company's material sustainability issues. This includes a thorough review of current and future business risks and opportunities in the economic, social and environmental dimensions. The materiality analysis is conducted on an annual basis as part of the reporting cycle. In 2016, the following material sustainability issues were identified, some of which were included in the Company's 2016 KPI.

Material Economic Issues

- Sustainable Business Performance
- Corporate Governance
- Technology and Innovation
- Risk Management
- Supplier Collaboration

Material Social Issues

- Human Capital Development
- Talent Attraction and Retention
- Labor Rights
- Occupational Health and Safety
- Social Impact and Contribution

Material Environmental Issues

- Spill Prevention
- Operational Eco-Efficiency
- Water Management
- Biodiversity
- Energy Efficiency
- Climate Change

The Company's materiality assessment process includes a structured review of issues that reflect significant economic, environmental and social impacts to the Company as well as those which are important to our internal and external stakeholders. The assessment is conducted by identifying material issues by addressing these issues from the perspective of the Company's operations and stakeholders, defining reporting boundaries of the material aspects, prioritizing the issues by their level of significance using agreed criteria, and validating the issues through review and endorsement by the SD Working Team and SD Council. Details of the Company's materiality assessment process can be found in our website: <https://www.pttep.com/en/SustainableDevelopment/Disclosure/ApproachtoReporting.aspx>.

1.2.3 Benefits to Society and Environment

PTTEP's environmental and social initiatives are laid out in our sustainable development roadmap. In 2016, key environmental initiatives and continuation projects included flare gas recovery and utilization at Nong Toom-A, heat recovery steam generator, and methane (CH₄) emissions reduction at the S1 Project, Flash Gas Recovery Unit (FGRU) at the Greater Bongkot South Field, maintaining partial operation of seawater cooling water pump at the Arthit Project, and the logistics fleet management project. These 2016 greenhouse gas emissions initiatives reduced greater than 239,000 tonnes of carbon dioxide equivalent (CO₂e) per year, while reducing approximately THB 95,000,000 in fuel and operating cost through logistics fleet management. Meanwhile, the other projects except the logistic fleet management project generated a revenue of approximately THB 413,000,000 from hydrocarbon recovery.

The Company's reforestation project, on the other hand, which was initiated in 2013 with objectives to mitigate global warming and maximize values for all stakeholders both inside and outside of the organization, has selected areas for reforestation by taking into account communities located nearby. This creates benefits for the communities such as creating jobs to stimulate the local economy by hiring local people to work as tree growers and maintainers. This project has managed to enhance economic value in the local communities surrounding the reforestation areas by generating an income of approximately THB 64,409,150, directly employing 178 local villagers. The project is also expected to help offset approximately 331,800 tonnes of carbon dioxide equivalent (CO₂e) by 2020. In addition, the Company's exploration and production operation is conducted in accordance with local regulations and our operating procedures that are in line with various international standards, such as the International Finance Corporation (IFC), to prevent impacts on communities. The Company believes that these efforts will provide us with a social license to operate, which helps to prevent operation disruption from community protests that can potentially lead to additional impacts on the society as well as higher operating cost for the Company.

1.3 Development and Significant Changes in 2016

In 2016, the Company and our subsidiaries had undertaken a number of portfolio managements and portfolio rationalization to ensure that the Company's strategic objectives can be achieved, as well as to expand our investment for future growth. The following are the highlights of these developments and changes by region.

Thailand

In March 2016, the Company received official approval from the Department of Mineral Fuels (DMF) for the relinquishment of concession block of L28/48 Project, after the fulfilment of the concession requirements.

In December 2016, another joint operation of the Project B6/27 terminated its 40% participating interests which was effective on January 1, 2015 based on Joint Operating Agreement. The termination is under the process of approval from the DMF. In addition, PTTEP established a subsidiary “PTTEP Business Center Company Limited” with a registered capital of THB 5 million in order to facilitate the future investments related to exploration and production.

South East Asia

In May 2016, the Company received official relinquishment of concession block Myanmar MD-8 from the Government of Republic of the Union of Myanmar resulting in the change in project name from Myanmar MD-7 & MD-8 Project to Myanmar MD-7 Project. Furthermore, the Project is in the process of seeking joint partner for project risk management and diversification.

In July 2016, the Company expanded its investment in “Sarawak SK410B Project”, an exploration block in Malaysia, which is situated in a high petroleum potential area. The Company holds 42.50% interest with operatorship.

In December 2016, the Company received official approval from the Government of Republic of Indonesia for the relinquishment of Indonesia South Mandar Project.

Australasia

In April 2016, the Company received official approval from the Government of Commonwealth of Australia for the relinquishment of block WA-396-P and WA-397-P, which are the exploration block under PTTEP Australasia Project.

In June 2016, the Company received official approval from the Government of Commonwealth of Australia for the transfer of the participating interest in Block AC/L1, AC/L2, and AC/L3, which are the exploration block under PTTEP Australasia Project from the other joint operation partner. As a result, the Company’s participating interests increased from 89.6875% to 100%.

In August 2016, the Company received official approval from the Government of Commonwealth of Australia for the transfer of the participating interests in Block AC/RL6, which is the exploration block under PTTEP Australasia Project from the other joint operation partner. As a result, its participating interests increased from 50% to 100%.

Africa and the Middle East

In March 2016, the Company received official approval from the Government of Republic of Mozambique for the relinquishment of the Mozambique Rovuma Onshore Project.

In November 2016, the Company received official approval from the Government of Kenya for the relinquishment of the Kenya L11A, L11B and L12 Project.

In December 2016, the Company divested PTTEP Oman Limited (PTTEP OM), which holds 100% interest in Oman 44 Project, a mature field. However, the Company continues to explore new investment opportunities in Oman as PTTEP has signed a Memorandum of Understanding (MOU) with a subsidiary of the national oil company of Oman.

1.4 Shareholding Structure of PTTEP Group

1.4.1 Business Overview

PTTEP's core business is exploration and production of petroleum in Thailand and foreign countries. As of December 31, 2016, PTTEP Group had 37¹ petroleum exploration and production projects in 10 countries. 14 projects were under the exploration phase and 23 projects were under the commercial production phase.

No.	Project Name	Phase	Location	Participation Interest	Operator
Thailand: 14 projects					
1.	Bongkot Project	Production	Gulf of Thailand	44.4445%	PTTEP
2.	S1 Project	Production	Upper Central	100%	PTTEP
3.	PTTEP 1 Project	Production	Central	100%	PTTEP
4.	B6/27 Project	Production	Gulf of Thailand	60% ²	PTTEP
5.	Arthit Project	Production	Gulf of Thailand	80%	PTTEP
6.	L22/43 Project	Production	Upper Central	100%	PTTEP
7.	L53/43 & L54/43 Project	Production	Central	100%	PTTEP
8.	E5 Project	Production	North East	20%	ExxonMobil
9.	Contract 3 Project	Production	Gulf of Thailand	5%	Chevron
10.	Contract 4 Project	Production	Gulf of Thailand	60%	Chevron
11.	G4/43 Project	Production	Gulf of Thailand	21.375%	Chevron
12.	Sinphuhorm Project	Production	North East	55%	PTTEP
13.	B8/32 & 9A Project	Production	Gulf of Thailand	25%	Chevron
14.	G4/48 Project	Production	Gulf of Thailand	5%	Chevron
Overlapping Area: 2 projects					
1.	G9/43 Project	Exploration	Thailand-Cambodia	100%	PTTEP
2.	MTJDA Project	Production	Thailand-Malaysia	50%	CPOC
Overseas: 21 projects					
Myanmar					
1.	Myanmar M3 Project	Exploration	Gulf of Moattama	80%	PTTEP
2.	Myanmar M11 Project	Exploration	Gulf of Moattama	100%	PTTEP
3.	Zawtika Project	Production	Gulf of Moattama	80%	PTTEP
4.	Yadana Project	Production	Gulf of Moattama	25.5%	TOTAL

¹ Excluding Indonesia Semai II and Indonesia Malunda projects which PTTEP has submitted relinquishment documents to the respective governments of each project and been waiting for the official approval.

² Another joint venture of the B6/27 Project terminated its 40% participating interests which was effective on January 1, 2015 based on Joint Operating Agreement. The termination is under the process of submitting the documents to the Department of Mineral Fuels for approval.

No.	Project Name	Phase	Location	Participation Interest	Operator
5.	Yetagun Project	Production	Gulf of Moattama	19.31784%	Petronas
6.	Myanmar PSC G & EP 2 Project	Exploration	Onshore	70%	PTTEP
7.	Myanmar MD-7 Project ³	Exploration	Andaman Sea	100%	PTTEP
8.	Myanmar MOGE 3 Project	Exploration	Onshore	75%	PTTEP
Vietnam					
9.	Vietnam 9-2 Project	Production	Offshore	25%	HV JOC
10.	Vietnam 16-1 Project	Production	Offshore	28.5%	HL JOC
11.	Vietnam B & 48/95 Project	Exploration	Offshore	8.5%	Petrovietnam
12.	Vietnam 52/97 Project	Exploration	Offshore	7%	Petrovietnam
Indonesia					
13.	Natuna Sea A Project	Production	Offshore	11.5%	Premier Oil
Malaysia					
14.	Sarawak SK410B Project ⁴	Exploration	Offshore	42.50%	PTTEP
Algeria					
15.	Algeria Hassi Bir Rekaiz Project	Exploration	Onshore	24.5%	PTTEP
16.	Algeria 433a & 416b Project	Production	Onshore	35%	GBRS
Australia					
17.	PTTEP Australasia Project	Production	Offshore	90 - 100% ⁵	PTTEP
Canada					
18.	Mariana Oil Sands Project	Exploration	Onshore	100%	PTTEP
Mozambique					
19.	Mozambique Rovuma Offshore Area 1 Project	Exploration	Offshore	8.5%	Anadarko
Brazil					
20.	Barreirinhas AP1 Project	Exploration	Offshore	25%	BG Brasil
21.	Brazil BM-ES-23 Project	Exploration	Offshore	20%	Petrobras

Principal Projects in Operation

The following is a summary of project activities undertaken during 2016. Production and sales figures described hereunder are total production and sales figures for the respective projects.

³ PTTEP had submitted a request to terminate and return the exploration block of Myanmar MD-8 Project to the Government of the Republic of the Union of Myanmar which was effective on May 15, 2016.

⁴ On 21 July, 2016, PTTEP signed the Product Sharing Contract (PSC) for the exploration block in Malaysia.

⁵ PTTEP Australasia Project holds many petroleum blocks which have various participation interests from 90 – 100%.

(1) Highlights of Project Activity in Thailand

PTTEP has 16 projects in Thailand including projects in the overlapping claims area. Most projects are in the production phase, located both in the Gulf of Thailand and onshore. The following are highlights of key project activities in Thailand during 2016.

Bongkot Project

The Bongkot Project is the largest gas field in the Gulf of Thailand, located in the southern part of the Gulf and consists of Bongkot North and Bongkot South fields. The Company holds 44.4445% interest and is the operator. The Project has been in production since 1993. All of the natural gas and condensate produced from the Bongkot Field are sold to PTT, under a Take-or-Pay basis pursuant to long-term sales agreements.

In the year 2016, the Project continuously drilled production wells, installed wellhead platforms and constructed gas pipeline in order to maintain steady production levels. Sales volume from the Project averaged 887 million standard cubic feet per day (MMSCFD) of natural gas (equivalent to 144,311 barrels of oil equivalent per day (BOED)) and 26,638 barrels per day (BPD) of condensates.

S1 Project

S1 Project is the largest onshore oil field in Thailand, with an area covering parts of Kamphaeng Phet, Sukhothai and Phitsanulok provinces. PTTEP is the sole owner and operator. Production from the S1 Project consists of crude oil, natural gas, and liquefied petroleum gas (LPG). Crude oil produced at S1 is sold to PTT which is transported via truck and rail to Thai Oil Public Company Limited, Bangchak Petroleum Public Company Limited refineries, PTT Global Chemical Public Company Limited, and IRPC Public Company Limited. Produced gas undergoes a gas plant to separate LPG, before being sold to PTT and subsequently directed to EGAT as fuel for power generation, as well as partially used for production of CNG for natural gas vehicles (NGV).

In the year 2016, the Project has continuously drilled additional exploration, appraisal and production wells. Environment impact assessments were also undertaken in both existing and new production areas. The Project's average crude oil sales during the year was 27,380 BPD, while sales of natural gas averaged 22 MMSCFD (equivalent to 4,474 BOED), and average LPG sales was 264 metric tons per day (equivalent to 2,190 BOED).

PTTEP 1 Project

PTTEP 1 Project is located in Suphan Buri and Nakhon Pathom provinces. PTTEP is the sole owner and operator. Crude oil produced at PTTEP 1 is transported to the Bangchak refinery.

In the year 2016, the Project carried on the production wells drilling activities to maintain production plateau. The Project's average crude oil sales were 367 BPD.

B6/27 Project

The B6/27 Project is located in the Gulf of Thailand, off the coast of Chumphon province. The Company holds a 60% interest and is the operator. JX Nippon Oil & Gas Exploration Corporation terminated its 40% participating interest in the Project and is pending the approval from the Department of Mineral Fuels (DMF).

In the year 2016, the Project currently continued to focus on the geological and geophysical study.

Arthit Project

The Arthit Project is located in the southern part of the Gulf of Thailand. The Company has 80% participating interest in the Project and is also the operator. The Project entered into long-term GSA with PTT on a take-or-pay basis. After the reassessment of reserve figures and appropriate production levels, a new Daily Contract Quantity (DCQ) of 220 MMSCFD was agreed upon, and came into effect on December 30, 2011.

In the year 2016, the Project continued to carry out production wells drilled as well as constructed and installed wellhead platforms and gas pipelines in order to maintain steady production. Average natural gas sales in 2016 from the Project was 222 MMSCFD (equivalent to 35,263 BOED) and average condensates sales was 9,338 BPD.

For G8/50 Project, which is located adjacent to the northern of Arthit Project, the Company holds 80% participating interest and is an operator. DMF approved the development area together with the associated development plans in March 2012. The Project achieved its first production in 2016 through Arthit's Central Processing Platform. As a part of Arthit Project, natural gas from the Project will be sold to PTT under Arthit's gas sales contract.

L22/43 Project

The L22/43 Project is located in the Phitsanulok and Pichit provinces. The Company owns and operates 100% of the Project.

In the year 2016, the Project's average crude oil sales were 205 BPD. The Project was able to maintain crude oil production at this level as a result of the implementation of Artificial Lift techniques.

L53/43 and L54/43 Project

The L53/43 and L54/43 Project are located in Suphan Buri, Kanchana Buri, Ayutthaya and Ang-Thong provinces. The Company owns 100% interest in the Project and is also the operator. Production commenced in 2010 with crude oil produced from the Project sold to the Bangchak refinery.

In the year 2016, the Project carried out the exploration and development drilling activities to uphold production level. The Project's average crude oil sales were 530 BPD.

E5 Project

The E5 Project is located in the Khon Kaen province. The Company holds 20% participating interest in the Project with ExxonMobil as the operator. The Project embarked production since late 1990, and all of the natural gas produced by the E5 Project is sold to PTT on a take-or-pay basis pursuant to a long-term GSA. PTT then transports the gas to EGAT power plant.

In the year 2016, average natural gas sales volume for the Project amounted to 11 MMSCFD (equivalent to 1,775 BOED).

Contract 3 Project

The Contract 3 Project is located in the Gulf of Thailand, off the coast of Surat Thani province. The Company holds a 5% interest in the Project with Chevron as the operator. All of the natural gas and condensate produced from Contract 3 is sold to PTT on a take-or-pay basis pursuant to long-term GSA and condensate agreement, whilst crude oil sales agreement is under spot cargo with other purchasers.

In the year 2016, the Project continued to carry out development drilling activities in order to maintain production levels. The Project sold natural gas at an average rate of 583 MMSCFD, equivalent to 98,388 BOED, crude oil at an average rate of 24,320 BPD and condensates at an average rate of 21,301 BPD.

Contract 4 Project

The Contract 4 Project (inclusive of the G7/50 Block which is in the exploration phase) is located in the Gulf of Thailand, off the coast of Songkhla province. The Company holds a 60% interest (formerly 45%) in the Project, with Chevron as the operator. The change of the participating interest is the result of PTTEP's acquisition of Hess Corporation's subsidiaries which was completed on April 22, 2014. All of the natural gas and condensate produced from Contract 4 is sold to PTT on a take-or-pay basis pursuant to a long-term GSA and condensate agreements.

In the year 2016, the Project continued to drill additional development wells aiming to maintain production plateau. The Project sold natural gas at an average rate of 328 MMSCFD (equivalent to 55,428 BOED) and condensates at an average rate of 14,971 BPD.

G4/43 Project

The G4/43 Project is located in the Gulf of Thailand. The Company holds a 21.375% interest in the Project with Chevron as the operator. The project together with B8/32 & 9A Project has long-term GSA with PTT and sale agreements for crude oil under spot cargo with other purchasers.

In the year 2016, the project continued to carry out development drilling to sustain production level. The sales volume of crude oil and natural gas averaged 6,084 BPD and 2 MMSCFD (equivalent to 325 BOED), respectively.

Sinphuhorm Project (EU-1 and E5-North)

The Project is located in the Udon Thani and Khon Kaen provinces. The Company owns a 55% interest (formerly 20%) in the Project and is also the operator. The increase in participating interest is the result of PTTEP's acquisition of Hess Corporation's subsidiaries which held stakes in the Sinphuhorm Project. The acquisitions were completed on April 22, 2014. The Sinphuhorm Project has long-term GSAs with PTT.

In the year 2016, sales volume of the Project averaged 118 MMSCFD for natural gas (equivalent to 19,473 BOED) and 435 BPD for condensates.

B8/32 & 9A Project

The B8/32 & 9A Project is located in the Gulf of Thailand, off the coast of Chumphon province. The Company holds a 25% interest in the Project with Chevron as the operator. The Project currently has long-term GSAs with PTT and sale agreements for crude oil under spot cargo with other purchasers.

In the year 2016, the Project continued to carry out development drilling and waterflood operations in order to maintain the crude oil production levels. Sales volume averaged 27,565 BPD for crude oil and 127 MMSCFD for natural gas (equivalent to 22,723 BOED).

G4/48 Project

The G4/48 Project is located in the Gulf of Thailand, offshore from Surat Thani province. PTTEP holds 5% interest in the Project with Chevron as the operator. The Project together with Contract 3 Project has long-term GSAs with PTT and crude oil sale agreements under spot cargo with other purchasers.

In the year 2016, sales volume from the G4/48 project averaged 7 MMSCFD for natural gas (equivalent to 1,025 BOED) and 1,580 BPD for crude oil.

Projects located in overlapping claims areas

G9/43 Project

The G9/43 Project is located in the Gulf of Thailand, with 100% ownership and operatorship of the Project. Activities at this Project have been suspended pending the resolution of the boundary dispute between the governments of Thailand and Cambodia.

MTJDA Project

PTTEP has a 50% participating interest in the MTJDA Project with Carigali PTTEPI Operating Company Sdn. Bhd. as the operator. PTTEP, PC JDA Ltd. (a subsidiary of Petronas, Malaysia's Natural Oil Company) and the Malaysia-Thailand Joint Authority (MTJA) executed a GSA for the sales of the natural gas from the MTJDA Project to PTT and Malaysia. Whilst, crude oil and condensate produced from the Project were sold through auction.

In the year 2016, the Project continued to carry out production drilling activities to maintain current production levels. The Project is also in the preparation process of development plan for phase 4. Current sales volume from the Project averaged 300 MMSCFD (equivalent to 48,826 BOED) for natural gas and 7,848 BPD for condensates.

(2) **International Projects:** PTTEP has 21 projects overseas, broken down into the following regions.

(2.1) **Project Activity Highlights in South East Asia:** PTTEP has 14 projects in this region which are located in the Republic of the Union of Myanmar (Myanmar), Socialist Republic of Vietnam (Vietnam), Federation of Malaysia (Malaysia) and Republic of Indonesia (Indonesia). The following section highlights the project activities.

Myanmar M3 Project

The Myanmar M3 Project is located in the Gulf of Moattama, Myanmar. PTTEP is the operator, and holds 80% participating interest in the Project.

In the year 2016, the Project completed drilling appraisal wells as planned and is currently assessing the Project's resource potential and its prospects for commerciality.

Myanmar M11 Project

The Myanmar M11 project is located in the Gulf of Moattama, Myanmar. PTTEP holds 100% interest in the Project and is the operator. On December 9, 2015, the Government of Myanmar has extended the exploration period; as a result, the total exploration period is 3.5 years (October 23, 2014 to April 22, 2018).

In the year 2016, the Project completed 3D seismic campaign in the first quarter and is in the process of evaluation the Project's resource potential and its prospects.

Zawtika Project

The Zawtika Project is located in the Gulf of Moattama, Myanmar. The Company owns 80% interest and is also the operator, with Myanmar Oil and Gas Enterprise (MOGE) holding the remaining 20% interest. The Company entered into a 30-year GSA on a take-or-pay basis with PTT and MOGE. The gas production will be sold to PTT supplying into Thai market and MOGE for domestic use in Myanmar. To transport natural gas from Zawtika to Thailand, the Company and the joint venture partners established a gas transportation company called Andaman Transportation Limited (ATL) to construct and operate an offshore and onshore pipeline from the Project to the Thai border. The Project commenced its gas sales in Myanmar in March 2014 and began delivering natural gas to PTT in August 2014.

In the year 2016, the Project maintained the production rate as targeted of approximately 305 MMSCFD (equivalent to 47,023 BOED). Additionally, the Project started the production operations from the fourth producing platform in Phase 1B since April 2016. The Project is currently in the construction phase for 4 production platforms in Phase 1C in order to support the production plateau of the Project.

Yadana Project

The Yadana Project is a large gas project located in the Gulf of Moattama, Myanmar. The Company holds a 25.5% interest with Total E&P Myanmar (TEPM) as the operator. Natural gas produced from the Project is sold to PTT on a take-or-pay basis pursuant to a 30-year GSA, and a certain portion is sold to MOGE for domestic use in Myanmar. To transport natural gas from Yadana to Thailand, the Company and our joint venture partners established a gas transportation company, called Moattama Gas Transportation Company (MGTC), to construct and operate an offshore and onshore pipeline from the Yadana Project area to the Thai border. Consequently, PTT completed an onshore pipeline section from the Thai border to the EGAT power generation plant in Ratchaburi province.

In the year 2016, the Project was in the construction phase of Badamayar wellhead platform expecting to complete in 2017. The Project was also in the process of drilling four development wells, which target to complete and start first production in the second quarter of 2017. During year 2016, total gas sales volume averaged 747 MMSCFD (equivalent to 90,046 BOED).

Yetagun Project

The Yetagun Project is a natural gas and condensates producing project located in the Gulf of Moattama, Myanmar. The Company holds a 19.31784% interest in the Project with PC Myanmar (Hong Kong) Limited as the operator. All natural gas from the Yetagun Project is sold to PTT on a take-or-pay basis pursuant to a 30-year GSA. To transport natural gas from Yetagun to Thailand, the Company and the joint venture partners established a gas transportation company called Taninthayi Pipeline Company (TPC) to construct and operate an offshore pipeline and an onshore pipeline (parallel to the Yadana pipeline) from the Project to the Thai border.

In the year 2016, the Project completed three infill wells drilling and found gas flow rate as planned. The Project also carried out the 3D seismic activities covering 1,734 square kilometers and currently, is in the process of evaluating petroleum prospects for future development plan. For the year, the Project's total sales volume averaged 229 MMSCFD (equivalent to 36,352 BOED) for natural gas and 4,921 BPD for condensates.

Myanmar PSC G and EP2 Project

The Myanmar PSC G and EP2 Project is located in onshore Myanmar. The Company has 70% interest in the Project and is also the operator.

The Project received the official approval from the Government of Myanmar to extend the exploration period for another 1.5-year (February 28, 2016 to August 27, 2017). Currently, the Project is under the geological and geophysical study.

Myanmar MD-7 Project

The MD-7 Project is located in deep waters of the Gulf of Moattama, Myanmar. The Company has a 100% interest in the Project and is the operator. The Project received the official approval from the Government of Myanmar to extend the exploration period for another 2-year (May 15, 2016 to May 14, 2018).

In the year 2016, the Project completed 3D seismic survey in the second quarter. The Project is also in the process of evaluating the fields' resources potentials and seeking for a joint partner for project risk management and diversification.

Myanmar MOGE 3 Project

The Myanmar MOGE 3 Project is an onshore project located in Myanmar. PTTEP holds a 75% interest and is the operator of this Project. The Project was officially approved to entry into the initial exploration phase for three years (August 21, 2015 to August 20, 2018).

The Project is in the process of 2D seismic and 3D seismic acquisition which expected to complete in the mid of 2017.

Vietnam 9-2 Project

The Vietnam 9-2 Project is located offshore southeast of Vietnam, and PTTEP has a 25% interest in the Project with Hoan Vu Joint Operating Company as the operator. First production commenced in 2008, and the crude oil produced is sold to domestic refineries while the produced natural gas is sold to Vietnam Oil and Gas Group, a state own enterprise, for domestic consumption.

In the year 2016, the Project's sales volume of crude oil averaged 4,372 BPD, while sales volume of natural gas averaged 12 MMSCFD (equivalent to 2,391 BOED).

Vietnam 16-1 Project

The Vietnam 16-1 Project is located offshore, southeast of Vietnam, with PTTEP holding a 28.5% interest, with Hoang-Long Joint Operating Company as the operator. First production commenced in 2011, and the crude oil production is sold to domestic Vietnamese refineries as well as to an international market through a bidding process. Natural gas is sold to the Vietnam Oil and Gas Group, a state-owned enterprise, for domestic consumption.

In the year 2016, the Project carried out two production wells drilling aiming to maintain production plateau and expects to begin first production within early 2017. During the year, sales volume from the Vietnam 16-1 Project averaged 26,681 BPD of crude oil and 10 MMSCFD of natural gas (approximately 2,656 BOED).

Vietnam B & 48/95 Project

The Vietnam B & 48/95 Project is located offshore of Vietnam. The Company owns an 8.5% interests in the Project with Petrovietnam as the operator.

The Project is in the process of reviewing development plans and negotiating the gas sales agreement as well as other commercial contracts.

Vietnam 52/97 Project

The Vietnam 52/97 Project is located offshore of Vietnam. The Company owns 7% interests in the Project with Petrovietnam as the operator.

The Project is in the process of reviewing development plans and negotiating the gas sales agreement as well as other commercial contracts.

Natuna Sea A Project

The Natuna Sea A Project is located in the west of the Natuna Sea in Indonesia. In 2013, PTTEP Netherlands Holding Coöperatie U.A. (PTTEP NH), a subsidiary of PTTEP, jointly signed a share purchase agreement with Pertamina Hulu Energy, a subsidiary of Pertamina, on a 50:50 basis, to acquire subsidiaries of Hess Corporation holding 23% interest in the Natuna Sea A Project. As a result, PTTEP holds 11.5% interest in the Project, with Premier Oil as the operator. The crude oil and condensate produced are sold through auction, while natural gas produced is sold in Singapore for domestic consumption.

In the year 2016, the Project produced natural gas and condensates at average rates of 226 MMSCFD (equivalent to 39,478 BOED) and 1,085 BPD, respectively.

Sarawak SK410B Project

The Sarawak SK410B Project is located in offshore Sarawak, Malaysia. In July 2016, PTTEP Hong Kong Offshore Limited (PTTEP HKO) PTTEP's subsidiaries, signed the Product Sharing Contract (PSC) with a 42.5% interest in the Project and being an operator. Other joint partners are KUFPEC and Petronas Carigali with holding interest of 42.5% and 15%, respectively.

The Project is in the preparation of 3D seismic acquisition which plans to commence in the second quarter of 2017.

(2.2) Project Activity Highlights in Africa and the Middle East: PTTEP has three projects in this region, located in the People's Democratic Republic of Algeria (Algeria), and the Republic of Mozambique (Mozambique) with the following as key highlights:

Algeria Hassi Bir Rekaiz Project

The Algeria Hassi Bir Rekaiz Project is located onshore in eastern Algeria. The Company holds a 24.5% interest and is the operator.

The Project successfully finished a drilling campaign. Currently, the Project's development plans are being prepared to be submitted to the Algerian government in early 2017.

Algeria 433a & 416b Project

The Algeria 433a & 416b Project is located onshore in the eastern Algeria. The Company holds a 35% interest in the Project, with Groupement Bir Seba Joint Operating Operator. Project successfully marked its first sales of crude oil in late 2015 at the capacity of 20,000 BPD. Production for the year 2016 averaged 15,463 BPD.

Mozambique Rovuma Offshore Area 1 Project

The Mozambique Rovuma Offshore Area 1 Project is a large natural gas project located offshore of Mozambique. The Company owns an 8.5% interest with Anadarko as the operator.

During 2016, the Project made progress by achieving several key milestones including the receipt of the onshore LNG Engineering and Construction contract as well as the receipt of government approval for Resettlement Action Plan. The Project is currently in the process of finalizing the LNG off-take agreement, and negotiating for project finance with financial institutions.

(2.3) **Project Activity Highlights in Australasia:** PTTEP has one project in this region which is located in the Commonwealth of Australia (Australia) comprising of 12 concession permits with the following as key highlights:

PTTEP Australasia Project

In 2009, the Company acquired 100% of the ordinary shares of Coogee Resources Limited, which was later renamed to PTTEP Australasia Pty Ltd. (PTTEP AA). PTTEP AA owns exploration and development fields located in the Timor Sea, in Australia. PTTEP AA currently holds concessions to 12 permits with two key oil and gas fields, including Montara, which is in the production phase and the Cash Maple which is still under feasibility studies. The rest of the concessions are primarily in the exploration phase.

Montara Field

The Montara Field is located in the Timor Sea in Australia. The Company holds 100% interest in the Project. The Project began producing crude oil from the Montara Field in 2013. The Project produced crude oil at an average rate of 14,655 BPD during 2016.

Cash-Maple Field

The Company holds 100% interest in the Project. The Project received the approval from the Australian's government to extend "Retention Lease Period" for another five years (2017-2021). Discussions with neighboring operators are ongoing to create a joint-development plan.

For other concessions, PTTEP has interests ranging from 90% to 100%, all of which are undergoing geological and geophysical studies to determine potential for petroleum.

(2.4) **Project Activity Highlights in North America:** PTTEP has three projects in this region which located in Canada and the Federative Republic of Brazil (Brazil). The following are significant activities in this region:

The Mariana Oil Sands Project

The Mariana Oil Sands Project (formerly known as the Canada Oil Sands KKD Project) is located in Alberta, Canada. In 2011, PTTEP Canada Limited (PTTEP CA), a subsidiary of the Company, acquired a 40% interest in the Canada Oil Sands KKD Project from Statoil Canada Limited (SCL), the operator of the Project holding the remaining 60% interest. The Project formerly comprised five areas, namely, Leismer, Corner, Thornbury, Hangingstone and South Leismer. In May 2014, PTTEP completed the asset swap transaction as stipulated in the Partnership Units Redemption Agreement (PURA) with Statoil Canada Limited (SCL) resulting in PTTEP CA having 100% ownership of the Thornbury, Hangingstone, and South Leismer fields, and receiving USD 426 million in cash.

The Project submitted the development proposal for Thornbury Phase 1 to the government of Alberta in May 2015. The Project is re-assessing the investment strategy going forward to reduce costs and to mitigate development risks in response to the low oil price environment.

Barreirinhas AP1 Project

The Barreirinhas AP1 Project is located in the Barreirinhas Basin, offshore to the northeast of Brazil. During April 2014, PTTEP Brazil Investments in Oil and Gas Exploration and Production Limitada (PTTEP BL, a subsidiary of PTTEP) farmed-in to the Barreirinhas AP1 Project to hold a 25% interest with BG Brasil as an operator. The Project comprises four exploration blocks called BAR-M-215, BAR-M-217, BAR-M-252 and BAR-M-254.

In the year 2016, 3D seismic acquisition for the area was completed, and petroleum potential is being evaluated.

The Brazil BM-ES-23 Project

The Brazil BM-ES-23 Project is located in the Espirito Santo Basin, offshore to the east of Brazil. During September 2014, PTTEP Brazil Investments in Oil and Gas Exploration and Production Limitada (PTTEP BL) acquired a 20% stake in the BM-ES-23 Project whose operator is Petrobras. The Project is currently studying the petroleum potential.

Projects Divestment and Relinquishment in 2016

Oman 44 Project

The Oman 44 Project is located onshore, to the west of Muscat, Oman. The Company owns 100% of the Project and is also the operator. Natural gas and condensate production began from the Shams fields in 2007.

In the year 2016, the Company divested PTTEP Oman Company Limited (PTTEP OM, a subsidiary of PTTEP) who hold 100% interest in Oman 44 Project to ARA Petroleum LLC.. Concurrently, the Company continues to explore for new investment opportunities in Oman as PTTEP has signed a Memorandum of Understanding (MOU) with a subsidiary of the national oil company of Oman.

Kenya L11A, L11B and L12 Project

The Kenya L11A, L11B and L12 Project is located offshore of Kenya. The Company holds a 10% interest in the blocks, with Anadarko as the operator. In November 2016, the Company received official approval from the Government of Kenya for the relinquishment of exploration block of the Kenya L11A, L11B and L12 Project.

L28/48 Project

The L28/48 Project is located in the Chaiyaphum and Khon Kaen provinces in north-eastern Thailand. The Company owns a 70% interest of the Project and is the operator. In 2015, the Project completed the abandonment of Ratana-1 and Ratana-2 wells and the site reclamation. In March 2016, the Project received official approval from DMF for the relinquishment of Block L28/48.

Indonesia South Mandar Project

The Indonesia South Mandar Project is located offshore in the Makassar Straits, in Indonesia. The Company owns 50.75% interest in the Project and is the operator. The exploration activities were carried out and discovered limited petroleum potential. In December 2016, the Project received official approval from the Government of Indonesia for the relinquishment of exploration block in the South Mandar Project.

Mozambique Rovuma Onshore Project

The Mozambique Rovuma Onshore Project is located onshore, in the north of Mozambique. The Company owns a 10% interest in the onshore concession area of the Rovuma Block, with Anadarko as the operator. The Project completed Kifaru-1 exploration well which found no commercial discovery. In March 2016, the Project received official approval from the Government of Mozambique for the relinquishment of exploration block in the Mozambique Rovuma Onshore Project.

1.4.2 Structuring Policy of PTTEP Group

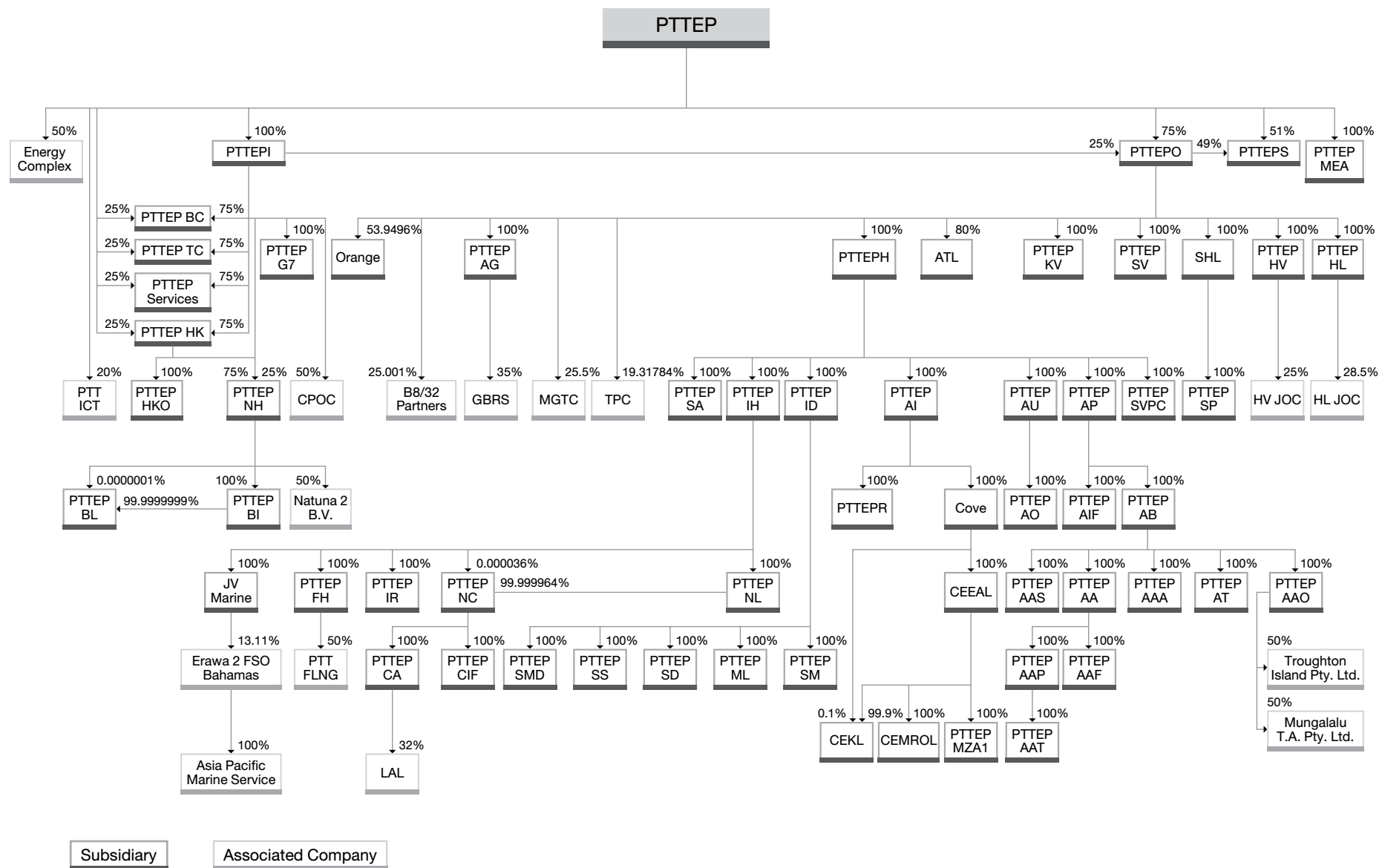
PTTEP has continuously expanded our E&P business both domestically and overseas. Due to the continuous expansion, establishing of subsidiaries and associated companies in various regions is necessary for the efficiency and competitive advantages of the Company comparable to other international oil companies as well as the operational flexibility resulted from several factors, such as laws and regulations, financial structure, tax regimes, business and investment conditions, and risk management.

The Company's policy is to manage our subsidiaries strictly in line with our business direction and strategy. Subsidiaries' operations are managed mainly by the Company's executives and employees who are in turn guided by our management and internal control systems. In managing our associated companies, our nominated representatives serve as a shareholder and/or a member of the Board of Directors accordingly to the terms of the investment in order to be able to effectively define the overall business strategy and policy of the companies. The Good Corporate Governance and Business Ethics of PTTEP Group meanwhile is strictly adhered to in order to ensure the effectiveness, transparency, fairness, and success towards the goals.

The Company usually assigns and places our executives in the subsidiaries and associated companies as directors to ensure that they are managed in line with the Company's business direction and strategy. The Company may also appoint a local director, if required by the laws and regulations or investment conditions of the specific countries. To provide operational flexibility for the subsidiaries and associated companies, the Company delegates sufficient authority to the executives as specified by the Corporate DAS (Delegation of Authority and Signatures) similarly to the practice of other leading E&P companies. The subsidiaries and associated companies meanwhile are obligated to report their performance to the Company on a quarterly basis to ensure their performance and effectiveness.

1.4.3 Shareholding Structure of PTTEP Group

As of December 31, 2016, PTTEP invested in 75 legal entities, comprising 59 subsidiaries and 16 associated companies. Shareholding structure of the PTTEP Group is illustrated as follows:



1.5 Relationship with the Major Shareholder

PTTEP's major shareholder is PTT Public Company Limited (PTT), a state-owned company which engages in fully integrated petroleum and petrochemical businesses by strategically investing directly and indirectly through its group of companies both in the upstream and downstream businesses.

Currently, PTT holds 65.29% of the Company's registered and paid-up capitals, effectively making the PTT Group the only full-scale natural gas business operator in Thailand. As the major buyer of the Company's petroleum products, PTT, in turn, refines and processes the products and supplies them as energy and raw materials for the power, petrochemical, transportation sectors as well as other industries and households.

In 2016, the Company supplied crude oil, natural gas, LPG, and condensate to PTT. Conditions and price settings of all transactions undertaken between PTTEP and PTT follow normal business operations at the arm's length basis conditions for non-related persons or operations. Details of connected transactions between PTTEP and PTT are disclosed in the "Connected Transactions" section.

2.1 Revenue Structure

PTTEP and our subsidiary's revenues are mainly from sales of petroleum products of which its price is marked to the world fuel price in US Dollar. Thus, PTTEP and our subsidiaries' revenue structure of 2014 – 2016 are presented here in US Dollar in order to reflect the Company's revenue structure.

The petroleum exploration and production projects in the production phase of PTTEP and our subsidiaries as at December 31, 2016 comprised 23 projects: the Bongkot, Contract 4, S1, Yadana, Yetagun, Contract 3, B8/32 & 9A, PTTEP1, E5, B6/27, Sinphuhorm, G4/43, Arthit, Vietnam 9-2, PTTEP Australasia, G4/48, MTJDA, Vietnam 16-1, L53/43 & L54/43, Natuna Sea A, Zawtika, L22/43 and Algeria 433a&416b projects. In addition, PTTEP and our subsidiaries recorded revenues proportionately from gas pipeline transportation which are Moattama Gas Transportation Company (MGTC), Taninthayi Pipeline Company (TPC) and Andaman Transportation Limited (ATL).

Revenue structure of PTTEP and our subsidiaries during 2014-2016

Product	Operated by	% of interest	2014 (Restated)		2015		2016	
			Revenue (Million USD)	%	Revenue (Million USD)	%	Revenue (Million USD)	%
Sales								
Crude	PTTEP	-	263.67	3.36	141.37	2.51	115.46	2.66
	PTTEPI	100	65.49	0.83	40.18	0.71	36.30	0.83
	PTTEPS	100	676.00	8.61	367.76	6.54	290.41	6.68
	Orange	53.9496	182.64	2.32	87.69	1.56	75.49	1.74
	B8/32 Partners	25.0009	76.20	0.97	35.04	0.62	28.75	0.66
	PTTEP HV	100	50.42	0.64	22.34	0.40	17.34	0.40
	PTTEP AP	100	677.11	8.62	334.62	5.95	235.79	5.42
	PTTEP HL	100	339.73	4.32	162.18	2.88	114.77	2.64
	Natuna 2	50	3.04	0.04	2.05	0.04	1.54	0.04
	PTTEP AG	100	-	-	2.88	0.05	34.10	0.78
Natural Gas	PTTEP	-	2,209.84	28.13	1,899.45	33.78	1,560.28	35.89
	PTTEPI	100	1,019.95	12.98	1,218.06	21.66	856.73	19.71
	PTTEPS	100	59.33	0.76	45.42	0.81	36.34	0.84
	Orange	53.9496	34.82	0.44	28.66	0.51	31.84	0.73
	B8/32 Partners	25.0009	14.48	0.18	11.02	0.20	9.90	0.23
	PTTEP HV	100	1.77	0.02	1.54	0.03	1.36	0.03
	PTTEP OM*	100	14.29	0.18	-	-	-	-
	PTTEP HL	100	6.05	0.08	2.52	0.04	1.70	0.04
	Natuna 2	50	105.21	1.34	64.64	1.15	43.97	1.01
	PTTEP SP	100	192.68	2.45	211.27	3.76	177.99	4.09
LPG	PTTEP	-	7.14	0.09	9.33	0.17	9.48	0.22
	PTTEPS	100	21.41	0.27	27.99	0.50	28.44	0.65

Product	Operated by	% of interest	2014 (Restated)		2015		2016	
			Revenue (Million USD)	%	Revenue (Million USD)	%	Revenue (Million USD)	%
Condensate	PTTEP	-	997.90	12.70	480.31	8.54	401.05	9.22
	PTTEPI	100	92.92	1.18	48.08	0.85	43.02	0.99
	PTTEPS	100	2.23	0.03	1.32	0.02	1.07	0.02
	PTTEP OM*	100	71.11	0.91	-	-	-	-
	PTTEP SP	100	66.24	0.84	40.95	0.73	36.44	0.84
Diluted Bitumen**	PTTEP CA	100	67.52	0.86	-	-	-	-
Total Sales			7,319.19	93.17	5,286.67	94.01	4,189.56	96.36
<u>Revenue from Pipeline Transportation</u>								
Gas Pipeline Transportation	MGTC	25.5	75.05	0.96	53.16	0.95	28.20	0.65
	TPC	19.3178	41.59	0.53	19.80	0.35	9.30	0.21
	ATL	80	21.28	0.27	45.53	0.81	28.99	0.67
Total Revenue from Pipeline Transportation			137.92	1.76	118.49	2.11	66.49	1.53
<u>Other Income</u>								
Gain On Foreign Exchange			-	-	-	-	11.59	0.27
Interest Income			22.93	0.29	31.92	0.57	30.06	0.69
Gain On Financial Derivatives			197.02	2.51	132.16	2.35	-	-
Other Income			156.64	1.99	45.20	0.80	41.48	0.95
Total Other Income			376.59	4.79	209.28	3.72	83.13	1.91
Total Revenues			7,833.70	99.72	5,614.44	99.84	4,339.18	99.80
Share of Gain of Associates and Joint ventures			21.94	0.28	9.03	0.16	8.55	0.20
Grand Total after include Share of Gain of Associates and Joint ventures			7,855.64	100.00	5,623.47	100.00	4,347.73	100.00

*Revenue of PTTEP OM was represented in discontinued operations. The additional information is disclosed in Note 13 - Divestment of PTTEP Oman Company Limited and Discontinued Operations

**A mixture of bitumen and condensate or naphtha in order to create a product that is saleable, transportable, and refineable

For 2016, total revenues for PTTEP and our subsidiaries was 4,348 MMUSD (equivalent to 153,047 MMTHB), a decrease of 1,276 MMUSD or 23% when compared with the revenues in 2015 which was 5,624 MMUSD (equivalent to 192,219 MMTHB). The decrease was primarily due to a decrease in sales revenue of 1,097 MMUSD from a reduction in the average selling price to 35.91 USD/BOE (2015: 45.29 USD/BOE). In addition, sales volume decreased to 319,521 BOED (2015: 322,167 BOED). The decrease in the sales volume was mainly from the divestment of PTTEP Oman Company Limited (PTTEP OM), a subsidiary of PTTEP Group and holds 100% of participating interest of Oman 44 Project.

2.2 Products and Services

2.2.1 Petroleum

Petroleum is defined as a naturally occurring hydrocarbon mixture, including crude oil, natural gas, condensate, related products, and other hydrocarbon products which are free in nature.

Crude oil is the portion of petroleum which is liquid in nature and obtained from oil wells and gas separation process, yet to be refined or purified.

Natural gas is hydrocarbon in gas or vapor phase at atmospheric temperature and pressure, commonly having methane as its major constituent.

Condensate is a low-density liquid hydrocarbon. It is condensed from hydrocarbon gas. Condensation occurs when gas is produced at the surface where temperature and pressure are lower than those in the reservoir.

Liquefied Petroleum Gas (LPG) is obtained from crude oil refinery or natural gas separation processes, primarily consisting of butane and propane.

Crude oil, condensate and LPG are measured in barrel, while natural gas is measured in cubic foot at the standard conditions (One atmosphere or atm and 60 degree Fahrenheit). All petroleum products can be converted to barrel of oil equivalent (BOE) based on their heat contents. One cubic foot of natural gas has a heating value of approximately 1,000 British thermal units (BTU), whereas one barrel of crude oil has a heating value of approximately 6,000,000 BTU.

2.2.2 Gas Transportation Pipeline

PTTEP Offshore Investment Company Limited (PTTEPO), a wholly-owned subsidiary of PTTEP, has major investments in other companies, such as 80% holding in Andaman Transportation Limited (ATL), 25.5% in Moattama Gas Transportation Company (MGTC), and 19.31784% in Taninthayi Pipeline Company (TPC). The objective of the company is to invest in gas pipeline transportation connecting between the Republic of the Union of Myanmar and Thai borders.

2.2.3 Jetty and Warehouse

Petroleum Development Support Base was established to provide jetty and warehouse services to support offshore exploration and production activities both in Thailand and abroad. The support base mainly accommodates the Company's own offshore operating projects in Thailand, such as Bongkot Project, Arthit Project, B6/27 Project, as well as those of other offshore oil and gas operating companies, such as PTT, Chevron Thailand Exploration and Production Limited, Carigali-PTTEPI Operating Company Sdn Bhd (CPOC), MP G11 (Thailand) Limited, and KrisEnergy G10 (Thailand) Ltd. The support base can also support affiliated offshore operating projects, such as Myanmar M3 Project, Myanmar M11 Project, and Zawtika Project which are located in the Republic of the Union of Myanmar. Currently, our support base operates from two branches in, namely, Songkhla province and Ranong province.

1. *Petroleum Development Support Base (Songkhla Branch)* solely provides marine jetty berthing and warehousing services which are owned and operated by PTTEP International Limited (PTTEPI), a subsidiary of PTTEP. The jetty is equipped with 380 meters of wharf which is capable of berthing six supply vessels with a size of more than 500 gross tonnes simultaneously. The jetty is also equipped with storage facilities and operated with a high standard of material-handling equipment. The support base also operates under the international management system for Safety, Security, Health and Environment, while strictly following the International Ship and Port Facilities Security Code (ISPS Code) which is awarded by the Marine Safety and Environment Bureau of the Royal Thai Marine Department. The jetty is therefore recognized as one of the country's leading shore base facilities for petroleum exploration and production activities. The 58-rai warehousing service facility is divided into four sections, namely, storage warehouse, open yard, free zone storage warehouse, and free zone yard for the best storage and maintenance purpose of materials and equipment as well as for the privilege of taxes and custom duties.

2. *Petroleum Development Support Base (Ranong Branch)* provides marine jetty berthing and warehousing services which are owned and operated by PTTEPI; though the jetty service which is operated through Ranong multi-purpose port is owned by the Port Authority of Thailand, operating from a 150-meter wharf which is capable of berthing two supply vessels with a size of more than 500 gross tonnes simultaneously. The support base is also fully equipped with storage facilities and standard material-handling equipment. The 25-rai warehousing service facility is divided into four sections which are storage warehouse, open yard, free zone storage warehouse, and free zone yard for the best storage and maintenance purpose of materials and equipment as well as for the privilege of taxes and custom duties.

To ensure that services of both support base branches meet the international standards and top safety level, performance audit is continuously conducted to emphasize on the Safety, Security, Health and Environment. Both are also operated and equipped with high security systems, such as parameter and high mast lights, barb wire fence, CCTV system, and 24-hour security guards.

PTTEP regularly exercises awareness and gets involved with the local community in the operating areas. The Company holds several certificates which are accredited by the International Environment Control Program (ISO 14001 certification), and the Occupational Health Control Program (OHSAS 18001 certification). The Company has also prepared the Emergency Response Plan under the ISO 22301 standard to handle unexpected and emergency cases as well as to rehearse and exercise our response plan to ensure that our support base is capable to response and employ new technologies and methods for continuity of the operation.

2.2.4 PTT ICT Solutions Company Limited (PTT ICT)

PTT ICT Solutions Company Limited, an affiliate of which 20% shares is owned by PTTEP, has signed an agreement with PTTEP to provide the Company with all information technology and communication services accordingly to the resolution of PTTEP's Board of Directors Meeting No. 10/2549/254 on September 29, 2006. The agreement includes infrastructure design and implementation services, consultancy services, procurement services, and outsourcing services to support the Company's needs in information technology and communication, based on the PTT Group's ICT Policy Strategy for driving and increasing of synergy within the group. The 5-year renewal contract has been in effect since January 1, 2016.

2.2.5 Energy Complex Company Limited (Energy Complex)

PTT and PTTEP have jointly established, constructed, and managed the Energy Complex Investment Project. The complex is considered the energy business center of the country, also comprising the Ministry of Energy, subsidiaries and associated companies of the PTT Group, and some private energy companies.

2.2.6 PTTEP Services Limited (PTTEP Services)

The concept that eventually became PTTEP Services was originated from PTTEP's Board Meeting No. 12/2546/216. The objective of the company is to supply manpower to support operational activities of PTTEP Group companies and to support PTTEP business expansion domestically and internationally where more capable manpower is necessarily required.

To fulfill these requirements, the company has recruited and hired staff to serve PTTEP since July 1, 2004. Since then, it has continuously developed and improved its compensation and benefits policies and practices to ensure that standardized welfare and benefits are provided.

To enhance staff's capability to effectively support PTTEP operations, PTTEP Services has provided training and development activities, focusing on compulsory Safety, Security, Health and Environment (SSHE) training and functional training guided by advices of the line management. In addition, the company has also provided basic skills training, such as soft skills training and computer skills training to support the staff in their day-to-day work.

2.3 Permission to Operate, Concession or Business Promotion

PTTEP operates petroleum exploration and production in the Kingdom of Thailand and abroad. The Company's investments in foreign countries must comply with all applicable laws and regulations of those invested countries, such as Production Sharing Contract, Concession Agreement, and Services Agreement. Within the Kingdom of Thailand, the Company must comply with the Petroleum Act B.E. 2514 which addresses details and procedures of, such as application process, process for awarding petroleum concessions, and period of production. The act also addresses various forms of benefits to be provided to the government who is the owner of petroleum resources. These are, such as royalty, petroleum income tax, and other benefits. Key points in the petroleum business operation are as follows.

(1) Issue of Concession Areas

The Department of Mineral Fuels, a department of the Ministry of Energy, delineates exploration blocks and invites oil companies to submit their applications for concessions. The Petroleum Committee meanwhile is responsible to consider the applications initially screened by its sub-committee. The Energy Minister with the approval from the Cabinet has the power to award and sign the concessions. The government, on the other hand, is the authority who considers the qualifications of each applicant, taking into account the proposed work program, adequacy of the investment funds to be brought in and used in the exploration activities, transfer of technology, employment of Thai nationals, and the utmost other benefits which the country can derive.

(2) Role of the Operator

A petroleum concession may be awarded to one concessionaire or a joint venture of two or more co-concessionaires. Since the petroleum exploration and production business is relatively high in risk, it is common for companies to form a joint venture in order to diversify the risks. In a joint venture, one company will be designated as the “operator” to conduct the exploration and production operations on behalf of its partner and commonly under the supervision of a management committee composed of representatives from all the related parties. Other companies which participate in the joint venture are called “non-operators”. The operator sets the cash call on all of the partners to finance the project, while the non-operators through their representation in the management committee participate in technical and financial decisions. Generally, whether an oil company will become a project operator depends largely on its investment conditions, readiness, and business strategy in that particular project.

(3) Nature of Operations and Investment Decisions

Before an oil company decides to invest in a petroleum exploration in the Kingdom of Thailand or abroad, it has to consider the chance of having a successful exploration as well as other investment risk factors. A thorough study on the information available is conducted to determine whether the area has high petroleum potential and whether the project is commercially feasible. The success ratio of exploration wells in neighboring areas as well as other risk factors in the invested countries must also be taken into account. Assuming that the project is commercially feasible, the company will apply for a petroleum concession or, if the concession is already awarded, “farm-in” to the existing petroleum concession.

After the oil company is awarded a concession area for exploration of petroleum, an exploration program will be conducted, normally taking 2-3 years. If the petroleum reserves are found, the oil company will compare the amount of investment funds required for the development phase and the expected sales value of the petroleum based on the commercialized petroleum reserves. If the study indicates that the reserves are worth investing in as generally this means that the petroleum field is considered to have commercial viability; a further investment onto development phase is therefore justified. The operator shall then apply for an approval of petroleum production and simultaneously may start its production activity. The operator is still able to explore the rest of the existing areas if it is within the time frame of the exploration period as mentioned in the concession. At this stage, the operator must have a certain degree of confidence about the investment. However, as the investment expenditure required for such development phase is very high; the operator must normally be able to identify buyers of the petroleum in advance, whereas a long-term sales agreement for the petroleum to be produced shall be signed. Currently, PTT Public Company Limited (“PTT”) is the biggest petroleum buyer in Thailand. The principal elements of the sales agreement for petroleum generally include determination method of the sales price and quantity of the petroleum to be delivered. Generally, once the commencement period as stated in the contract is reached, the buyer will be responsible for the petroleum produced immediately after the production. Sales of natural gas from domestic areas is made at the wellhead, while sales of natural gas from foreign areas is made at the Thai borders. PTT is currently responsible for installation of most of the gas pipelines for the production amount as specified in the gas sales agreement. Sales of crude oil is made at the buyer’s refinery, while sales of condensate is made at the Floating Storage Unit (FSU) near the wellhead.

(4) Description of Laws Relating to the Business

Operation of petroleum business in Thailand is governed by two major enactments, namely, the Petroleum Act, B.E. 2514, and the Petroleum Income Tax Act B.E. 2514 and its amendments. Several major features of these laws are as follows.

(1) Applicant for a concession must be a limited company or a juristic person which has the same status as a limited company, established under the laws of Thailand or foreign laws.

(2) Concessionaire, co-concessionaire(s), or joint-partner(s) must pay royalty which is normally in cash. The Minister may authorize a payment in kind of petroleum, but with a prior notice of at least not less than 6 months. The royalty can be used as credit against income tax (Thailand I) or deducted as expenses (Thailand III).

(3) Petroleum income tax may be prescribed at a rate not less than 50%, but not over than 60%, of the net interest from the petroleum business.

(4) Interest paid cannot be deducted as expenses for income tax purposes.

(5) Concessionaire has a right to obtain concessions for exploration blocks without any limitations regarding the number.

Thailand I for the petroleum concessions issued by the Ministry of Industry¹ from B.E. 2514 to B.E. 2532 and those onshore petroleum concessions issued before B.E. 2525

Thailand II² for the onshore petroleum concessions issued by the Ministry of Industry³ from B.E. 2525 to B.E. 2532

Thailand III for the petroleum concessions issued by the Ministry of Industry from B.E. 2533

Thailand IV for the petroleum concessions issued by the Ministry of Energy⁴ from B.E. 2550

Details of the Terms: Thailand I, II, III and IV

Term	Thailand I	Thailand II	Thailand III	Thailand IV
Royalty Rates	12.5% of income from sales or disposal of petroleum which may be treated as tax credit	12.5% of income from sales or disposal of petroleum which may be treated as tax credit	progressive rate at sliding scale of 5-15%, deemed to be expenses which could be deducted in tax calculation	progressive rate at sliding scale of 5-15%, deemed to be expenses which could be deducted in tax calculation

¹ Currently, the Ministry of Energy

² Under section 36 of Petroleum Act (No. 4) B.E. 2532, all petroleum concessionaires under Thailand II have applied to be subject to the criteria under Thailand III.

³ Op. Cit., footnote 1

⁴ Petroleum Act B.E. 2514 as amended by No. 6 B.E. 2550 became effective on October 18, 2007.

Term	Thailand I	Thailand II	Thailand III	Thailand IV
Petroleum Income Tax	50% of net profit from petroleum business operation	50% of net profit from petroleum business operation	50% of net profit from petroleum business operation	50% of net profit from petroleum business operation
Special Benefits	-	annual benefits and annual production bonus	special remunerator benefit which may be taken as deduction	special remunerator benefit which may be taken as deduction
Exploration Period	8 years with 4 year extension	8 years with 4 year extension	6 years with 3 year extension	6 years with 3 year extension
Production Period	not exceeding 30 years from exploration's expiration date, with extension not exceeding 10 years	not exceeding 30 years from exploration's expiration date, with extension not exceeding 10 years	not exceeding 20 years from exploration's expiration date, with extension not exceeding 10 years	not exceeding 20 years from exploration's expiration date, with extension not exceeding 10 years
Concession Areas	not exceeding 10,000 sq. km. per exploration block, up to 5 exploration blocks	not exceeding 10,000 sq. km. per exploration block, up to 5 exploration blocks	not exceeding 4,000 sq. km. per exploration block, up to 5 exploration blocks	not exceeding 4,000 sq. km. per exploration block, without limitation over number of exploration blocks

2.4 Market and Competition

PTTEP has invested in both domestic and overseas projects, including Indonesia, the Republic of the Union of Myanmar, Vietnam, the Sultanate of Oman, Algeria, Australia, Canada, the Republic of Mozambique and Brazil. The target markets are both domestic and overseas where we have invested in. The Company's petroleum products include natural gas, crude oil, condensate, and LPG.

In 2016, total sales by the Company and our subsidiaries averaged 319,521 BOED which was approximately the same as the previous year's. The total sales ratio of natural gas to liquid was 70%:30% by volume and 65%:35% by revenue, as shown below.

Product	Volume	Value (million USD)
Natural Gas	505,337 MMSCF or 81.05 MMBOE	2,729.65
Condensate	12.03 MMBBL	489.89
Crude Oil	23.06 MMBBL	949.95
LPG	96,731 metric tons or 0.80 MMBOE	37.92

2.4.1 Marketing Characteristics

PTTEP sells our outputs from domestic and regional projects primarily to the Thai market through PTT Plc. (PTT), the major buyer and processor of all the products. PTT then turns the processed products to the country's power sector, petrochemical industry sector, transportation sector, industry sector, and household sector.

Marketing of petroleum products varies with their characteristics and field location which in turn 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. Currently, the designated transfer points for all domestically sold gas are at the Central Processing Platform (CPP), from which the buyer will invest in the transmission system to the CPP. The delivery point of the gas sold from the Republic of the Union of Myanmar to Thailand is however at the Myanmar-Thai border. In this case, the seller is responsible for investment in the transmission pipelines from the CPP to the border.

Gas prices are usually linked to fuel prices and several key economic indices as well as to reflect the investment costs and be competitive comparing with fuel oil for the GSA period.

Sales volumes are based on the assessed reserves on the negotiation date. GSAs stipulate obligations between buyer and seller for a committed volume. If the buyer does not take the volume of gas as committed to in the GSA, it must pay for the committed volume whether the gas is taken or not (Take-or-Pay). As a consequence, the buyer is entitled to take delivery of free of charge in subsequent years (Make-up Gas).

On the other hand, should the seller fail to deliver as nominated by the buyer, the buyer is entitled to an agreed discount price of the undelivered volumes as stipulated in the agreement (Shortfall).

(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 the markets.

(3) LPG

LPG produced from S1 Project is sold to PTT under a long-term contract at the price which is referenced to the ex-refinery prices announced by the Joint Committee on Energy Policy Administration.

Sales of petroleum products from PTTEP's international fields vary from country to country as follows:

- Zawtika, Yadana and Yetagun projects in the Republic of the Union of Myanmar: Approximately 80% of the produced natural gas from Zawtika and Yadana projects is primarily sold to Thailand through PTT, while the remaining 20% is sold to the Republic of the Union of Myanmar for its domestic power generation. Nearly all of the condensate from Yetagun Project is sold and consumed in the Republic of the Union of Myanmar, with the excess volume sold in the regional spot markets. All the gas output from Yetagun Project is currently sold to PTT for the consumption in Thailand.

- Oman 44 Project in the Sultanate of Oman: The gas output is sold to the government of the Sultanate of Oman, whereas the condensate is sold to PTT for the consumption in Thailand.
- Vietnam 9-2 and Vietnam 16-1 projects in Vietnam: All of the oil output produced from Vietnam 9-2 Project is sold to Binh Son Refining and Petrochemical Company Limited (BSR), a refinery in Vietnam, for the consumption in Vietnam. The produced crude from Vietnam 16-1 Project is sold in the regional spot markets through auction, while the produced gas from both projects is sold to Vietnam Oil and Gas Group, a state enterprise, for the consumption in Vietnam.
- Algeria 433a & 416b Project in Algeria: The Bir Seba Field has been commenced the production with its first commercial sales of crude oil since December 2015. The crude oil is sold and marketed by PTT as the marketing agent in the spot markets.
- Montara Project in Australia: All of the crude oil produced from the Montara Field is sold to PTT as a long-term sales agreement

For MTJDA Project in Malaysia-Thailand Joint Development Area, the produced natural gas is sold to PTT for the consumption in Thailand. Starting from April 2015, the gas has been sold to Malaysia according to the Gas Balancing Agreement between PTT and Petroliaam Nasional Berhad (PETRONAS). The condensate output meanwhile has been marketed and sold by a co-marketing agent of PTT and PETRONAS Trading Corporation Sdn Bhd (PETCO) through auction in the spot markets.

2.4.2 Competition

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

Regarding the approximate domestic production in 2016, PTTEP's petroleum production accounts for 31% of the total domestic production in 2016, making the Company the leader among the domestic producers.

Producers	% Domestic Production Volume
PTTEP	31
Chevron	26
Total	10
MOECO	7
Petronas	7
Shell	5
Others	14

Source: Department of Mineral Fuels, Ministry of Energy

Currently, the shale gas revolution is driving a dramatic restructuring of the global natural gas markets. It creates new opportunities and incentives to move lower-cost natural gas to higher-value global markets via LNG exports. The global LNG demand growth is therefore expected to be stronger, resulting in an increase of its market share in the future.

2.5 Production

2.5.1 Exploration and Production Stages and Technology

Petroleum exploration and production can generally be divided into four major stages as follows:

(1) Exploration stage: This is the first step to identify the areas with reservoir potential. The main activities conducted in this stage include:

- Primary geological and geophysical surveys
- Seismic acquisition, processing and interpretation
- Exploration well drilling and testing

(2) Appraisal/Delineation stage: This stage mainly involves with additional study to increase the certainty of estimating size and properties of the reservoirs. The main activities conducted in this stage include:

- Detailed study of petroleum geology and additional seismic survey
- Reservoir formation evaluation and conceptual development design
- Appraisal/Delineation well drilling and testing

(3) Development stage: This is the last stage prior to the production. The main activities conducted in this stage include:

- Field development plan design and optimization
- Production facilities design, construction, and installation
- Development well drilling

(4) Production stage: This is the stage where petroleum and associated products are flowed through the pressure controlled equipment (wellhead) and processing facilities including measuring equipment to obtain the production rates of all of the productions. The main activities conducted during this stage include:

- Monitoring of production rate, proportion between produced gas, crude oil or condensate, and water, as well as pressure decline rate
- Forecasting of the future reservoir performance
- Well work-over and facilities maintenance

PTTEP has been well equipped in terms of manpower, technology and equipment to operate the business efficiently according to the Company's target.

2.5.2 Petroleum Reserves

Petroleum reserves can be divided into two categories, namely, Proved Reserves and Unproved Reserves according to the level of certainty.

(1) Proved Reserves are those quantities of petroleum which, by analysis of geological and engineering data, can be estimated with reasonable certainty to be commercially recoverable, from a given date forward, from known reservoirs and under current economic conditions, operating methods, and government regulations.

Practically, Proved Reserves mean the petroleum in reservoirs which can be commercially produced based on supporting data gathered during the well testing process. In some cases, reserves may be classified as Proved Reserves essentially when the results from well logging and/or analyzing of the core samples can prove that the reservoirs and petroleum in the reservoirs are similar or comparable to those of the neighboring areas which have already been commercially produced or with the potential to be produced according to their well testing results. In addition, Proved Reserves must be able to be produced by using the existing production equipment or with the production equipment that have a firmed plan to install in the future.

(2) Unproved Reserves are defined based on geoscience and/or engineering data similar to that used in the estimation of Proved Reserves but with technical or other uncertainties which preclude such reserves from being categorized as Proved. Unproved Reserves can be further categorized into Probable Reserves and Possible Reserves as follows:

- Probable Reserves are those additional quantities of petroleum obtained from an analysis of geoscience and/or engineering data similar to that used in the estimation of Proved Reserves but with less production possibility.
- Possible Reserves are those additional quantities of petroleum obtained from an analysis of geoscience and/or engineering data similar to that used in the estimation of Probable Reserves but with less production possibility than both Proved Reserves and Probable Reserves.

The Company's Proved Reserves are reviewed annually by our earth scientists and reservoir engineers to ensure the industry's rigorous professional standards. The Proved Reserves are reported on a gross basis which includes the Company's net working interest and related host country's interest. As of December 31, 2016, the total amount of Proved Reserves of PTTEP Group's projects was 170 million stock-tank barrels (MMSTB) of crude oil and condensate⁵, and 3,371 billion standard cubic feet (BSCF) of natural gas or 525 million barrels of oil equivalent (MMBOE). The total amount of Proved Reserves in terms of oil equivalent in consolidation was therefore 695 MMBOE. Details of the Company's Proved Reserves are shown in the following table.

⁵ LPG included

PTT Exploration and Production Public Company Limited

Crude Oil and Condensate and Natural Gas Proved Reserves ⁽¹⁾

As of December 31, 2016

	Crude Oil and Condensate ⁽²⁾ (MMSTB)			Natural Gas (BSCF)			Barrel of Oil Equivalent (MMBOE)		
	Domestic	Foreign	Total	Domestic	Foreign	Total	Domestic	Foreign	Total
Proved Reserves as of Dec 31, 2015	108	72	180	2,021	1,570	3,591	440	298	738
1) Revision of previous estimates	18	1	19	292	(18)	274	65	(1)	64
2) Improved recovery	4	-	4	5	-	5	5	-	5
3) Extensions and discoveries	5	-	5	111	-	111	23	-	23
4) Purchases/Sales of petroleum in place	-	-	-	-	-	-	-	-	-
5) Production	(27)	(11)	(38)	(411)	(199)	(610)	(95)	(40)	(135)
Proved Reserves as of Dec 31, 2016	108	62	170	2,018	1,353	3,371	438	257	695

(1) The Proved Reserves are reported on a gross basis which includes the Company's net working interest and the related host country's interest.

(2) LPG included

2.5.3 PTTEP Petroleum Production

In 2016, the total production of PTTEP Group was 135 MMBOE, consisting of 38 MMSTB of crude oil and condensate* and 610 BSCF or 97 MMBOE of natural gas. This was equivalent to a production rate of approximately 368,279 barrels of oil equivalent per day (BOED) which was approximately 5,609 BOED or 1.5% decrease from the previous year. The decrease was mainly due to temporary production facility shutdown for maintenance and natural production decline of PTTEP Australasia, Vietnam 16-1, and Yetagun projects. The reduction of the production however is compensated by an increase of the production from Algeria 433a & 416b Project.

2.5.4 Environmental Impact Mitigation and Management

Since 2016, an effective and standardized environmental management system of PTTEP has been developed and implemented to ensure that the following potential environmental impacts are mitigated and controlled:

- Water and soil contamination from discharges of drilled cuttings as per the Environmental Impact Assessment (EIA) Report
- Air pollution from hydrocarbon releases and atmospheric emissions from gas flaring, venting, fugitive and fuel combustion from the production process
- Accidental spills of hydrocarbons (oil and condensate) and chemical substances during drilling and production activities

PTTEP conducts environmental impact assessment prior to commencing new exploration and production projects, which is legally required to ensure that the environmental mitigation and monitoring programs has been put in place to minimize environmental impacts arising from operations for both domestic and international projects.

Currently, mitigation and monitoring of the above environmental impacts are controlled and regulated by local government agencies. In Thailand, there are two main agencies, namely, the Department of Mineral Fuels (DMF) of the Ministry of Energy which plays a major role in regulating environmental impacts from exploration and production companies, and the Office of Natural Resources and Environmental Policy and Planning (ONEP) of the Ministry of Natural Resources and Environment which issues directives and approvals for conducting of environmental impact assessments prior to the commencement of exploration, drilling, and production projects.

In an effort to reduce environmental impacts and endorse environmental sustainability, the Company has introduced and implemented, with continuous improvement and monitoring, the following initiatives:

- (1) Implementation of a sustainable development philosophy and framework for the Company's business and daily operations to satisfy our current corporate vision and mission, resulting in sustainable values for all stakeholders

* LPG included

The Company's sustainable development framework focuses on three dimensions of business, namely, social, environmental, and economic. In line with our SD G.R.O.W.T.H Policy and Framework, the PTTEP Sustainable Development (SD) Guideline as well as the PTTEP SD Roadmap are developed and implemented to secure the Company's path towards sustainability.

(2) Implementation of the ISO 14001:2004 Environmental Management System (EMS) Standard by PTTEP's domestic operational projects

According to the ISO14001 requirements, an environmental management system should be in compliance with the Company's policies and standards, national legislations, and other national and international standards/requirements to prevent environmental pollution and degradation, promote energy conservation, and ensure the improvement of the performance. The Company, as a result, has become the first petroleum exploration and production company in Thailand and in the Southeast Asian region to achieve the ISO14001 Certification from AJA Registrars Limited under accreditation of the United Kingdom Accreditation Service (UKAS).

(3) EIA mitigation measures and monitoring program are also conducted for each project during each phase to ensure that the environmental programs stated in the environmental impact assessment are implemented and up to the standards for domestic and international projects.

(4) Establishment of 2020 greenhouse gas emissions reduction target for domestic assets to be at 20% from base year 2012. Details of the Company's greenhouse gas emission are disclosed in the 2016 Sustainability Report.

(5) Implementation of the ISO14064-1:2006 Guidance at the Organization Level for Quantification and Reporting of Greenhouse Gas Emissions and GHG Protocol, as well as the United Nations Framework Convention on Climate Change (UNFCCC) Guidelines

The GHG Reporting system is implemented to quantify, account, report, and monitor the Company's GHG emissions accurately. In addition, Climate Change Risk Assessment has also been conducted.

(6) Development of "Green Practices" Roadmap to achieve environmental sustainability with a long-term implementation plan towards 2020 to ensure that the Company's business operations are environmental-friendly and that those environmental impacts from operations are mitigated.

The Roadmap includes plans for reduction of ecological footprint, namely, (1) carbon footprint, for example, to reduce greenhouse gas emissions from our operations and other initiatives through Clean Development Mechanism (CDM), and (2) water footprint, while increasing biodiversity through environmental and CSR initiatives. The Roadmap also includes eco-efficiency projects, energy consumption schemes and reduction plan development, resource efficiency initiatives, such as recovery of flare gas for electricity generation and water scarcity study, mitigation of environmental impacts, waste management, green supply chain initiatives to become more eco-friendly, and green practices for decommissioning at project's end of life. Details on the Company's Green Practices Roadmap as well as projects and initiatives are disclosed in the 2016 Sustainability Report.

(7) Since 2008, the Company has re-injected produced water to subsurface reservoirs to ensure no overboard discharging which could affect the environment at the Bongkot Project, Arthit Project, S1 Project, and PTTEP 1 Project.

(8) Controlling and monitoring of synthetic drilling fluid concentration in cuttings to ensure that drilling fluid on cutting discharge is complied with the standards as stated in the Environmental Impact Assessment Report. New technology regarding the discharge has also been studied.

(9) Monitoring of discharged wastewater quality from production process, seawater quality, sediment quality, benthos, and fish habituating around the operation platform to ensure limited exposure to environmental hazards. In addition, Environmental Compliance Monitoring Reports of the above must be submitted to local regulators, namely, the Department of Mineral Fuels of the Ministry of Energy, and the Office of Natural Resources and Environmental Policy and Planning (ONEP) of the Ministry of Natural Resources and Environment annually.

(10) Implementation of the Spill Response

Spill equipment, response plans, trainings and exercises are provided to ensure environmentally sound operations for Tier 1. The Company is also registered as a member in the Oil Industrial Environmental Safety Group Association (IESG) for Tier 2. As for Tier 3, the Company is registered as a member of the Oil Spill Response Limited (OSRL) and cooperates with the PTT Group in response to and mitigation of environmental impacts. In 2016, the Company's representatives participated in the 9th Thailand Oil Spill Response Exercise (TOREX-16) to familiarize with the incident command system.

(11) Provision of appropriate technologies for waste management system (disposal, storage, treatment, and transport) for hazardous and non-hazardous wastes from production process for environmental impact abatement.

The Company complies with local legislations and requirements concerning waste management to ensure that waste generated was properly controlled and disposed in compliance with legislations or standards. In addition, the Company complies with the Basel Convention for the transportation and disposal of mercury contaminated wastes with the control of the Department of Mineral Fuels and the Department of Industrial Works.

(12) Provision of appropriate support and coordination with other exploration and production companies, government agencies, the Petroleum Institute of Thailand, and other related agencies/associations to encourage knowledge sharing and experience aimed to avoid environmental impacts and problems as well as to allow for further continuous improvement of environmental issues in the oil and gas sector.

2.5.5 Implementation Results over the Past Three Years

PTTEP strives to manage operational and process safety as a fundamental and critical element in our SSHE philosophy and practice. To achieve this, SSHE risks are identified, eliminated, and minimized to be As Low As Reasonably Practicable (ALARP). The Company continuously monitors, benchmarks, and improves safety performance by using various safety performance indicators such as Lost Time Injury Frequency (LTIF) and Total Recordable Injury Rate (TRIR). In 2016, both LTIF and TRIR were better than the 2015 IOGP average and have been expected to be even lower in 2017.

To be in line with the Company's sustainable growth objectives, proactive reinforcement of the SSHE Management System is carried out throughout the business life cycle in both domestic and international units. This includes periodically updating documents (standards, procedures, guidelines, etc.), conducting SSHE awareness training for all staff, encouraging use of identical standard practices to minimize the number and severity of incidents, and becoming a target-zero company.

Since 2014, the Company has strictly complied with both Thai and International legislation, and other regulations and requirements concerning the area of Safety, Security, Health and Environment (SSHE).

(1) The Company has been selected as a DJSI member of the Dow Jones Sustainability Index (DJSI) from since 2014. In 2016, PTTEP was also selected as an Industry Leader for Oil and Gas Upstream and Integrated activities.

(2) Since 2014, the Company has been rated by the Carbon Disclosure Project, a well-known organization which compiles and evaluates information regarding environmental governance, and shortlisted in the Carbon Disclosure Leader Index (CDLI) as one of the best companies in the Southeast Asia plus Hong Kong for disclosure of information on greenhouse gas emissions as well as for prevention of climate change.

(3) SSHE performance report as included in the Company's Sustainability Report has been assured by a third party since 2012 and rated to receive the highest level of Global Report Initiative (GRI) for five consecutive years.

(4) The Company conducts Environmental Impact Assessment Studies prior to commencement of all exploration and production development projects as required by local regulations.

In addition, EIA Compliance Audit Reports including Environmental Monitoring Reports are also conducted and submitted periodically to local authorities and regulators as required.

(5) The Company strictly complies with waste management regulations required by the Department of Mineral Fuels and other regulatory bodies.

(6) The Company submits Safety, Security, Health and Environment performance reports to the Department of Mineral Fuels on a monthly and annual basis, while SSHE implementation at operating sites is audited by the local regulator.

(7) The Company has continued to maintain the OHSAS 18001:2007 Occupational Health and Safety Standard, being certified by AJA Registrars Limited and accredited from ANSI-ASQ National Accreditation Board (ANAB) for our safety management system which enables us to control occupational health and safety risks as well as to improve the performance. The projects which have received the certification and accreditation are, namely, S1, PTTEP 1, Sinphuhorm, PTTEP Petroleum Development Support Bases, Arthit, and Bongkot (for both North & South fields). The Company also plans to expand coverage of the OHSAS to international assets meanwhile.

(8) The Company is constantly improving and developing our Environmental Management System Standard to comply with the revised edition of international standards ISO 14001 (ISO 14001:2004), being audited and certified by AJA Registrars Limited under accreditation of the United Kingdom Accreditation Service (UKAS). By adopting the ISO 14001 "One Common System" for all certified sites, the Company has improved the efficiency of our environmental management system by continuously upgrading the environmental practices in maintaining, developing, and reducing environmental impacts in the following areas:

- Greater Bongkot North and Bongkot South fields of the Bongkot Project)
- Arthit Project
- S1 Project
- PTTEP 1 Project
- Sinphuhorm Project
- PTTEP Petroleum Development Support Base (Songkhla province and Ranong province) – with

the scope of “provision of logistic services to offshore oil and gas operations”

- PTTEP Core Research Center – with the scope of “building management and maintenance service, core research center and logistic support for storage of core, slab samples, and archive”
- Montara Field, Darwin base, and Perth office of PTTEP Australasia (Ashmore Cartier) Pty Ltd in Australia

In 2017, PTTEP will implement the Environmental Management System Standard to be in line with the ISO 14001:2015 revision. Environmental performance will be continuously improved to ensure that our operations fully comply with regulations. The standard will also be applied at other international operating units of the Company to bring them in compliance with the ISO 14001 standard in the near future.

Regarding the spill which is one of the key performance indicators of environment management, during 2014 and 2016, the spills accounted for 1.45, 17.14 and 0.040 tonnes, respectively. Details of spill incident are disclosed in the 2016 Sustainability Report.

SSHE competency development for the Company’s employees meanwhile is crucial to reduce human errors in daily operations especially in high risk activities. We continuously provides SSHE training to employees more than that is required by legislation to improve work efficiency, effectiveness and safety. Since 2014, the Company has conducted additional in-house training for personal and process safety, environmental impact prevention, contractor safety management, and SSHE culture for all operating assets.

2.5.6 Safety, Security, Occupational Health and Environment Management

PTTEP strives to ensure that our operations do not cause harm to people, communities and environment. In all of the operations, the Company strictly complies with all relevant SSHE legislation requirements. The Company also has in place SSHE Management System (SSHE MS) which stipulates that, for all activities, SSHE risks shall be identified, assessed, and managed to As Low As Reasonably Practicable (ALARP). PTTEP SSHE MS was developed based on legal requirements and international best practices from the International Association of Oil and Gas Producers (IOGP). SSHE trainings and SSHE publications are also published to consistently promote SSHE awareness within the Company.

PTTEP SSHE MS consists of the following seven key elements:

- (1) Leadership and commitment
- (2) Policy and strategic objectives
- (3) Organization, resources and documentation

- (4) Evaluation and risk management
- (5) Implementation and operational control
- (6) Monitoring and measurement
- (7) Audit and review

As part of the Step Change in SSHE, PTTEP Life Saving Program was also launched in 2012 to reinforce the compliance culture. The program comprises 18 safety icons, based on the IOGP study of E&P incidents that lead to fatalities and serious injuries. The Life Saving Program focuses on raising awareness of activities which are most likely to result in fatalities and also highlights simple actions which individuals can take to protect themselves and others. The program has also been continuously promoted to ensure that all staff and contractors are aware of its importance and motivated to make us become a target-zero organization. The Company has developed and promoted our SSHE culture accordingly to a specific roadmap, such as providing SSHE training to improve efficiency and effectiveness, improving and updating SSHE documentation, audit by third-party auditors, and conducting risk assessments prior to work. The Company has conducted SSHE Culture Surveys by using IOGP methodology as a reference since 2011 and going forward, while the results are analyzed for ongoing improvement in our SSHE Management System and Culture.

The Company places SSHE as a core value which is integrated into our business. We believe that all incidents are preventable, and are fully committed to being a zero-incident organization. The Company therefore adheres to safe operating standards to ensure operational and process safety, occupational health, security and environmental protection for the communities in which we operate to prevent personal injuries and accidents to meet one of the key objectives of our sustainable development.

In 2016, PTTEP's Safety Key Performance Indicators of Lost Time Injury Frequency Rate (LTIF) and Total Recordable Injury Rate (TRIR) were the best in the Company's history, while our TRIR was in the Top Quartile of IOGP's performance for the group of companies with less than 50 million worked hours. Based on our SSHE analysis, the key contribution came from a decline in accidents from land transportation, chemical and hydrocarbon spills, and equipment moving/lifting activities.

The Company has been audited by the Department of Mineral Fuels (DMF) annually to ensure safe operations and regulatory compliance. In 2016, the Company received 3 Excellence in Safety, Health and Environmental Management Awards for safety of the S1, Bongkot South, and Sinphuhorm projects from General Anantaporn Kanjanarat who is currently the Minister of Energy. The Company also conducted for the first time a Mass Casualty Exercise in the Gulf of Thailand with collaboration between the Royal Thai Navy, Bangkok Hospital Group, and Faculty of Medicine from the Prince of Songkla University to ensure readiness of each supporting unit to mitigate the consequences in case of a major accident.

Due to the technical and operational complications of the petroleum exploration and production business, together with the high investment cost in project development, consideration of both internal and external risk factors associated with PTTEP's business is highly important.

3.1 Internal Risk Factors

3.1.1 New Investment Risks

In 2016, PTTEP continued to face the oil price crisis, and thus we revised our investment strategy to support sustainable growth as well as to reduce cost to increase the Company's competitiveness. By focusing on E&P opportunities in Southeast Asia, the region that we are familiar with and have operating experience, acquisition or farming in potential areas in Thailand, Myanmar and Indonesia is the short term target. For the medium term, we are considering increasing investment in Malaysia and Vietnam as well as low cost producing countries in the Middle East. Although our investments are mainly concentrated in this familiar region, risks and uncertainties still exist, e.g., the lack of clarity on decommissioning decree and profit splits in fiscal regimes, energy policy changes, political stability, and climate change.

In this regard, PTTEP has mitigated those risks which may have potentially impacted our operations and investment growth in various ways, including implementing careful due diligence process, securing proficient consultants, promoting understanding of petroleum exploration and production (E&P) business among stakeholders, proactively conducting public relations, coordinating, monitoring and providing opinions for appropriate decommissioning in terms of the technical aspect, regulatory requirements, economic feasibility as well as the study of environmental and social impact that could result from all related activities. In addition, PTTEP also regularly assessed and analyzed the influence of climate change and identified a "Low Carbon Footprint Reduction" roadmap, targets and action plans to manage impacts of those risks, such as a potential carbon tax in the countries where we operate, and the physical damage to our asset structures from the rise in global temperatures.

Investment in new countries or unfamiliar areas contains inherent risks. The Company therefore has instituted risk mitigation guidelines for the assessment of each investment. The guidelines provide consideration in various aspects, ranging from petroleum potential, size and project characteristics, acquisition procedures, additional reserves volume, operator's capability and performance, attractiveness of the fiscal regime, geographical conditions, related laws and regulations, political stability, international relations, economic and financial stability. All risks are then taken into account, from which prevention measures and options are formulated and integrated into the return-on-investment analysis or into the joint venture agreement.

Investment in new projects, including farm-in and farm-out joint ventures, mergers and acquisitions as well as withdrawals or divestment of a given project must be intensively screened by the Investment Committee and Management Committee whose responsibility are to assess and ensure that the project adheres to the Company's investment direction and policy and that it is economically and technologically, whether conventional or unconventional resources are involved, feasible, before proposing it to the Risk Management Committee endorsement prior to final approval from the Board of Directors.

3.1.2 Exploration Risks

Exploration activities are essential for the E&P business as it is to ensure that additional new petroleum reserves are found to replace those which have been turned to production and created company's revenues, and to add new reserves to support future production targets and the Company's future growth strategy.

The objective of exploration is to search for petroleum resources which are sizable enough for commercial development. The risk in exploration activities is related to Geological Risks and the uncertainty of finding a petroleum field of commercial size (Resources Volume Uncertainty).

To manage risks in exploration activities is hence associated with the chance of success of the exploration and appraisal drilling, and the size of petroleum resources, which are subject to the exploration period and expenditures. The criteria for exploration decisions are based on assessment of the chance of success or the geological risk assessment, resource estimation, assessment of the size of petroleum resource, expenditures during the exploration period, such as geological studies, seismic acquisition and interpretation, and drillings as well as exploration economic evaluation, considering all exploration and development expenditures and the government take in accordance with the conditions of the contract.

PTTEP establishes a best practice process, starting from potential petroleum basin evaluation and selection, in-depth subsurface studies of targeted blocks, and above-ground investment risks. The Geosciences and Exploration Group of PTTEP is tasked with formulating the exploration strategy and strategic plan based on the exploration portfolio management, while allocating exploration budgets to high potential blocks for further exploration activities. This process is reviewed and revised annually to reflect and ensure it remains in line with changing of the environment, outcome of exploration activities, and agreement with corporate targets.

Moreover, PTTEP also nominates a special and expert advisory team to review and ensure the quality and completeness of the investigation and that it is in compliance with the Company's standard and guideline of studies and evaluation before decision making.

3.1.3 Project Development Risks

Following the low oil price situation, PTTEP adjusted our development plans and reduced cost to enable continued operation. Development projects will contribute to the increase of reserves and production in the near future such as those in the Mozambique Rovuma Offshore Area 1 Project, Algeria Hassi Bir Rekaiz Project, Mariana Oil Sands Project and the Cash-Maple Field in PTTEP Australasia Project. Meanwhile, for new projects in which there are the potential for project development delays and cost overruns, the Company has implemented the following risk mitigation measures to enable successful and timely project completion.

(1) Project management: To safeguard against project delays and cost overruns, the Company focuses on related policy formulation, project management organization, project planning and engineering system designs, contract management, procurement, and construction monitoring.

(2) Personnel and process: To meet the targets set for safety, quality, budgets, and schedules for project completion, the Company focuses on developing our project team's skills which help the Company to better prepare for and protect ourselves from the increased competition in the employment market of those competitors with extensive skills and experience. Information and experience sharing from previous projects is also encouraged as part of all our project team skills development, while the Company's Project Realization Process (PREP) continues to actively seek out new approaches to fine-tune operations so that targets are achieved.

(3) Commercial contracts: To ensure maximum efficiency in order to minimize the risks associated with non-contractual compliance and disputes while working with our contractors, the Company focuses on contract drafting, terms and condition identification and contract administration. These risks can, however, be controlled by negotiations based on comprehensive competency, knowledge, and concerted effort from various departments, such as construction, engineering, procurement, finance, accounting, and legal. Prudent contract management also lessens the risks and possible damage that could potentially result from delays which could adversely affect a given project and the Company's performance at large.

3.1.4 Production Risks

In order to produce petroleum, PTTEP has to face various potential risks, starting from bottom of the well at the production process until the point of sale, which includes risks of well potential, production design flaws, damaged equipment, aging facilities, operation errors, and poor product quality, all of which can directly impact corporate goals, and production and sales targets.

Mitigation of production risks focuses on the areas of process planning and platform design, production control systems, and preventive maintenance. In addition, the Asset Reliability & Integrity Management System (ARIMS) which is a part of the Operational Excellence Project, has been continuously improved to ensure the highest standards of production integrity and safety. ARIMS has been designed specifically to minimize production losses due to worn-out equipment and also to improve equipment efficiency through preventive maintenance and inspection, with the goal of attaining zero unplanned shutdown. Work procedures, operation manuals, and extensive training programs have meanwhile been developed and employed to instill greater understanding and efficiency of the Company's operation personnel.

The Company has also set up the Operational Risk Committee (ORC) to analyze and assess production risks in respect to technical issues, contracts, and operational support for projects in order to increase our overall efficiency.

3.1.5 Commercial Risks

PTTEP sells the majority of our main product, which is natural gas, to the Thai market. Therefore, the Company's revenue could drop if the domestic demand decreases from the projection. The Company has therefore expanded and invested more internationally, for instance, in oil projects such as Vietnam 9-2 Project, Vietnam 16-1 Project, PTTEP Australasia Project and Algeria 433a & 416b Project in order to diversify the risk of depending entirely on Thailand's natural gas demand.

PTTEP has entered into long-term gas sales agreements (GSAs) with PTT, which is the Company's major domestic buyer. The terms of these GSAs generally last 25-30 years. To mitigate market risks that can result in refusals from buyers to purchase contracted volumes of natural gas, GSAs stipulate buyer and seller obligations for committed annual minimum volumes. Buyers must pay for the committed volume of gas, whether or not the full amount is taken (Take-or-Pay).

To effectively cope with the dynamics of the Thailand energy market, PTTEP closely monitors petroleum demand in coordination with PTT and related government agencies to collectively outline an optimized supply plan. The Company reviews and adjusts our production as well as project development plans regularly in order to ensure that the development master plan is able to optimize reserves and resources of existing assets to match the country's energy demand. The Company has a project in Mozambique which possesses large natural gas reserves that can be developed as a Liquefied Natural Gas (LNG) project. This project is a good example of a project that fits in well with PTT's plan to import LNG as well as to contribute effectively to the enhancement of the energy security of Thailand.

3.1.6 Organization Capability Risks

The abilities of an organization are key factors on the path towards the efficient achievement of the company's targets, inevitably including human resources to support the company's growth and business process efficiency and effectiveness. Potential risks that may occur are the risk of a lack of expertise and knowledge to support growth, and the risk of business process inefficiency. PTTEP, regarding this in particular, has taken the following actions to enhance our business process and organizational capability.

(1) Knowledge management, including new technologies and capability of the Company's research and development program, is developed, so that it falls into line with the Company's growth strategy. Our Capability and Technology Development Roadmap has been created and research on technology has been supported to foster business growth. Three areas of focus have been targeted: to increase exploration success, to enhance more production, and to develop green practices.

(2) Systems, procedures, and organization structure are developed in accordance with PTTEP's growth strategy and business plan, for example, work process improvement towards matrix organization in order to maximize work efficiency, Delegation of Authority and Signatures (DAS) development and proper implementation, enhancement of IT Global Platform and system stability as well as confidentiality control. Development of our financial and accounting management capability is aimed at becoming World Class Finance level, which includes increasing the efficiency of our managerial accounting data analysis for decision making in M&A, establishment of a Shared Service Center, and In-house Financial Academy training.

(3) In order to prepare for future overseas investment, Human Resources Development plans for recruiting sufficient local members of staff in targeted countries, developing staff capabilities and leadership in response to requirements as well as enhancing employee engagement programs with a target of reaching Thailand's Top Quartile by 2020. In addition, Human Resource process improvement and PTTEP's Values and Culture embedding are also key foundation efforts for development and growth of the Company in the same direction as the PTT Group's goals.

3.1.7 Safety, Security, Health and Environmental Risks

PTTEP is continuously analyzing Safety, Security, Health and Environment (SSHE) risks to reduce the likelihood and impact of unexpected events. The analysis comprises identification of internal and external factors that help to prevent major accident events and reduce the risks that would impact employees and assets to ensure operational effectiveness.

PTTPE has managed SSHE Risks utilizing our SSHE Management System to set SSHE Policy, Standards, Guidelines and Procedures for employees and contractors, so that they understand SSHE objectives and so that SSHE awareness is embedded in the Company culture by providing training to improve knowledge and performance, including training on safety culture, conducting risk management prior to starting work tasks to mitigate SSHE risk in operations, and in process and engineering to keep risks as low as reasonably practicable (ALARP)

PTTEP has monitored SSHE Risk Management via our Risk Management Committee in many levels with key risk indicators, for example, Total Recordable Injury Rate, follow up audit findings, close out status, natural disaster, security status and health infection in high risk countries to ensure all situations are being monitored to determine mitigation plans for improvement, correction, prevention and readiness to create social and business sustainability.

3.1.8 Financial Risks

Financial risks mainly consist of counterparty risks, and cash and liquidity risks. To manage counterparty risk, it is PTTEP Group policy that we conduct business only with reputable and creditworthy counterparties. The financial stability and credibility of each counterparty must be analyzed and reviewed regularly. Currently, the majority of PTTEP Group's products are sold to PTT which is our parent company.

Regarding cash and liquidity risk, which may arise from our inability to maintain adequate working capital necessary for the operations, PTTEP Group has a policy to eliminate and minimize such risk by preparing an appropriate and discreet cash flow management and maintaining both committed and uncommitted credit facilities with banks and financial institutions well in advance.

3.2 External Risks Factors

3.2.1 Political Risk in Investment Countries

In accordance with PTTEP's foreign investment policy to secure resources to meet the expanding domestic energy market and ensure long-term sustainable growth, the Company has necessarily maintained our growth strategy of expanding business in countries that have been experiencing geopolitical risks. Given these circumstances, the Company has, therefore, appointed a geopolitical risk team to monitor all these factors and periodically analyze as well as report on the development of these forms of risk. PTTEP has analyzed and evaluated a number of geopolitical risk factors, including political stability, macro-economics, legal and regulatory, and security risks across a range of investment countries and has found that the high risk areas remain in Africa and the Middle East, mainly as a result of political and economic instability. Comprehensive assessment of these risks are immediately conducted, and response promptly from the Company, especially when significant incidents happen, would immediately be made. The Company, in such cases, has a process of evaluating risks in various scenarios that assists our management and relevant departments in efficiently mitigating risks that are related to the countries in which we invest.

Analysis is also conducted to formulate geopolitical risk rating scores which will be used as part of the assessment process before making investments in new projects. In addition, PTTEP liaises closely with the Ministry of Foreign Affairs and Thai embassies in our invested countries to ensure that the Company's business operations are well-supported by these groups and that the projects are aligned with their respective national energy policies.

3.2.2 Compliance Risk

Generally, these risks can result from a variety of factors, e.g., complexity of articles of a specific law, continual changes to laws and regulations, incorrect interpretation of a law, or even nuances of the foreign language in which the law is written. The risks can potentially lead to incorrect compliance with a law, ultimately causing a violation of or non-compliance with applicable laws which in effect may lead to pecuniary punishments, e.g., fines, operational difficulties such as potential revocation and suspension of licenses, and possible damage to PTTEP's reputation. To minimize these risks, the Company has established the Compliance Department to be responsible for assuring that all of the business units strictly comply with their relevant laws, thereby building confidence among the Company's Board, management, and employees that we are fully compliant with laws relating to our business operations.

In 2015, there was a significant amendment to the Organic Act on Counter Corruption (No. 3) B.E. 2558 which extended the punishment to legal entity that relates to government official bribery. PTTEP recognized the importance and impact of the latest amendment to the Act and therefore included an anti-corruption risk into our Corporate Risk Profile to closely monitor as well as improve internal control measures, so that they would effectively prevent all possible forms of corruption. This internal control improvement and the monitoring program continued in 2016. Details are disclosed in the “Corporate Governance” section, “Anti-Corruption” part.

3.2.3 Price Risks

PTTEP Group’s product prices vary from those of world oil prices, which are subject to multiple factors beyond our control, for instance, market demand and supply, political and economic stability of various countries, OPEC’s production policy, and oil reserves in each country and the seasonal changes of the global climate.

Fluctuations in world oil prices immediately affect the prices of PTTEP Group’s crude oil and condensate. While natural gas prices tend to also follow oil prices, the built-in natural gas pricing mechanisms in the Gas Sale Agreement (GSA) typically cushion natural gas prices from oil prices volatility (Natural Hedge). Most of PTTEP Group’s contractual natural gas prices are adjusted every 6 or 12 months, depending on the gas price formula of each project. The natural gas price will move correspondingly to a certain degree compared to the prices of crude oil and condensate.

In 2016, the overall oil market situation had been weakened from the oversupply situation. January saw the lowest Dubai price at 23 USD/BBL. However, there were supporting factors, such as the OPEC and non-OPEC attempts to freeze and cut production, Canadian wildfires, unrest in Nigeria and Libya, and declining production in the U.S., which eventually elevated the Dubai yearly average price to approximately 41 USD/BBL. PTTEP Group regularly analyzes the impact of oil price to the Company’s revenues and profits in order to establish our annual oil price risk management program which will be proposed to the Risk Management Committee and the Board of Directors for consideration before implementation.

As of December 31, 2016, PTTEP Group has implemented an oil price hedging program for the volume of 9.1 million barrels for the year 2017 and achieved the objectives in accordance with risk management framework.

3.2.4 Exchange Rate Risks

PTTEP Group uses the U.S. Dollar (USD) as the functional currency in accordance with the International Financial Reporting Standards (IFRS) since the USD is used for trading petroleum products, such as crude oil and natural gas, which are the Company’s major products. PTTEP Group’s cash flows, however, still bear an exchange rate risk from the Thai Baht (THB) movement against the USD as most of the Company’s revenue is in THB, which is linked to the USD. For example, revenue from USD-linked crude oil sold to a customer that is a Thai company must be paid in THB equivalent to USD only, while the Company’s main cash outflows, such as investments and operating expenditures, are mostly in USD. The currency mismatch and discrepancies between payables and receivables’ settlement periods as well as the USD/THB volatility therefore inevitably impose foreign exchange risks to the Company’s cash flows. Under this circumstance, the Company has minimized the foreign exchange risk by using available financial derivative instruments in the market, such as forward or option contracts to hedge the exposure relating to the foreign exchange rate as determined in the sales agreements by, for example, matching the Company’s USD revenue with USD investments and operating expenditures.

With the USD as the functional currency coupled with the foreign exchange rate volatility, PTTEP Group is also exposed to the foreign exchange translation risk arising from the translation of non-USD assets and liabilities at the end of every accounting period. To minimize such translation risk, the Company has consistently put in a great effort to maintain a proper balance between our non-USD assets and liabilities, mainly in THB, as well as enter cross currency swaps on our non-USD denominated obligations in order to reduce the impact from the exchange rate volatility by converting both interest and principal payments to USD.

In addition, PTTEP Group's operating performance is affected by the USD/CAD (Canadian Dollar) volatility as PTTEP Canada Limited (PTTEP CA), a Canadian subsidiary who operates the Mariana Oil Sands Project in Canada, uses CAD as its functional currency while most of its debts are denominated in USD. This consequently causes an unrealized gain or loss from translating PTTEP CA's liabilities from CAD to USD whenever USD/CAD changes. The Company in this case has managed the translation risks in PTTEP CA by entering cross currency swaps to change USD-denominated debts to CAD-denominated debts, securing new loans in CAD, while undertaking several other actions as deemed appropriate correspondingly to nature of the business, the market conditions, and the Company's acceptable cost and risk limits.

3.2.5 Interest Rate Risks

PTTEP Group is exposed to interest rate risk as the risk, affects future cash flows and fair value of the financial instruments employed. PTTEP Group eliminates and minimizes this risk by maintaining an appropriate debt portfolio optimization (ratio of fixed rate liabilities and floating rate liabilities) and using financial derivatives, such as interest rate swaps. Interest rate risk management is conducted dynamically, appropriately, and correspondingly to the nature of the business, the market conditions, and the cost and risk limits that are acceptable to the Company.

3.2.6 Risk Arising from Disruptive Technology that Adversely Impacts Oil and Gas Industry

Technological advancement and renewable energy are playing an increasingly crucial role in energy industry, for example, a more reliable and efficient energy storage, a battery-powered car (Electric Vehicle) as well as the cost of renewables and EV business which have been driven down exponentially over the years. As such, the oil demand could be reduced so significantly that the end of oil era is imminent by 2030.

In this regard, PTTEP has formulated several mitigation plans to manage the risk by, for instance, setting up New Generation Exploration Team (NExT) to study new diversified businesses that are aligned with the corporate strategy (RENEW strategy), focusing on gas projects acquisition with committed market in short-term and gas potential exploration projects in long-term, and expanding the investment opportunity in Midstream (Liquefaction, Trading, Shipping) through the joint cooperation with PTT in LNG Value Chain.

4.1 Property, Plant and Equipment

4.1.1 Oil and Gas Properties ¹

PTTEP and our subsidiaries' properties are mainly jointly controlled oil and gas properties in each project. These properties comprise land, buildings, construction, machine and equipment, transportation pipeline, capitalized exploratory and production drilling costs, decommissioning costs, which are estimated by PTTEP Group's engineers and management's judgment, and acquisition costs of concession right, which shall incur when PTTEP and our subsidiaries acquire the concession right.

As at December 31, 2016, PTTEP and our subsidiaries' oil and gas properties are represented as share of the joint ventures' individual assets for each project as follows:

<u>PTTEP's joint ventures</u>	<u>Company's interest (%)</u>
Contract 3 (B10, B11, B12 and B13)	5
E5	20
Sinphuhorm (E5 North)	20
Algeria Hassi Bir Rekaiz	24.5
S1	25
Bongkot	44.4445
Contract 4 (B12/27)	45
Arthit	80
<u>PTTEPI's joint ventures</u>	<u>Company's interest (%)</u>
G4/48	5
Yetagun	19.31784
G4/43	21.375
Yadana	25.5
Bongkot (G12/48)	44.4445
Contract 4 (G7/50)	45
MTJDA	50
Arthit (G8/50)	80
L28/48 ²	-
PTTEP1	100
G9/43	100
L22/43	100
Myanmar M3	80

¹ See more details in Attachment 5 – Supplemental Information on Petroleum Exploration and Production Activities

² On March 11, 2016, PTTEP International Limited (PTTEPI), an operator of the exploration Block L28/48 received the official approval letter of the return of the concession block L28/48 from the Department of Mineral Fuels after the fulfilment of the concession requirements.

Myanmar M11	100
Zawtika	80
L53/43 & L54/43	100
<u>PTTEPO's joint venture</u>	<u>Company's interest (%)</u>
B8/32 & 9A ³	25.001
<u>PTTEP SV's joint venture</u>	<u>Company's interest (%)</u>
Vietnam 52/97	7
<u>PTTEP KV's joint venture</u>	<u>Company's interest (%)</u>
Vietnam B & 48/95	8.5
<u>PTTEP HL's joint venture</u>	<u>Company's interest (%)</u>
Vietnam 16-1	28.5
<u>PTTEP HV's joint venture</u>	<u>Company's interest (%)</u>
Vietnam 9-2	25
<u>PTTEP OM's joint venture</u>	<u>Company's interest (%)</u>
Oman 44 ⁴	-
<u>PTTEP AG's joint venture</u>	<u>Company's interest (%)</u>
Algeria 433a & 416b	35
<u>PTTEPS's joint venture</u>	<u>Company's interest (%)</u>
Sinphuhorm (EU-1)	20
B6/27 ⁵	60
S1	75
<u>PTTEP SM's joint venture</u>	<u>Company's interest (%)</u>
Indonesia Semai II ⁶	28.33
<u>PTTEP SA's joint venture</u>	<u>Company's interest (%)</u>
Myanmar PSC G & EP 2	70
Myanmar MD-7	100

³ PTTEP Offshore Investment Company Limited (PTTEPO) has shareholding in Orange Energy Limited and B8/32 Partners Limited, which hold the project's concession.

⁴ During the year 2016, the Group had divested PTTEP Oman Company Limited (PTTEP OM). The additional information is disclosed in Note 13 – Divestment of PTTEP Oman Company Limited and Discontinued Operations.

⁵ On December 22, 2016, another joint operation partner of the B6/27 Project, in which PTTEP Siam Limited (PTTEPS) was an operator, had terminated its 40% participating interests which was effective on January 1, 2015 based on Joint Operating Agreement. The termination is under the process of submitting the documents to the Department of Mineral Fuels for approval.

⁶ On November 7, 2014, PTTEP Semai II Limited (PTTEP SM) and its joint operation partners had submitted a request to terminate and return the exploration block of Indonesia Semai II Project after the fulfilment of the requirements of the Production Sharing Contract. The termination will be effective after receiving the official approval from the Government of Republic of Indonesia.

Myanmar MD-8 ⁷	-
Myanmar MOGE 3	75
<u>PTTEP SMD's joint venture</u>	<u>Company's interest (%)</u>
Indonesia South Mandar ⁸	-
<u>PTTEP ML's joint venture</u>	<u>Company's interest (%)</u>
Indonesia Malunda ⁹	100
<u>PTTEP CA's joint venture</u>	<u>Company's interest (%)</u>
Mariana Oil Sands	100
<u>PTTEP AP's joint venture</u>	<u>Company's interest (%)</u>
PTTEP Australasia	
● AC/L7, AC/L8, AC/RL7, AC/RL12 and AC/P54	100
● AC/L1, AC/L2 and AC/L3 ¹⁰	100
● AC/RL10	90
● AC/RL4 (Tenacious)	100
● AC/RL6 (Audacious), AC/RL6 (exclusive of Audacious) ¹¹	100
● AC/RL4(exclusive of Tenacious), AC/RL5	100
● WA-396-P and WA-397-P ¹²	-
<u>Cove Energy Group</u>	<u>Company's interest (%)</u>
Mozambique Rovuma Offshore Area 1	8.5
Mozambique Rovuma Onshore ¹³	-

⁷ On April 22, 2016, PTTEP South Asia Limited (PTTEP SA) had submitted a request to terminate and return the 100% participating interests in the exploration block of Myanmar MD-8 Project to the Government of Republic of the Union of Myanmar which was effective on May 15, 2016.

⁸ On December 23, 2016, PTTEP South Mandar Limited (PTTEP SMD) received the official approval from the Government of Republic of Indonesia to terminate its 50.7463% of Indonesia South Mandar Project.

⁹ On May 8, 2015, PTTEP Malunda Limited (PTTEP ML) had submitted a request to terminate and return the exploration block of Indonesia Malunda Project after the fulfilment of the requirements of the Production Sharing Contract. The termination will be effective after receiving the official approval from the Government of Republic of Indonesia.

¹⁰ On June 10, 2016, PTTEP Australasia (Ashmore Cartier) Pty Limited (PTTEP AAA) received the official approval from the Government of Commonwealth of Australia for the transfer of the participating interests in the exploration Block AC/L1, AC/L2 and AC/L3 from the other joint operation partner. As a result, its participating interests increased from 89.6875% to 100%.

¹¹ On August 16, 2016, PTTEP Australia Timor Sea Pty Limited (PTTEP AT) received the official approval from the Government of Commonwealth of Australia for the transfer of the participating interests in the exploration Block AC/RL6 from the other joint operation partner. As a result, its participating interests increased from 50% to 100%.

¹² On April 11, 2016, PTTEP Australasia (Ashmore Cartier) Pty Limited (PTTEP AAA) received the official approval from the Government of Commonwealth of Australia to terminate the 20% participating interests in the exploration block of WA-396-P and WA-397-P.

¹³ On March 16, 2016, Cove Energy Mozambique Rovuma Onshore Limited (CEMROL) received the official approval from the Government of Republic of Mozambique to terminate and return the exploration block of Mozambique Rovuma Onshore Project.

Kenya L11A, L11B & L12 ¹⁴	-
<u>Natuna 2's joint venture</u>	<u>Company's interest (%)</u>
Natuna Sea A	11.5
<u>PTTEP BL's joint venture</u>	<u>Company's interest (%)</u>
Barreirinhas AP 1	25
Brazil BM-ES-23	20
<u>PTTEP SP's joint venture</u>	<u>Company's interest (%)</u>
Contract 4 (B12/27)	15
Sinphuhorm (E5 North and EU-1)	35
<u>PTTEP G7's joint venture</u>	<u>Company's interest (%)</u>
Contract 4 (G7/50)	15
<u>PTTEP HKO's joint venture</u>	<u>Company's interest (%)</u>
Sarawak SK410B ¹⁵	42.5

As at December 31, 2016, details of properties' net book value are as follows:

Unit: Million USD

Details of properties	Historical cost	Accumulated depreciation	Allowance for impairment of assets	Net book value
Oil and Gas Properties	25,136.51	(16,120.99)	(1,222.87)	7,792.65
Exploration and Evaluation Assets	4,717.12	-	(1,165.86)	3,551.26
Goodwill	1,134.08	-	(119.70)	1,014.38
Pipeline and Others	1,167.06	(328.55)	(5.25)	833.26
Total	32,154.77	(16,449.54)	(2,513.68)	3,191.55

¹⁴ On November 18, 2016, Cove Energy Kenya Limited (CEKL) received the official approval from the Government of Kenya to terminate the 10% participating interests in the Kenya L11A, L11B and L12 Projects.

¹⁵ On July 21, 2016, PTTEP HK Offshore Limited (PTTEP HKO) had entered into the Production Sharing Contract to obtain the exploration and production rights of Block Sarawak SK410B located in Malaysia. PTTEP HKO holds 42.5% participating interests and is the operator of this project.

4.2 Investments

PTTEP has details of subsidiaries, associates, joint operations and joint ventures presented as follows:

Company name	Registered country	Type of business	Percentage of interest (including indirect holding)	
			2016	2015
<u>Subsidiaries</u>				
PTTEP International Limited (PTTEPI)	Thailand	Petroleum	100	100
PTTEP Offshore Investment Company Limited (PTTEPO)	Cayman Islands	Petroleum	100	100
PTTEP Services Limited (PTTEP Services)	Thailand	Human resource support	100	100
PTTEP Siam Limited (PTTEPS)	Thailand	Petroleum	100	100
PTTEP MEA Limited (PTTEP MEA)	Cayman Islands	Petroleum	100	100
PTTEP HK Holding Limited (PTTEP HK)	Hong Kong	Petroleum	100	100
PTTEP Treasury Center Company Limited (PTTEP TC)	Thailand	Treasury center for the Group's business	100	100
PTTEP Business Center Company Limited (PTTEP BC) ¹	Thailand	Petroleum	100	-
PTTEP Southwest Vietnam Company Limited (PTTEP SV)	Cayman Islands	Petroleum	100	100
PTTEP Kim Long Vietnam Company Limited (PTTEP KV)	Cayman Islands	Petroleum	100	100
PTTEP Hoang-Long Company Limited (PTTEP HL) ²	Cayman Islands	Petroleum	100	100
PTTEP Hoan-Vu Company Limited (PTTEP HV) ³	Cayman Islands	Petroleum	100	100
PTTEP Oman Company Limited (PTTEP OM) ⁴	Cayman Islands	Petroleum	-	100
PTTEP Algeria Company Limited (PTTEP AG)	Cayman Islands	Petroleum	100	100
PTTEP Iran Company Limited (PTTEP IR) ⁵	Cayman Islands	Petroleum	-	100
PTTEP Holding Company Limited (PTTEPH)	Cayman Islands	Petroleum	100	100
PTTEP Indonesia Company Limited (PTTEP ID)	Cayman Islands	Petroleum	100	100
PTTEP Africa Investment Limited (PTTEP AI)	Cayman Islands	Petroleum	100	100
PTTEP Rommana Company Limited (PTTEPR)	Cayman Islands	Petroleum	100	100
PTTEP Australia Pty Limited (PTTEP AU)	Commonwealth of Australia	Petroleum	100	100

¹ On December 27, 2016, the Group had established PTTEP Business Center Company Limited (PTTEP BC). The information is disclosed in Note 17.6 - Significant Transactions during the Year.

² PTTEP HL has a 28.5% shareholding in Hoang-Long Joint Operating Company.

³ PTTEP HV has a 25% shareholding in Hoan-Vu Joint Operating Company.

⁴ The information is disclosed in Note 13 – Divestment of PTTEP Oman Company Limited and Discontinued Operations.

⁵ On September 30, 2016, PTTEP Iran Company Limited (PTTEP IR) had received the approval of dissolution of the company from the registrar, as disclosed in Note 17.6 – Significant Transactions during the Year.

Company name	Registered country	Type of business	Percentage of interest (including indirect holding)	
			2016	2015
<u>Subsidiaries (continued)</u>				
PTTEP Australia Offshore Pty Limited (PTTEP AO)	Commonwealth of Australia	Petroleum	100	100
PTTEP South Asia Limited (PTTEP SA)	Cayman Islands	Petroleum	100	100
PTTEP New Zealand Limited (PTTEP NZ) ⁶	Cayman Islands	Petroleum	-	100
PTTEP Semai II Limited (PTTEP SM)	Cayman Islands	Petroleum	100	100
PTTEP Australia Perth Pty Limited (PTTEP AP)	Commonwealth of Australia	Petroleum	100	100
PTTEP Australia Browse Basin Pty Limited (PTTEP AB)	Commonwealth of Australia	Petroleum	100	100
PTTEP Australia International Finance Pty Limited (PTTEP AIF) ⁷	Commonwealth of Australia	Investment funding for the Group's business	100	100
PTTEP Australasia Pty Limited (PTTEP AA) ⁷	Commonwealth of Australia	Petroleum	100	100
PTTEP Australia Timor Sea Pty Limited (PTTEP AT)	Commonwealth of Australia	Petroleum	100	100
PTTEP Australasia (Finance) Pty Limited (PTTEP AAF) ⁷	Commonwealth of Australia	Petroleum	100	100
PTTEP Australasia (Petroleum) Pty Limited (PTTEP AAP) ⁷	Commonwealth of Australia	Petroleum	100	100
Tullian Pty Limited (PTTEP AAT) ⁷	Commonwealth of Australia	Petroleum	100	100
PTTEP Australasia (Operations) Pty Limited (PTTEP AAO)	Commonwealth of Australia	Petroleum	100	100
PTTEP Australasia (Ashmore Cartier) Pty Limited (PTTEP AAA)	Commonwealth of Australia	Petroleum	100	100
PTTEP Australasia (Staff) Pty Limited (PTTEP AAS)	Commonwealth of Australia	Petroleum	100	100
PTTEP International Holding Company Limited (PTTEP IH)	Cayman Islands	Petroleum	100	100

⁶ On June 30, 2016, PTTEP New Zealand Limited (PTTEP NZ) had received the approval of dissolution of the company from the registrar, as disclosed in Note 17.6 – Significant Transactions during the Year.

⁷ On December 19, 2016, the companies in the Group of PTTEP Australia Perth Pty Limited (PTTEP AP) have submitted document for liquidation to the registrar. The information is disclosed in Note 17.6 – Significant Transactions during the Year.

Company name	Registered country	Type of business	Percentage of interest (including indirect holding)	
			2016	2015
<u>Subsidiaries (continued)</u>				
PTTEP Southwest Vietnam Pipeline Company Limited (PTTEP SVPC)	Cayman Islands	Gas pipeline transportation	100	100
PTTEP FLNG Holding Company Limited (PTTEP FH)	Hong Kong	Petroleum	100	100
JV Shore Base Limited (JV Shore Base) ⁸	Cayman Islands	Petroleum	-	100
PTTEP Netherland Holding Limited (PTTEP NL)	Cayman Islands	Petroleum	100	100
JV Marine Limited (JV Marine)	Cayman Islands	Petroleum	100	100
PTTEP South Mandar Limited (PTTEP SMD)	Cayman Islands	Petroleum	100	100
PTTEP South Sageri Limited (PTTEP SS)	Cayman Islands	Petroleum	100	100
PTTEP Sadang Limited (PTTEP SD)	Cayman Islands	Petroleum	100	100
PTTEP Malunda Limited (PTTEP ML)	Cayman Islands	Petroleum	100	100
PTTEP Netherlands Coöperatie U.A. (PTTEP NC)	Netherlands	Petroleum	100	100
PTTEP Canada Limited (PTTEP CA)	Canada	Petroleum	100	100
PTTEP Canada International Finance Limited (PTTEP CIF)	Canada	Investment funding for the Group's business	100	100
Cove Energy Limited (Cove)	United Kingdom of Great Britain and Northern Ireland	Petroleum	100	100
Cove Energy Mozambique Rovuma Onshore Limited (CEMROL)	Republic of Cyprus	Petroleum	100	100
Cove Energy East Africa Limited (CEEAL)	Republic of Cyprus	Petroleum	100	100
PTTEP Mozambique Area 1 Limited (PTTEP MZA1)	Republic of Cyprus	Petroleum	100	100
Cove Mozambique Terra Limitada (CMTL) ⁹	Mozambique	Petroleum	-	100
Cove Mozambique Energia Limitada (CMEL) ¹⁰	Mozambique	Petroleum	-	100
Cove Energy Kenya Limited (CEKL)	Republic of Kenya	Petroleum	100	100
PTTEP Netherlands Holding Coöperatie U.A. (PTTEP NH)	Netherlands	Petroleum	100	100
PTTEP Brazil Investment B.V. (PTTEP BI)	Netherlands	Petroleum	100	100
PTTEP Brazil Investments in Oil and Gas Exploration and Production Limitada (PTTEP BL)	Federative Republic of Brazil	Petroleum	100	100

⁸ On June 30, 2016, JV Shore Base Limited (JV Shore Base) had received the approval of dissolution of the company from the registrar, as disclosed in Note 17.6 – Significant Transactions during the Year.

⁹ On June 6, 2016, Cove Mozambique Terra Limitada (CMTL) had received the approval of dissolution of the company from the Government of Republic of Mozambique, as disclosed in Note 17.6 – Significant Transactions during the Year.

¹⁰ On June 6, 2016, Cove Mozambique Energia Limitada (CMEL) had received the approval of dissolution of the company from the Government of Republic of Mozambique, as disclosed in Note 17.6 – Significant Transactions during the Year.

Company name	Registered country	Type of business	Percentage of interest (including indirect holding)	
			2016	2015
<u>Subsidiaries (continued)</u>				
Sinphuhorm Holdings Limited (SHL)	Cayman Islands	Petroleum	100	100
PTTEP SP Limited (PTTEP SP)	United Kingdom of Great Britain and Northern Ireland	Petroleum	100	100
PTTEP G7 Limited (PTTEP G7)	Thailand	Petroleum	100	100
PTTEP HK Offshore Limited (PTTEP HKO) ¹¹	Hong Kong	Petroleum	100	100
<u>Associated Companies</u>				
Energy Complex Company Limited (EnCo)	Thailand	Property rental services	50	50
PTT ICT Solutions Company Limited (PTT ICT)	Thailand	Information technology and communication services	20	20
PTTEP AP Group's Associates ¹²	Commonwealth of Australia	Air base	50	50
UAQ Petroleum Limited (UAQ) ¹³	Hong Kong	Petroleum	-	30
<u>Joint Operations</u>				
Carigali – PTTEPI Operating Company Sdn Bhd. (CPOC)	Malaysia	Petroleum	50	50
Moattama Gas Transportation Company (MGTC)	Bermuda	Gas pipeline transportation	25.5	25.5
Taninthayi Pipeline Company LLC (TPC)	Cayman Islands	Gas pipeline transportation	19.3178	19.3178
Orange Energy Limited (Orange)	Thailand	Petroleum	53.9496	53.9496
B8/32 Partners Limited (B8/32 Partners)	Thailand	Petroleum	25.0009	25.0009
Leismer Aerodrome Limited (LAL)	Canada	Airports and flying field services	32	32
Groupement Bir Seba (GBRS)	Algeria	Petroleum	35	35

¹¹ PTTEP HK Investment Limited (PTTEP HKI) has changed its name to PTTEP HK Offshore Limited (PTTEP HKO), as disclosed in Note 17.6 – Significant Transactions during the Year.

¹² PTTEP AP's group associates are Mungalalu Truscott Airbase Pty Ltd. and Troughton Island Pty Ltd.

¹³ On October 9, 2016, PTTEP FLNG Holding Company Limited (PTTEP FH) has withdrawn its investment in UAQ Petroleum Limited (UAQ), which has a joint partnership in the Block Umm Al-Quwain. The information is disclosed in Note 17.6 - Significant Transactions during the Year.

Company name	Registered country	Type of business	Percentage of interest (including indirect holding)	
			2016	2015
<u>Joint Operations (continued)</u>				
Andaman Transportation Limited (ATL)	Cayman Islands	Gas pipeline transportation	80	80
Natuna 2 B.V. (Natuna 2)	Netherlands	Petroleum	50	50
<u>Joint Ventures</u>				
PTT FLNG Limited (PTT FLNG) ¹⁴	Hong Kong	Produce and sale of petroleum product	50	50
Erawan 2 FSO Bahamas Limited (Erawan 2) ¹⁵	Bahamas	FSO rental services	13.11	13.11

4.2 Net Book Value

As at December 31, 2016, PTTEP's net book value amounted to 11,386 MMUSD (equivalent to 407,984 MMTHB) or USD 2.87 per share (equivalent to THB 102.77 per share).

¹⁴ On December 26, 2014, the Board of Directors of PTT FLNG Limited (PTT FLNG) approved the dissolution of this company. It is currently in the process of the dissolution.

¹⁵ Erawan 2 has a 100% shareholding in Asia Pacific Marine Services (EF) B.V.

- None -

6.1 Information of PTTEP

Company Name	PTT Exploration and Production Public Company Limited or PTTEP
Headquarters Address	555/1 Energy Complex Building A, 6 th and 19 th – 36 th floor, Vibhavadi Rangsit Road, Chatuchak, Bangkok 10900, Thailand
Type of Business	Exploration and production of petroleum and investments in related businesses
Registration Number	0107535000206
Telephone	+66-2537-4000
Facsimile	+66-2537-4444
Website	www.pttep.com
E-mail	Independent Directors: independentdirector@pttep.com Investor Relations: ir@pttep.com Corporate Secretary: corporatesecretary@pttep.com
Registered Capital	3,969,985,400 ordinary shares with THB 1 per share (THB 3,969,985,400)
Paid-Up Capital	3,969,985,400 ordinary shares with THB 1 per share (THB 3,969,985,400) as of December 31, 2016

6.2 Subsidiaries' Information

As of December 31, 2016, there were 59 subsidiaries. All of them had the same contact address, telephone and facsimile as those of PTTEP (see Item 6.1). Details of the directors designated by PTTEP Group for each subsidiary are disclosed in Attachment 2.

No	Company Name	Abbreviation	Number of Shares Sold	Par Value	Share Type	Shareholders
Petroleum Exploration and Production Business						
1.	PTTEP International Limited	PTTEPI	2,000,000,000	THB 10	Ordinary Share	PTTEP 100%
2.	PTTEP Siam Limited	PTTEPS	1,000,000	THB 100	Ordinary Share	PTTEP 51% PTTEPO 49%
3.	Orange Energy Limited	Orange	1,000,000	THB 100	Ordinary Share	PTTEPO 53.95% MOECO B.V. 36.05% KrisEnergy 10%
4.	PTTEP G7 Limited	PTTEP G7	6,413,741	THB 100	Ordinary Share	PTTEPI 100%
5.	JV Marine Limited	JV Marine	50,000	USD 1	Ordinary Share	PTTEP IH 100%
6.	PTTEP Algeria Company Limited	PTTEP AG	50,000	USD 1	Ordinary Share	PTTEPO 100%
7.	PTTEP Africa Investment Limited	PTTEP AI	50,000	USD 1	Ordinary Share	PTTEPH 100%
8.	PTTEP Holding Company Limited	PTTEPH	50,000	USD 1	Ordinary Share	PTTEPO 100%
9.	PTTEP Hoang-Long Company Limited	PTTEP HL	50,000	USD 1	Ordinary Share	PTTEPO 100%
10.	PTTEP Hoan-Vu Company Limited	PTTEP HV	50,000	USD 1	Ordinary Share	PTTEPO 100%
11.	PTTEP Indonesia Company Limited	PTTEP ID	50,000	USD 1	Ordinary Share	PTTEPH 100%
12.	PTTEP International Holding Company Limited	PTTEP IH	50,000	USD 1	Ordinary Share	PTTEPH 100%
13.	PTTEP Iran Company Limited	PTTEP IR	50,000	USD 1	Ordinary Share	PTTEP IH 100%
14.	PTTEP Kim Long Vietnam Company Limited	PTTEP KV	50,000	USD 1	Ordinary Share	PTTEPO 100%
15.	PTTEP Malunda Limited	PTTEP ML	50,000	USD 1	Ordinary Share	PTTEP ID 100%
16.	PTTEP South Asia Limited	PTTEP SA	50,000	USD 1	Ordinary Share	PTTEPH 100%
17.	PTTEP Netherland Holding Limited	PTTEP NL	50,000	USD 1	Ordinary Share	PTTEP IH 100%

No	Company Name	Abbreviation	Number of Shares Sold	Par Value	Share Type	Shareholders
18.	PTTEP Offshore Investment Company Limited	PTTEPO	6,667	USD 1	Ordinary Share	PTTEP 75% PTTEPI 25%
19.	PTTEP Rommana Company Limited	PTTEPR	50,000	USD 1	Ordinary Share	PTTEP AI 100%
20.	PTTEP Sadang Limited	PTTEP SD	50,000	USD 1	Ordinary Share	PTTEP ID 100%
21.	PTTEP Semai II Limited	PTTEP SM	50,000	USD 1	Ordinary Share	PTTEP ID 100%
22.	PTTEP South Mandar Limited	PTTEP SMD	50,000	USD 1	Ordinary Share	PTTEP ID 100%
23.	PTTEP South Sageri Limited	PTTEP SS	50,000	USD 1	Ordinary Share	PTTEP ID 100%
24.	PTTEP Southwest Vietnam Company Limited	PTTEP SV	50,000	USD 1	Ordinary Share	PTTEPO 100%
25.	PTTEP MEA Limited	PTTEP MEA	50,000	USD 1	Ordinary Share	PTTEP 100%
26.	Sinphuhorm Holdings Limited	SHL	50,000	USD 0.01	Ordinary Share	PTTEPO 100%
27.	PTTEP Australia Pty Ltd	PTTEP AU	50,000	AUD 1	Ordinary Share	PTTEPH 100%
28.	PTTEP Australia Offshore Pty Ltd	PTTEP AO	50,000	AUD 1	Ordinary Share	PTTEP AU 100%
29.	PTTEP Australia Perth Pty Ltd	PTTEP AP	50,000	AUD 1	Ordinary Share	PTTEPH 100%
30.	PTTEP Australia Browse Basin Pty Ltd	PTTEP AB	50,000	AUD 1	Ordinary Share	PTTEP AP 100%
31.	PTTEP Australasia (Staff) Pty Ltd	PTTEP AAS	10	AUD 1	Ordinary Share	PTTEP AB 100%
32.	PTTEP Australasia Pty Ltd	PTTEP AA	409,895,440	various price ¹ (average AUD 0.4895)	Ordinary Share	PTTEP AB 100%
			40,000,000	AUD 0.4957	Preference Share	
			1,575,000	AUD 0.4895	Class B Share ²	
33.	PTTEP Australasia (Petroleum) Pty Ltd	PTTEP AAP	10	AUD 1	Ordinary Share	PTTEP AA 100%
34.	Tullian Pty Ltd	PTTEP AAT	1	AUD 1	Ordinary Share	PTTEP AAP 100%
35.	PTTEP Australasia (Finance) Pty Ltd	PTTEP AAF	1	AUD 1	Ordinary Share	PTTEP AA 100%

¹ Total amount equals to AUD 200,631,256.48 plused by AUD 19,826,452.31 for the preference shares and AUD 770,914.25 for the Class B shares or AUD 221,288,623.04 in total.

² A type of shares issued to employees under an Employee Share Option Plan, which was subsequently acquired by PTTEP AB.

No	Company Name	Abbreviation	Number of Shares Sold	Par Value	Share Type	Shareholders
36.	PTTEP Australasia (Ashmore Cartier) Pty Ltd	PTTEP AAA	1,700,000	AUD 2	Ordinary Share	PTTEP AB 100%
37.	PTTEP Australasia (Operations) Pty Ltd	PTTEP AAO	106,686,517	AUD 0.20	Ordinary Share	PTTEP AB 100%
38.	PTTEP Australia Timor Sea Pty Ltd	PTTEP AT	50	No Par Value (average AUD 827,048.78) ³	Ordinary Share	PTTEP AB 100%
39.	PTTEP Netherlands Coöperatie U.A.	PTTEP NC	- ⁴	-	-	PTTEP IH 0.000036% PTTEP NL 99.999964%
40.	PTTEP Netherlands Holding Coöperatie U.A.	PTTEP NH	- ⁵	-	-	PTTEP HK 75% PTTEPI 25%
41.	PTTEP Brazil Investment B.V.	PTTEP BI	324,423,816.34	USD 1	Ordinary Share	PTTEP NH 100%
42.	PTTEP Canada Limited	PTTEP CA	2,477,810,872.84	CAD 1	Ordinary Share	PTTEP NC 100%
43.	PTTEP FLNG Holding Company Limited	PTTEP FH	10,000	HKD 1	Ordinary Share	PTTEP IH 100%
44.	PTTEP HK Holding Limited	PTTEP HK	10,000	HKD 1	Ordinary Share	PTTEP 25% PTTEPI 75%
45.	Cove Energy Limited	COVE	5,089,129.47	GBP 1	Ordinary Share	PTTEP AI 100%
46.	Cove Energy East Africa Limited	CEEAL	1,000	EUR 1	Ordinary Share	COVE 100%
47.	Cove Energy Mozambique Rovuma Onshore Limited	CEMROL	1,000	EUR 1	Ordinary Share	CEEAL 100%
48.	PTTEP Mozambique Area 1 Limited	PTTEP MZA1	1,000	EUR 1	Ordinary Share	CEEAL 100%
49.	Cove Energy Kenya Limited	CEKL	1,000	KES 100	Ordinary Share	CEEAL 99.9% COVE 0.1%
50.	PTTEP Brasil Investimentos Em Exploração e Produção de Petróleo e Gás Ltda.	PTTEP BL	790,293,700	BRL 1	Ordinary Share	PTTEP BI 99.9999999% PTTEP NH 0.0000001%

³ PTTEP AB acquired PTTEP AT's 50 shares for a total amount of AUD 41,352,439.

⁴ PTTEP NC had total amount of Member Contribution of USD 2,151,049,500.00 from 2010 to 2016.

⁵ PTTEP NH had total amount of Member Contribution of USD 324,423,816.77 from 2013 to 2014 (no member contribution in 2016).

No	Company Name	Abbreviation	Number of Shares Sold	Par Value	Share Type	Shareholders
51.	PTTEP SP Limited	PTTEP SP	2	GBP 1	Ordinary Share	SHL 100%
			95,279,585	USD 1	Ordinary Share	
52.	PTTEP HK Offshore Limited ⁶	PTTEP HKO	61,921,550.39	HKD 1	Ordinary Share	PTTEP HK 100%
Service Business						
53.	PTTEP Services Limited (Personnel Services Support)	PTTEP Services	100,000	THB 10	Ordinary Share	PTTEP 25% PTTEPI 75%
54.	Andaman Transportation Limited (Investments in gas pipeline projects in Myanmar)	ATL	62,500	USD 1	Ordinary Share	PTTEPO 80% MOGE 20%
55.	PTTEP Southwest Vietnam Pipeline Company Limited (Investments in gas pipeline projects in Vietnam)	PTTEP SVPC	50,000	USD 1	Ordinary Share	PTTEPH 100%
56.	PTTEP Australia International Finance Pty Ltd (Raise Fund for PTTEP Business)	PTTEP AIF	50,000	AUD 1	Ordinary Share	PTTEP AP 100%
57.	PTTEP Canada International Finance Limited (Raise Fund for PTTEP Business)	PTTEP CIF	50,000	CAD 1	Ordinary Share	PTTEP NC 100%
58.	PTTEP Treasury Center Company Limited (Treasury Center for PTTEP and subsidiaries)	PTTEP TC	1,000,000	THB 10	Ordinary Share	PTTEP 25% PTTEPI 75%
59.	PTTEP Business Center Company Limited (Business Center for PTTEP and subsidiaries)	PTTEP BC	500,000	THB 10	Ordinary Share	PTTEP 25% PTTEPI 75%

Remark: Name of other shareholders in subsidiaries

Abbreviation	Name
KrisEnergy	KrisEnergy (Gulf of Thailand) Ltd.
MOGE	Myanmar Oil and Gas Enterprise
MOECO B.V.	MOECO International B.V.

⁶ Formerly known as PTTEP HK Investment Limited

6.3 Associated Companies' Information (including those in which the Company invests for more than 10% and not exceeding 50%)

As of December 31, 2016, PTTEP had 16 associated companies. Details of the directors designated by PTTEP Group for each associated company are disclosed in Attachment 2.

[illegible]

No.	Company Name	Type of Business	Abbreviation	Number of Shares Sold	Par Value	Share Type	Shareholders
4	Moattama Gas Transportation Company	Gas Pipeline in Myanmar	MGTC	1,000,000	USD 0.03	Ordinary Share	● PTTEPO 25.5% ● Unocal Myanmar 28.2625% ● Total E&P Myanmar 31.2375% ● MOGE 15%
	Head Office: No. 5 Sacred Tooth Relic Lake Avenue, Punh Pin Gone Quarter No. 5, Mayangon Township, Yangon, Myanmar						
	Telephone: (951) 650-977, 660-466						
	Facsimile: (951) 650-478, 650-479						
5	Taninthayi Pipeline Company LLC	Gas Pipeline in Myanmar	TPC	100,000	USD 1	Ordinary Share	● PTTEPO 19.31784% ● PCM III 30.00140% ● PCML 10.90878% ● MOGE 20.45414% ● Nippon 19.31784%
	Head Office: 16 Shwe Taung Kyar Bahan, Yangon, Myanmar						
	Telephone: (951) 526-411-4						
	Facsimile: (951) 525-698						
6	B8/32 Partners Limited	Petroleum Exploration and Production	B8/32 Partners	110,000	THB 100	Ordinary Share	● PTTEPO 25 % ● MOECO BV 16.71% ● KrisEnergy 4.63% ● Chevron Global 46.34% ● Chevron 7.32%
	Head Office: 19 Siam Commercial Bank Park Plaza, East 3rd Building, 5 th Floor, Ratchadaphisek Road, Chatuchak, Bangkok, 10900						
	Telephone: 66 (0) 2545-5555						
	Facsimile: -						
7	Hoang Long Joint Operating Company	Petroleum Exploration and Production	HL JOC	- ⁷	-	-	● PTTEP HL 28.50% ● PVEP 41% ● SOCO 28.50% ● OPECO 2.0%
	Head Office: Suite 2001, Me Linh Point Tower, 2 Ngo Duc Ke Street, District 1, Ho Chi Mihn City, S.R. Vietnam						
	Telephone: (84) 8 3829-9359						
	Facsimile: (84) 8 3822-6106						

⁷ No share was issued. Percentage of shareholding is subject to participation interest of the concession.

No.	Company Name	Type of Business	Abbreviation	Number of Shares Sold	Par Value	Share Type	Shareholders
8	Hoan-Vu Joint Operating Company	Petroleum Exploration and Production	HV JOC	- ⁸	-	-	● PTTEP HV 25% ● SOCO 25% ● PVEP 50%
	Head Office: Suite 2006, Me Linh Point Tower, 2 Ngo Duc Ke Street, District 1, Ho Chi Minh City, S.R. Vietnam						
	Telephone: (84) 8 3823-9525						
	Facsimile: (84) 8 3823-9526						
9	Mungalu Truscott Airbase Pty Ltd	Operation of Air Base	Mungalu	600	AUD 1	Ordinary Share	● PTTEP AAO 50% ● Mr. Arthur Hamilton 41.667% ● Mr. Alex Wood 8.333%
	Head Office: Unit 8, 9 Swan Crescent, Winnellie, Northern Territory, 0820, Australia						
	Telephone: (61) 8-8981-6981						
	Facsimile: (61) 8-8918-8017						
10	Troughton Island Pty Ltd	Operation of Air Base (Secondary)	Troughton	100	AUD 1	Ordinary Share	● PTTEP AAO 50% ● Mr. Arthur Hamilton 44% ● Mr. Alex Wood 6%
	Head Office: Unit 8, 9 Swan Crescent, Winnellie, Northern Territory, 0820, Australia						
	Telephone: (61) 8-8981-6981						
	Facsimile: (61) 8-8918-8017						
11	Groupement Bir Seba	Petroleum Exploration and Production	GBRS	- ⁹	-	-	● PTTEP AG 35% ● PVEP 40% ● Sonatrach 25%
	Head Office: Zone d'activité Route Nationale N°3 BP 256 EURO JAPAN Hassi Messaoud, Ouargla, Algeria						
	Telephone: (213) (0) 29 79 71 66						
	Facsimile: (213) (0) 29 79 09 15						

⁸ No share was issued. Percentage of shareholding is subject to participation interest of the concession.

⁹ No share was issued. Percentage of shareholding is subject to participation interest of the concession.

No.	Company Name	Type of Business	Abbreviation	Number of Shares Sold	Par Value	Share Type	Shareholders
12	PTT FLNG Limited	Manufacture/Production/ Trading of Oil/Gas/ Other Energy Supply	PTT FLNG	1,000	HKD 10	Ordinary Share	● PTTEP FH 50% ● PTT International 50%
	Head Office: 1401 Hutchison House, 10 Harcourt Road, Hong Kong						
	Telephone: (852) 2846 1888						
	Facsimile: (852) 2845 0476						
13	Erawan 2 FSO Bahamas Ltd.	Lease of FSO (vessel)	Erawan 2 FSO Bahamas	100	USD 1	Ordinary Share	● JV Marine Ltd. 13.11% ● Chevron Global 65.91% ● MOECO 20.98%
	Head Office: Ocean Centre, Montagu Foreshore, East Bay Street, Nassau, New Providence, Bahamas P.O. Box SS-19084						
	Telephone: -						
	Facsimile: -						
14	Leismer Aerodrome Limited	Operation of Air Base	LAL	200	-	Ordinary Share	● PTTEP CA 32% ● Statoil Canada 48% ● FCCL 20%
	Head Office: Suite 3600, 308 – 4 th Ave S.W., Calgary, Alberta T2P 0H7, Canada						
	Telephone: (403) 234-0123						
	Facsimile: (403) 234-0103						
15	Asia Pacific Marine Services (EF) B.V.	Lease of FSO (vessel)	Asia Pacific Marine Services	18,000	EUR 1	Ordinary Share	● Erawan 2 FSO 100%
	Head Office: Naritaweg 165, Telestone 8, 1043 BW Amsterdam, The Netherlands						
	Telephone: -						
	Facsimile: -						
16	Natuna 2 B.V.	Petroleum Exploration and Production	Natuna	90,000	EUR 1	Ordinary Share	● PTTEP NH 50% ● PHE OG 50%
	Head Office: Atrium Building, 8 th Floor, Strawinskylaan 3127, 1077 ZX, Amsterdam, The Netherlands						
	Telephone: -						
	Facsimile: -						

Remark: Name of other shareholders in associated companies

Abbreviation	Name
PTT	PTT Public Company Limited
PTTGC	PTT Global Chemical Public Company Limited
ThaiOil	Thai Oil Public Company Limited
Chevron	Chevron Block B8/32 (Thailand) Ltd.
Chevron Global	Chevron Global Energy Inc.
Erawan 2 FSO	Erawan 2 FSO Bahamas Ltd.
FCCL	FCCL Partnership
KrisEnergy	KrisEnergy (Gulf of Thailand) Ltd.
MOGE	Myanmar Oil and Gas Enterprise
MOECO BV	MOECO International B.V.
MOECO	Mitsui Oil Exploration Co.,Ltd.
Nippon	Nippon Oil Exploration (Myanmar) Ltd.
OPECO	OPECO Vietnam Ltd.
PC JDA	PC JDA Ltd.
PCML	Petronas Carigali Myanmar (Hong Kong) Ltd.
PCM III	Petronas Carigali Myanmar III Inc.
PHE OG	Pertamina Hulu Energi Oil and Gas Company
PTT International	PTT International (Singapore) Company Pte. Ltd.
PVEP	PetroVietnam Exploration & Production Corporation
SOCO	SOCO Vietnam Ltd.
Sonatrach	Société Nationale pour la Recherche, la Production, le Transport, la Transformation et la Commercialisation des Hydrocarbures
Statoil Canada	Statoil Canada Ltd.
Total E&P Myanmar	Total E&P Myanmar SAS
Unocal Myanmar	Unocal Myanmar Offshore Co., Ltd.

6.4 References

1) Share Registrar

1.1)	Name	Thailand Securities Depository Company Limited
	Address	93, Rachadaphisek Road, Dindaeng, Bangkok 10400, Thailand
	Telephone	+66-2009-9000
	SET Call Center	+66-2009-9999
	Facsimile	+66-2009-9991
	E-mail	SETContactCenter@set.or.th
	Website	http://www.set.or.th/tsd

2) Registrar and Paying Agent

- 2.1) Registrar and paying agent for THB 2,500 million debentures issued in March 2003, THB 5,000 million debentures issued in May 2009, and THB 5,000 million subordinated capital debentures issued in June 2012

Name	TMB Bank Public Company Limited
Address	Floor 5A, 3000 Phahon Yothin Road, Chatuchak, Bangkok 10900, Thailand
Telephone	+66-2299-1536, +66-2299-1824
Facsimile	+66-2242-3270

- 2.2) Registrar and paying agent for THB 11,400 million debentures issued in June 2014, and THB 8,200 million debentures issued in June 2014

Name	Siam Commercial Bank Public Company Limited
Address	3 rd Floor, Building 2, 1060 Phetchaburi Road, Makkasan, Ratchthewee, Bangkok 10400, Thailand
Telephone	+66-2256-2325, +66-2256-2326, +66-2256-2327, +66-2256-2328, +66-2256-2329
Facsimile	+66-2256-2406

3) Debenture Holders' Representative

- 3.1) Debenture holders' representative for THB 5,000 million debentures issued in May 2009, and THB 5,000 million subordinated capital debentures issued in June 2012

Name	Siam Commercial Bank Public Company Limited
Address	3 rd Floor, Building 2, 1060 Phetchaburi Road, Makkasan, Ratchthewee, Bangkok 10400, Thailand
Telephone	+66-2256-2316
Facsimile	+66-2256-2401, +66-2256-2402, +66-2256-2403, +66-2256-2404

4) Trustee

- 4.1) Trustee for USD 700 million debentures issued in April 2011, USD 323.45 million debentures issued in September 2013, and USD 1,000 million subordinated capital debentures issued in June 2014

Name	BNY Mellon Corporate Trust
Address	#03-01 Millenia Tower, 1 Temasek Avenue, Singapore 039192
Telephone	+65-6432-0570, +65-6432-0351, +65-6432-0354
Facsimile	+65-6883-0338

- 4.2) Trustee for USD 490 million debentures issued in June 2012

Name	Citicorp International Limited
Address	39 th Floor, Citibank Tower, 3 Garden Road, Central, Hong Kong
Telephone	+852-2868-7964
Facsimile	+852-2323-0279

5) Registrar and Paying Agent

- 5.1) Registrar and paying agent for bills of exchange with a total revolving credit of up to THB 50,000 million

Name	TMB Bank Public Company Limited
Address	Floor 5A, 3000 Phahon Yothin Road, Chom Phon, Chatuchak, Bangkok 10900, Thailand
Telephone	+66-2299-1536, +66-2299-1824
Facsimile	+66-2242-3270

6) Facility Agent

- 6.1) Facility agent for USD 500 million loan agreement dated in November 2010

Name	The Bank of Tokyo-Mitsubishi UFJ, Ltd.
Address	6 th Floor, AIA Central, 1 Connaught Road, Central, Hong Kong
Telephone	+852-2823-6698, +852-2823-6691, +852-2823-6962, +852-2823-6693
Facsimile	+852-2823-6686

7) Process Agent for Bank Loan

- 7.1) Process agent for USD 500 million loan agreement dated in November 2010

Name	Law Debenture Corporate Services Limited
Address	5 th Floor, 100 Wood Street, London EC2V 7EX
Telephone	+44-20-7606-5451
Facsimile	+44-20-7606-0643

8) Process Agent for Common Shares

8.1)	Name	CT Corporation System
	Address	13 th Floor, 111 Eighth Avenue, New York, NY 10011, U.S.A.
	Telephone	+1-212-894-8800
	Facsimile	-

9) Interest Rate Swap Counterparties

9.1)	Name	Kasikornbank Public Company Limited
	Division	Capital Markets Business Division
	Address	400/22 Phahon Yothin Avenue, Samsen-Nai, Phayathai Bangkok 10400, Thailand
	Telephone	+66-2470-2020
	Facsimile	+66-2470-3065

10) Cross Currency Swap Counterparties

10.1)	Name	Kasikornbank Public Company Limited
	Division	Capital Markets Business Division
	Address	400/22 Phahon Yothin Avenue, Samsen-Nai, Phayathai Bangkok 10400, Thailand
	Telephone	+66-2470-2020
	Facsimile	+66-2470-3065
10.2)	Name	Deutsche Bank AG, Bangkok Branch
	Division	Corporate Treasury Sales
	Address	63 Athenee Tower, 27-29 th Floor, Wireless Road, Lumpini, Pathumwan, Bangkok 10330, Thailand
	Telephone	+66-2646-5139
	Facsimile	+66-2651-5892
10.3)	Name	Siam Commercial Bank Public Company Limited
	Division	Financial Market Division
	Address	8 th Floor, Zone B, 9 Ratchadaphisek Road, Chatuchak, Bangkok 10900, Thailand
	Telephone	+66-2544-2483
	Facsimile	+66-2937-7969

11) FX Contracts Counterparties

11.1)	Name	Kasikornbank Public Company Limited
	Division	Capital Markets Business Division
	Address	400/22 Phahon Yothin Avenue, Samsen-Nai, Phayathai Bangkok 10400, Thailand
	Telephone	+66-2470-2020
	Facsimile	+66-2470-3065
11.2)	Name	Krung Thai Bank Public Company Limited
	Division	Corporate Sales, Treasury
	Address	Building 1 (Nana Nua), 8 th Floor, 35 Sukhumvit Road, Klongtoey Nua, Wattana, Bangkok 10110, Thailand
	Telephone	+66-2208-4815
	Facsimile	+66-2256-8398
11.3)	Name	Siam Commercial Bank Public Company Limited
	Division	Financial Market Division
	Address	8 th Floor, Zone B, 9 Ratchadaphisek Road, Chatuchak, Bangkok 10900, Thailand
	Telephone	+66-2544-2483
	Facsimile	+66-2937-7969
11.4)	Name	The Hongkong and Shanghai Banking Corporation Limited
	Division	Corporate Marketing and Sales
	Address	968 HSBC Building, Rama IV Road, Silom, Bangrak, Bangkok 10500, Thailand
	Telephone	+66-2614-4847, +66-2614-4848
	Facsimile	+66-2632-4831
11.5)	Name	Bank of America, National Association
	Division	FICC Sales
	Address	87/2 All Seasons Place, CRC Tower, 20 th Floor, Wireless Road, Bangkok 10330, Thailand
	Telephone	+66-2305-2985, +66-2305-2986
	Facsimile	+66-2685-3224

- 11.6) **Name** Citibank, N.A.
Division Corporate Sales & Structuring Thailand
Address Interchange 21 Building, 399 Sukhumvit Road,
Klongtoey Nua, Wattana, Bangkok 10110, Thailand
Telephone +66-2788-2785
Facsimile +66-2788-4825
- 11.7) **Name** CIMB Thai Bank Public Company Limited
Division Global Sales Division
Address 44 Langsuan Road, Lumpini, Pathumwan,
Bangkok 10330, Thailand
Telephone +66-2670-4658, +66-2670-4659
Facsimile +66-2657-3281
- 11.8) **Name** Bank of Ayudhya Public Company Limited
Division Global Sales Division
Address 1222 Rama III Road, Bang Phongphang, Yannawa,
Bangkok 10120, Thailand
Telephone +66-2021-6380, +66-2021-6385
Facsimile +66-2266-3048
- 11.9) **Name** Bangkok Bank Public Company Limited
Division Treasury
Address 333 Silom Road, Silom, Bangrak,
Bangkok 10500, Thailand
Telephone +66-2021-1111, +66-2021-1199
Facsimile +66-2636-4633
- 11.10) **Name** Oversea-Chinese Banking Corporation Limited
Division Global Markets
Address 1 Q.House Lumpini Bulding, 15th Floor Unit 2,
Sathon Road, Tungmahamek, Sathon, Bangkok 10120, Thailand
Telephone +66-2287-9852
Facsimile +66-2287-9898

11.11) Name	TMB Bank Public Company Limited
Division	Capital Markets
Address	3000 Phahon Yothin Road, Chatuchak, Bangkok 10900, Thailand
Telephone	+66-2676-8008
Facsimile	+66-2292-4690
11.12) Name	United Overseas Bank (Thai) Public Company Limited
Division	Global Markets
Address	191 South Sathon Road, Bangkok 10120, Thailand
Telephone	+66-2343-4381-4
Facsimile	+66-2285-1375

12) Auditor

12.1) Name	Office of the Auditor General of Thailand
Address	Soi Areesampan, Rama VI Road, Phayathai, Bangkok 10400, Thailand
Telephone	+66-2271-8112
Facsimile	+66-2618-5790

13) Legal Advisors

13.1) Name	Ashurst LLP
Address	12 Marina Boulevard, #24-01 Marina Bay, Financial Centre Tower 3, Singapore 018982
Telephone	+65-6221-2214
Facsimile	+65-6221-5484
13.2) Name	Atthaworadej & Associates Co., Ltd.
Address	12 th Floor, Sri Julsap Building, 44 Rama I Road, Pathumwan, Bangkok 10330, Thailand
Telephone	+66-(0)-2613-9449
Facsimile	-

13.3)	Name	Baker & McKenzie
	Address	25 th Floor, Abdulrahim Place, 990 Rama IV Road, Silom, Bangrak, Bangkok 10500, Thailand
	Telephone	+66-(0)-2636-2000
	Facsimile	+66-(0)-2636-2111
13.4)	Name	CMS Cameron McKenna LLP
	Address	Tilal complex, Muscat Grand Mall 3 rd Floor, Building No. 5, Muscat PO Box 41, Postal code 136, The Sultanate of Oman
	Telephone	+968-2439-9905
	Facsimile	-
13.5)	Name	Herbert Smith Freehills (Thailand) Limited
	Address (1)	1403 Abdulrahim Place, 990 Rama IV Road, Silom, Bangrak, Bangkok 10500, Thailand
	Telephone	+66-(0)-2657-3888
	Facsimile	+66-(0)-2636-0657
	Address (2)	23 rd Floor, Gloucester Tower, 15 Queen's Road Central, Hong Kong
	Telephone	+852-2845-6639
	Facsimile	+852-2845-9099
	Address (3)	22F West Tower, Center 1 Building 26, Eulji-ro 5-gil, Jung-gu Seoul, Korea 04539
	Telephone	+82-2-6321-5600
	Facsimile	+82-2-6321-5601
13.6)	Name	King & Spalding (Singapore) LLP
	Address	9 Raffles Place, Level 31, Republic Plaza, Tower One, Singapore 048619
	Telephone	+65-6303-6000
	Facsimile	+65-6306-6055

- 13.7) **Name** Latham & Watkins LLP
- Address** 18th Floor One Exchange Square,
8 Connaught Place, Central, Hong Kong
- Telephone** +852-2912-2500
- Facsimile** +852-2912-2600
-
- 13.8) **Name** LS Horizon Limited
- Address (1)** 14th Floor, GPF Witthayu Tower A,
93/1 Wireless Road, Lumpini,
Patumwan, Bangkok 10330, Thailand
- Telephone** +66-(0)-2627-3443
- Facsimile** +66-(0)-2627-3250
-
- Address (2)** Suite No. 05.01 (Level-5)
Union Business Center (UBC), Nat Mauk Road,
Bo Cho Quarter, Bahan Township, Yangon 11201,
The Republic of the Union of Myanmar
- Telephone** +95-1-860-3435 ext. 6001
- Facsimile** +95-1-860-3436
-
- 13.9) **Name** Pracha Tooppoltup Law Office
- Address** 48/51 The Premium Place, Soi Praditmanutham 27,
Praditmanutham Road, Ladprao, Ladprao,
Bangkok 10230, Thailand
- Telephone** +66-(0)-2530-3173
- Facsimile** -
-
- 13.10) **Name** Siam Premier International Law Office Limited
- Address** 26th Floor, The Offices of Central World,
999/9 Rama I Road, Pathumwan,
Bangkok 10330, Thailand
- Telephone** +66-(0)-2646-1888
- Facsimile** +66-(0)-2646-1919

13.11) Name	Skrine
Address	Unit No. 50-8-1, 8 th Floor, Wisma UOA Damansara, 50, Jalan Dungun, Damansara Heights, 50490, Kuala Lumpur, Malaysia
Telephone	+603-2081-3906
Facsimile	+603-2094-3211
13.12) Name	Slaughter and May
Address	47 th Floor, Jardine House, One Connaught Place, Central, Hong Kong
Telephone	+852-2521-0551
Facsimile	+852-2845-2125
13.13) Name	Thammanusarn & Associates Law Office
Address	19/56 Master Piece Exclusive Zone, Praditmanutham Road, Ladprao, Ladprao, Bangkok 10230, Thailand
Telephone	+66-(0)-8-7724-6688
Facsimile	-
13.14) Name	Thompson & Knight LLP
Address	Residence PTT, Villa 45 A, Hydra 16035, Algeria
Telephone	+213-2150-1176
Facsimile	+213-2159-2034
13.15) Name	Weerawong, Chinnavat & Peangpanor Limited
Address	540 Mercury Tower 22 nd Floor, Ploenchit Road, Lumpini, Pathumwan, Bangkok 10330, Thailand
Telephone	+66-(0)-2264-8000
Facsimile	+66-(0)-2657-2222

14) Advisor to the Board of Directors

14.1) Name	Mr. Tongchat Hongladarom
Address	8/48 Prasanmit Condominium, Sukhumvit 23, Klongtoey-Nua, Wattana, Bangkok 10110, Thailand
Telephone	+66-2258-4363
Facsimile	+66-2258-4363

15) Advisor to the Risk Management Committee

15.1) Name	Mr. Nuttachat Charuchinda
Address	52/48 Moo 2, Bangkhen, Nonthaburi 11000, Thailand
Telephone	+66-2140-3811
Facsimile	-

6.5 Other Significant Information

- None -



Section **2**

Corporate Governance

7.1 Capital Structure

As of December 31, 2016, PTTEP's capital structure comprised USD 2,832 million of interest-bearing debt and USD 11,386 million of shareholders' equity, resulting in an interest-bearing debt to shareholders' equity ratio of 0.25 times. Details of the capital structure are as follows:

7.1.1 Securities

Capital Stock

As of December 31, 2016, PTTEP's registered and paid-up capital was THB 3,969,985,400; consisting of 3,969,985,400 ordinary shares at a par value of THB 1 per share.

Debentures

PTTEP has investment-grade credit ratings of Baa1, BBB+, and A- from reputable international credit-rating agencies, namely, Moody's Investors Service ("Moody's"), Standard & Poor's Ratings Services ("Standard & Poor's"), and Japan Credit Rating Agency ("JCR"), respectively. In addition, the Company has also been given a rating of AAA, the highest credit rating, by TRIS Rating Co., Ltd. ("TRIS") which is a domestic credit-rating agency.

In 2016, the Company has neither issued domestic nor international debentures; however, on June 22, 2016, the Company repurchased a portion of its bonds issued in September 2013, on which the coupon rate is 3.707% per annum. The repurchase amount was USD 176.55 million in principal value, consequently reducing the principal outstanding from USD 500 million to USD 323.45 million.

As of December 31, 2016, PTTEP had the following debentures outstanding:

(1) Details of THB debentures (total outstanding THB 27,100 million):

Debt Security	Issued Date	Maturity Date	Tenor	Outstanding (Unit : THB Million)	Rate per annum	Credit Rating ¹
						TRIS
THB debentures, unsecured, unsubordinated	March 27, 2003	March 27, 2018	15 years	2,500 ²	Fixed 4.625%, coupon payment: semi-annually	AAA
	May 29, 2009	May 29, 2019	10 years	5,000 ³	Fixed 4.80%, coupon payment: semi-annually	AAA
	June 6, 2014	June 6, 2019	5 years	8,200 ⁴	Fixed 3.91%, coupon payment: semi-annually	AAA
	June 6, 2014	June 6, 2029	15 years	11,400 ⁵	Fixed 4.82%, coupon payment: semi-annually	AAA

¹ The debentures were last rated by TRIS on April 7, 2016.

² In 2005, PTTEP entered a Cross Currency Swap agreement with a bank to swap THB 2,500 million for USD 60.82 million. Under the agreement, the interest rate was 3.85% per annum. In 2007, PTTEP unwound the swap with the same bank with an interest rate of 3.30% per annum. In 2011, PTTEP entered a new Cross Currency Swap agreement to swap THB 2,500 million for USD 82.92 million. Under the agreement, the interest rate was 3.30% per annum.

³ In 2011, PTTEP entered a Cross Currency Swap agreement with a bank to swap THB 5,000 for USD 161.81 million. Under the agreement, the interest rate was 4.93% per annum.

⁴ In 2014, PTTEP entered a Cross Currency Swap agreement with a bank to swap THB 8,200 for USD 251.07 million. Under the agreement, the interest rate was 3.013% per annum.

⁵ In 2014, PTTEP entered a Cross Currency Swap agreement with a bank to swap THB 11,400 for USD 349.05 million. Under the agreement, the interest rate was 4.989% per annum.

(2) Details of USD debentures (total outstanding USD 1,513.45 million):

Debt Security	Issued Date	Maturity Date	Tenor	Outstanding (Unit : USD Million)	Rate per annum	Credit Rating	
						Moody's	Standard & Poor's
USD debentures, unsecured, unsubordinated	April 5, 2011	April 5, 2021	10 years	700 ¹	Fixed 5.692%, coupon payment: semi-annually	Baa1	BBB+
	June 12, 2012	June 12, 2042	30 years	490 ²	Fixed 6.35%, coupon payment: semi-annually	Baa1	BBB+
	September 16, 2013	September 16, 2018	5 years	323.45 ³	Fixed 3.707%, coupon payment: semi-annually	Baa1	BBB+

¹ PTTEP CIF was the issuer, fully guaranteed by PTTEP. The latest credit rating on these debentures was issued by Moody's on April 4, 2016 and Standard & Poor's on May 5, 2016.

² PTTEP CIF was the issuer, fully guaranteed by PTTEP. The latest credit rating on these debentures was issued by Moody's on April 4, 2016 and Standard & Poor's on May 5, 2016.

³ PTTEP was the issuer. The latest credit rating on these debentures was issued by Moody's on April 4, 2016 and Standard & Poor's on May 5, 2016.

(3) Details of THB Hybrid Bonds (total outstanding THB 5,000 million):

Debt Security	Issued Date	Maturity Date	Tenor	Outstanding (Unit : THB Million)	Rate per annum	Credit Rating ¹	
						TRIS	
THB Hybrid Bonds, unsecured, unconvertible, callable, subordinated debentures with single redemption upon liquidation, PTTEP can defer the distribution at its sole discretion	June 15, 2012	No maturity date ▪ payment upon liquidation or ▪ early redemption subject to terms & conditions	Perpetual	5,000 ²	Year 1-10: 5.85% Year 11-30: 6.10% Year 31-60: 6.85% Year 61 onward: 7.85%, coupon payment: quarterly	AA	

(4) Details of USD Hybrid Bonds (total outstanding USD 1,000 million):

Debt Security	Issued Date	Maturity Date	Tenor	Outstanding (Unit : USD Million)	Rate per annum	Credit Rating ³	
						Moody's	Standard & Poor's
USD Hybrid Bonds, subordinated perpetual capital securities with the issuer's right to defer the distribution at its sole discretion	June 18, 2014	No maturity date ▪ payment upon liquidation or ▪ early redemption subject to terms & conditions	Perpetual	1,000 ⁴	Year 1-5: 4.875% Year 6-10: 5 Years UST + 3.177% Year 11-25: 6M LIBOR + 3.351% Year 26 onward: 6M LIBOR + 4.101%, coupon payment: semi-annually	Baa3	BBB-

¹ The latest credit rating on these bonds was issued by TRIS on April 7, 2016.

² The accounting treatment for Hybrid Bonds is such that they are recorded in Shareholders' equity.

³ The latest credit rating on these bonds was issued by Moody's on April 4, 2016 and Standard & Poor's on May 5, 2016.

⁴ The accounting treatment for Hybrid Bonds is such that they are recorded in Shareholders' equity.

7.1.2 Number of Shares and Shareholders' Voting Rights Affected by NVDR Issuance

An NVDR or Non-Voting Depository Receipt is a trading instrument issued by the Thai NVDR Company Limited, a wholly owned subsidiary of the Stock Exchange of Thailand (SET). NVDRs are regarded as listed securities on the SET. The objective of issuing NVDRs is to promote trading activities in the Thai stock market, by removing obstacles such as the foreign investment limits and other impediments faced by international institutional investors investing in listed securities on the SET. Investors in NVDRs will receive all financial benefits such as dividends, right issues, and warrants, as if they have invested in common shares. The major difference between investing in NVDRs and ordinary shares is the lack of voting rights of the former. NVDR holders generally are not allowed to participate and vote in shareholders' meetings except in the case where the company wishes to delist itself from the SET. In addition, although NVDR is designed mainly to ease foreign investment barriers, the SET does not prohibit Thai investors from investing in the instrument.

As of August 15, 2016, as published on the website of the SET, PTTEP had a total of 253,925,140 NVDRs outstanding, representing 6.40% of the Company's total issued and paid-up capital of 3,969,985,400 shares.

7.2 Shareholders

7.2.1 Top 10 shareholders

As of August 15, 2016, the top 10 shareholders of PTTEP were as follows:

Rank	List of Top 10 Shareholders	Number of Shares	% of Total Number of Shares
1.	PTT PUBLIC COMPANY LIMITED	2,591,860,489	65.29
2.	THAI NVDR COMPANY LIMITED	253,925,140	6.40
3.	CHASE NOMINEES LIMITED	139,462,638	3.51
4.	STATE STREET BANK EUROPE LIMITED	98,273,447	2.48
5.	STATE STREET BANK AND TRUST COMPANY	38,833,222	0.98
6.	SOCIAL SECURITY OFFICE	37,516,877	0.95
7.	THE BANK OF NEW YORK MELLON	30,061,512	0.76
8.	THE BANK OF NEW YORK (NOMINEES) LIMITED	22,797,747	0.57
9.	PEOPLE'S BANK OF CHINA	21,565,200	0.54
10.	HSBC (SINGAPORE) NOMINEES PTE LTD	21,521,406	0.54
	Total number of shares held by top 10 shareholders	3,255,817,678	82.02
	Total fully-paid capitals as of August 15, 2016	3,969,985,400	100

7.2.2 NVDR Holders Owning more than 0.50% of PTTEP's Paid-Up Shares*

Rank	NVDR holder (as of August 15, 2016)	Number of NVDR issues	% of total outstanding shares in underlying stock
1.	CHASE NOMINEES LIMITED	44,793,912	1.13
2.	STATE STREET BANK AND TRUST COMPANY	44,509,851	1.12
3.	STATE STREET BANK EUROPE LIMITED	23,053,932	0.58
	Total shares	112,357,695	2.83

Source: <http://www.set.or.th/set/companyholder.do?symbol=PTTEP-R>

7.2.3 Major Shareholder with Controlling Influence over PTTEP's Policy or Operation

PTT, a major shareholder of PTTEP, takes part in determining PTTEP's policy and operations under the Board's approval. As of December 31, 2016, three out of the Company's 15 directors were either a director or an executive from PTT.

7.2.4 The Company Enters into Shareholders' Agreement with Effect to Security Offering and Issuance or Management Power of the Company

- None -

7.3 Dividend Payment Policy

Under normal circumstances, according to the Company's policy, PTTEP's Board of Directors generally recommends to the shareholders an annual dividend payout of not less than 30% of net income after tax. The Board of Directors, as appropriate, may also decide to pay interim dividends and subsequently inform the shareholders in the next shareholders' meeting. For the Company's subsidiaries, dividend policy is subject to cash flow, future investment plans, and other factors necessary for continuity of their operations, and must be in compliance with related laws and regulations.

Meanwhile, the under terms and conditions of the Company's Subordinated Perpetual Capital Debentures No. 1/2555 THB 5,000 million, issued in June 2012, and Subordinated Perpetual Capital Debentures USD 1,000 million, issued in June 2014; if the Company defers an interest payment on these debentures, the Company shall not declare or make any dividend payments.

Five-year dividend payment history of PTTEP is as follows:

Year	2012	2013	2014	2015	2016
Earnings per Share (THB)	17.08	14.07	5.19	- 8.24	2.76
Dividend per Share	5.80	6.00	4.50	3.00	3.25
Dividend Payout Ratio	38%	40%	82%	N/A**	98%

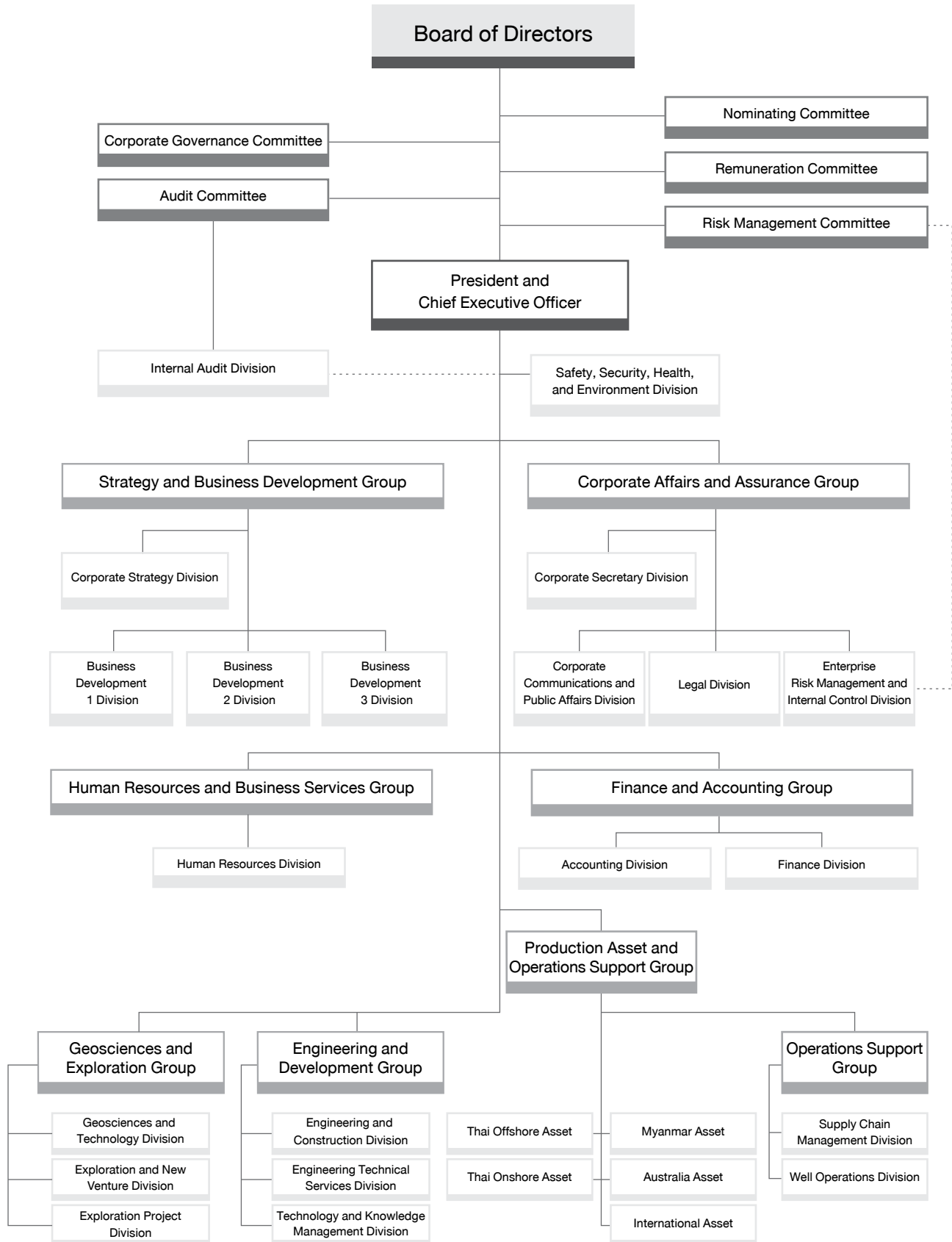
* Since January 18, 2010, Thai NVDR Co., Ltd. has changed its rule to require a disclosure of names of NVDR holders having over 0.50% of paid-up capital of the underlying securities.

** Dividend Payout Ratio of 2015 is not available due to net loss.

Management Structure

PTTEP Organization Structure

As of January 1, 2017



8.1 The Board of Directors

8.1.1 The Board's Structure

PTTEP's Board of Directors (Board) consists of qualified directors who possess a versatility of expertise with appropriate mix of skills suitable for the E&P industry. In 2016, PTTEP reviewed the Board Skill Mix by classifying it to 11 subject matters under 2 categories.

(1) Core Skill: Basic expertise which is necessary for the directors to govern the Company, namely, business judgment, management skill & corporate governance, and business strategy

(2) Specific Skill: Specific expertise or experiences that is useful for the directors to supervise and govern the Company, namely, industry knowledge, accounting, legal, international market, risk & crisis management, economics & finance, SSHE (Safety, Security, Health and Environment), and technology

The directors must not be over 70 years old and shall possess the qualifications according to the Good Corporate Governance and Business Ethics of the PTTEP Group (CG&BE), laws relevant to public limited companies as well as those of the Securities and Exchange, and rules and regulations of the Securities Exchange Commission (SEC), the Capital Market Supervisory Board (CMSB), and the Stock Exchange of Thailand (SET), and relevant resolutions of the Cabinet. The directors shall also commit and dedicate their time to fully perform the duties and responsibilities. The directors, for example, would be regarded as unqualified if absent from the Board's meeting for more than three consecutive times without a reasonable justification.

The Board structure consists of 15 directors, considered to be appropriate for the Company's operational size. The Board consists of non-executive and executive directors. In addition, the Board shall not comprise independent directors of less than half of the incumbent members. As of December 31, 2016, the Board consisted of 15 directors.

- 14 non-executive directors (93.34% of total members)
- 1 executive director: President and Chief Executive Officer
- 9 independent directors (60% of total members, a ratio which is more than half of the incumbent members as required by law and the Company's CG&BE)

PTT is the only major shareholder of PTTEP, while the minor shareholders are dispersed. The aforementioned Board's component and proportion are therefore considered appropriate to maintain the balance within the Board for the best interests of the Company's shareholders.

Names, biography, qualification, experience, and shareholding of non-executive directors, executive directors, independent directors, and directors from PTT, are disclosed in the "Information of the Board of Directors, Management, Controlling Persons and Corporate Secretary" section as well as in PTTEP's annual report and website.

8.1.2 Authorities and Responsibilities of the Board

Based on the principles of accountability, duty of care and duty of loyalty, the Board has been clearly defined of their roles and responsibilities and required to perform them strictly in line with those stipulated by the laws, objectives, Articles of Association of PTTEP, and resolutions of the shareholders' and Board's meetings. The scope of the authority and responsibilities of the Board are as follows:

- (1) To govern PTTEP's operations in compliance with the Company's CG&BE as well as to be a leader and role model in adopting, advising, communicating, and promoting the CG&BE among the employees and other organizations
- (2) To consider and approve of the statement of vision, mission, and corporate values of the PTTEP Group to ensure that they are effectively applicable and practical
- (3) To consider and approve of the PTTEP Group's strategic plan, business direction, targets, workforce structure, and other significant operations, including regularly monitoring and reviewing operation results to ensure that they are in line with the Company's strategy, operational direction, targets, and policies as planned with emphasizes on mobility and applicability to allow the management to effectively and efficiently manage the business amidst the low oil price environment
- (4) To establish efficient and adequate internal control systems by having a clear set of regulations and work processes as well as having a standardized and reliable accounting system and financial reporting, appropriate and adequate risk management, effective compliance program, and monitoring system
- (5) To consider and approve significant matters as prescribed by the laws or in the Company's affidavits, policies or regulations, as well as matters that may result in corporate obligations
- (6) To consider the cases which are related to conflicts of interest in a prudent and transparent manner and to review the work process to ensure the appropriate check and balance for efficient internal control. In such case, reports of vested interests of oneself and/or those of related persons must be filed, including potential misuse of the Company's properties and execution of transactions with the Company's connected persons in an inappropriate way
- (7) To ensure that the Company has clear and proper regulations, a standardized and reliable financial reporting, an efficient internal control system, and a proper risk management
- (8) To govern and monitor the internal and external auditors to ensure that they perform their duties effectively
- (9) To ensure that the communication and disclosure of information to the Company's stakeholders are performed in an accurate, complete, appropriate, and timely manner
- (10) To ensure that the Company's stakeholders are treated with a fair and equal treatment
- (11) To consider, approve, and appoint specialists from different professional fields to provide the Company with insightful information as well as to act on our behalf on significant matters which can significantly affect the financial standing and reputation of the PTTEP Group
- (12) To consider and approve the Board Performance Target as well as to evaluate performance of the Board, Chairman of the Board, and sub-committees
- (13) To consider and approve the Performance Agreement of the President and Chief Executive Officer (CEO) as well as to evaluate performance and determine remuneration of the CEO. The Board is also responsible for ensuring that the Company has an effective performance evaluation process of the executives

(14) To consider and delegate appropriate authority to the CEO to manage the Company's operations according to the strategic plan, business direction, targets and policies of the organization, as well as to ensure that the Company employs appropriate and effective evaluation tools for performance of the CEO

The Board is permitted to request for information and seek advices and services regarding the Company's business operation from the management. In addition, if deemed necessary and appropriate, the directors may seek advices from external and independent advisors at the Company's expense.

8.1.3 Sub-Committees

8.1.3.1 The Corporate Governance Committee

PTTEP's Corporate Governance Committee has the duties and responsibilities according to its charter as follows:

- (1) To establish the Good Corporate Governance and Business Ethics of the PTTEP Group (CG&BE) for the Board's approval for implementations throughout the organization
- (2) To promote the CG&BE to the Board, management, and employees to ensure that it is complied with in all areas of the Company's business operations
- (3) To review Business Ethics of the Company as well as practices regarding the Company's Good Corporate Governance to ensure that they are in line with relevant laws as well as practices of and recommendations from leading international organizations before proposing them to the Board for approval and corresponding them with the shareholders
- (4) To govern PTTEP to carry out an assessment on our compliance with CG&BE
- (5) To disclose information regarding the Company's Good Corporate Governance to our stakeholders in the Company's annual report
- (6) To oversee and provide recommendations on the Corporate Social Responsibility (CSR) activities
- (7) To regularly review and update its own charter to ensure appropriateness
- (8) To disclose performance of the Corporate Governance Committee in the Company's annual report
- (9) To perform other duties relevant to the Good Corporate Governance of the PTTEP Group as assigned by the Board

The Corporate Governance Committee consists of at least three directors, all of whom must be an independent director. As of December 31, 2016, the Committee comprised three members as follows:

Admiral Tanarat Ubol	Chairman of the Committee and Independent Director
Mr. Songsak Saicheua	Member and Independent Director
Mr. Piti Tantakasem	Member and Independent Director

According to its charter, the Committee must hold the meeting at least four times a year. In 2016, the Committee held four meetings, while all incumbent directors as well as the Company's Corporate Secretary, acting as the Committee's secretary, attended all the meetings. The Committee has disclosed its annual performance in the Corporate Governance Committee Report for 2016.

8.1.3.2 The Audit Committee

PTTEP's Audit Committee has the duties and responsibilities according to its charter as follows:

- (1) To review the Company's financial reports with the external auditor on a quarterly basis to ensure accuracy and adequacy
- (2) To ensure that Companies' activities are performed in compliance with the securities and exchange laws, SET's regulations, and other laws related to the business
- (3) To review connected transactions or transactions that may lead to conflicts of interest to ensure that these transactions comply with the laws and SET's regulations and that they are reasonable as well as in the best interests of the Company
- (4) To ensure that the Company's internal control and internal audit systems are efficient and appropriate as well as that audit reports, audit approaches and results are performed and noted based on generally acceptable standards and relevant best practices. Also, coordinate the work with the external auditor
- (5) To consider and select the external auditor, approve audit fees, and attend the non-executive meeting with the external auditor at least once a year
- (6) To determine independence of the Internal Audit Division as well as to endorse appointments, transfers, performance appraisal or punishments of the Head of the division. The Audit Committee will appoint an Investigation Committee to investigate the Head of the division if he or she is suspected of noncompliance to laws, Company's rules and regulations and corporate governance.
- (7) To approve the annual audit plan
- (8) To endorse budget, division structure and manpower of the Internal Audit Division for the management to propose to the Board
- (9) To approve charter of the Internal Audit Division
- (10) To approve the Conflict of Interest Form when the Head of the Internal Audit Division has to conduct the audit field work
- (11) To endorse the results from audits which were approved in the annual audit plan as well as special audit request
- (12) Chairman of the Audit Committee or the Audit Committee member has to attend the shareholders' meeting to answer questions regarding the Committees' duties or the appointment of the external auditor
- (13) To annually review and update the Audit Committee Charter

(14) To perform other duties as assigned by the Board

(15) To prepare and disclose the Audit Committee Report in the Company's annual report

The Audit Committee consists of at least three directors, all of whom must be an independent director.

As of December 31, 2016, the Committee comprised four members. One of the members, Ms. Panada Kanokwat, graduated with a degree in accounting and all members are capable with knowledge, expertise, and experience in auditing financial statements. Details are as follows:

Director Name	Position	Financial Statements Audit Experience
Mr. Ampon Kittiampon	Chairman of the Audit Committee	- April 2010 - April 2011: Chairman of the Audit Committee, PTT Plc. - May - December 2007: Chairman of the Audit Committee, Rayong Refinery Plc. - December 2005 - April 2007: Member of the Audit Committee, Rayong Refinery Plc.
Mr. Achporn Charuchinda	Member of the Audit Committee	- 2013 – 2014 : Member of the Audit Committee, Metropolitan Waterworks Authority - 2007 – 2013: Chairman of the Audit Committee, Bank of Thailand's Financial Institutions Development Funds
Mr. Sethaput Suthiwart-Narueput	Member of the Audit Committee	- 2011 – 2012: Chairman of the Audit Committee, TMB Bank Plc. - Experiences in Financial Statement Analysis: (1) 2008 – 2009: President, SCB Asset Management (2) 2007 – 2008: Managing Director, Head of Research, SCB Securities
Ms. Panada Kanokwat	Member of the Audit Committee	- 2015 – Present: Chairman of the Audit Committee, Asia Biomass Co., Ltd. - 2014 – Present: Member of the Audit Committee, Global Power Synergy Plc. - 2013 – 2014: Member of the Audit Committee, TISCO Financial Group Plc. - 2011 – 2013: Chairman of the Audit Committee, TISCO Bank Plc.

Ms. Panada Kanokwat was appointed as a member of the Committee on April 1, 2016.

According to the Audit Committee Charter, the Committee must hold the meeting on a quarterly basis. In 2016, the Committee held 11 meetings, and 66 agendas were considered. The majority of incumbent directors including Acting Senior Vice President, Internal Audit Division, acting as the Committee's secretary, attended all the meetings. The Committee has disclosed its annual performance in the Audit Committee Report for 2016.

8.1.3.3 The Nominating Committee

PTTEP's Nominating Committee has the duties and responsibilities according to its charter as follows:

- (1) To select and nominate individuals who are qualified to be the Company's directors, the President and Chief Executive Officer (CEO) when there is a vacancy or to replace those whose term have expired, or an Acting CEO when there is a vacancy while the nomination process is still underway, for election by the Board or by the shareholders, considering the Board composition, knowledge, capability, their useful experience to the Company, number of companies in which they are serving as a director, and their conflicts of interest
- (2) To consider the CEO's succession plan and appropriate executive-level management development system to ensure the skills and qualifications as required to achieve the Company's target growth
- (3) To consider Skill Mix qualifications and prepare a list of possible candidates for the Company's directors, CEO, or Acting CEO in advance and/or when there is a vacancy
- (4) To accept opinions or suggestions from the Board to supplement the nomination selection decision before submitting to the Board for consideration and to the Annual General Shareholders' Meeting (as the case may be)
- (5) To consider the annual Board Performance Target and the Performance Agreement of the Board and CEO, to propose them to the Board for approval as well as to set the Performance Evaluation Form of the Chairman, directors, sub-committees, and CEO
- (6) To consider and propose qualified directors to be a member of the Board or the chairman of the sub-committees when there is a vacancy as well as to propose restructuring of the sub-committees as deemed appropriate
- (7) To regularly review and update its own charter to ensure its appropriateness
- (8) To disclose performance of the Committee in the Company's annual report
- (9) To perform other duties relevant to the nomination of directors, the CEO, or Acting CEO, as assigned by the Board

The Nominating Committee consists of at least three directors, in which the Chairman and the majority of the members must be an independent director. As of December 31, 2016, the Committee comprised three members who were all independent directors as follows:

Mr. Piti Tantakasem	Chairman and Independent Director
Colonel Nimit Suwannarat	Member and Independent Director
Mr. Sethaput Suthiwart-Narueput	Member and Independent Director

Mr. Piti Tantakasem assumed the chairmanship in replacement of Mr. Ampon Kittiampon and Mr. Sethaput Suthiwart-Narueput assumed membership in replacement of Mr. Manas Jamveha from September 29, 2016.

According to its charter, the Committee must hold the meetings at least two times a year. In 2016, the Committee held eight meetings, and the majority of incumbent directors as well as the Company's Corporate Secretary, acting as the Committee's secretary, attended all the meetings. The Committee has disclosed its annual performance in the Nominating Committee Report for 2016.

8.1.3.4 The Remuneration Committee

PTTEP's Remuneration Committee has the duties and responsibilities according to its charter as follows:

- (1) To consider remuneration of the Board and sub-committees prior to proposing at the Annual General Shareholders' Meeting for approval, using the fair and reasonable criteria or principles, while ensuring that the remunerations are in line with the individual's performance results, the Company's performance, the industry practices, as well as the scope of the duties and responsibilities
- (2) To consider remuneration of the President and Chief Executive Officer (CEO), and the salary structure of the Company's executives with fair and reasonable criteria or principles prior to proposing them to the Board for approval. Remuneration of the CEO must be in line with duties and responsibilities as well as his or her performance.
- (3) To evaluate performance of the Remuneration Committee and report to the Board for an annual disclosure to the shareholders
- (4) To regularly review and update the Remuneration Committee Charter to ensure its appropriateness
- (5) To perform other duties as assigned by the Board

The Remuneration Committee consists of at least three directors, in which the Chairman and the majority of the members must be an independent director. As of December 31, 2016, the Committee comprised three members, two of which were independent directors as follows:

Mr. Achporn Charuchinda	Chairman and Independent Director
Admiral Tanarat Ubol	Member and Independent Director
Mr. Manas Jamveha	Member

Mr. Manas Jamveha assumed membership in replacement of Mr. Chakkrit Parapuntakul on April 1, 2016.

According to its charter, the Committee must hold the meeting at least two times a year. In 2016, the Committee held two meetings, and all incumbent directors as well as the Company's Corporate Secretary, acting as the Committee's secretary, attended all the meetings. The Committee has disclosed its annual performance in the Remuneration Committee Report for 2016.

8.1.3.5 The Risk Management Committee

PTTEP's Risk Management Committee has the duties and responsibilities according to its charter as follows:

- (1) To define the policy framework and process for risk management, including recommendations on corporate risk management to the Board and management
- (2) To promote and implement the risk strategy and policy by enhancing the level of risk awareness within the Company through the development of appropriate procedures and commitment of resources
- (3) To maintain an enterprise-wide view of risks which are related to corporate direction and E&P value chain such as exploration risk, development risk, SSHE risk, investment and geopolitical risk, financial risk, organizational capability risk, and law and regulatory risk, as well as to recommend mitigation strategy to manage the risks to keep them within the acceptable level according to clause (1) and to continuously monitor, assess and improve the mitigation strategy in responding to changing of the business environment
- (4) To support risk management function in assessing key risk factors and provide advices on other potential risks which may impact the Company for a continuous and efficient risk management comparable to other leading companies, as well as to assign certain tasks related to PTTEP's risk management to the risk management functions to perform
- (5) To support the monitoring of risks across PTTEP and regularly report to the Board
- (6) To disclose the Committee's performance in the Company's annual report
- (7) To regularly review and update its own charter to ensure its appropriateness
- (8) To perform other duties relating to the Company's risk management as assigned by the Board

The Risk Management Committee consists of at least three directors, while at least one member must be an independent director. As of December 31, 2016, the Committee comprised six members, three of which were independent directors as follows:

Mr. Sethaput Suthiwart-Narueput	Chairman and Independent Director
Colonel Nimit Suwannarat	Member and Independent Director
Mr. Piti Tantakasem	Member and Independent Director
Mr. Pitipan Teparitargorn	Member
Mr. Wirat Uanarumit	Member
Mr. Twarath Sutabutr	Member

According to its charter, the Committee must hold the meeting at least four times a year. In 2016, the Committee held 14 meetings, while the majority of incumbent directors attended all the meetings. The Committee's secretary, who was the Executive Vice President of the Strategy and Business Development Group and Senior Vice President of the Enterprise Risk Management and Internal Control Division, also attended every meeting (change of secretary during the year). The Committee has disclosed its annual performance in the Risk Management Committee Report for 2016.

8.1.3.6 Independent Directors Committee

PTTEP's Independent Directors Committee has the duties and responsibilities according to its charter as follows:

- (1) To propose to the Board and/or the President and Chief Executive Officer (as the case may be) on significant matters which are beneficial to the Company as well as major and minor shareholders
- (2) To advise the Board and independent directors on their roles and responsibilities for benefits of the Company as well as the major and minor shareholders
- (3) To review the Company's operations to ensure that they comply with the laws relevant to independent directors, as well as to review the definition of independent directors to be lawfully appropriate and complete
- (4) To perform other duties as assigned by the Board, provided that such duties do not affect the Committee's independence
- (5) To regularly review and update the Independent Directors Committee Charter to ensure its appropriateness

The directors who meet all of the qualifications of an independent director according to the CG&BE are considered as an independent director without requiring appointment from the Nominating Committee. As of December 31, 2016, the Committee comprised nine members as follows:

Mr. Prajya Phinyawat	Chairman
Admiral Tanarat Ubol	Vice Chairman
Mr. Ampon Kittiampon	Member
Mr. Achporn Charuchinda	Member
Colonel Nimit Suwannarat	Member
Mr. Sethaput Suthiwart-Narueput	Member
Mr. Piti Tantakasem	Member
Mr. Songsak Saicheua	Member
Ms. Panada Kanokwat	Member

According to its charter, the Committee must hold the meeting at least four times a year. In 2016, the Committee held four meetings, and the majority of incumbent directors as well as the Company's Corporate Secretary, acting as the Committee's secretary, attended all the meetings. There was no compensation paid to the members of the Committee for their meeting attendance. The Committee has disclosed its annual performance in the Independent Directors Committee Report for 2016.

PTTEP's Definition of Independent Directors

The Good Corporate Governance of PTTEP has defined the qualification of the Company's independent directors stricter than those defined by the Capital Market Supervisory Board, specifically in the area of shareholding as clarified in no. (1) below. Our definitions of an independent director, whose qualification is annually reviewed, are as follows:

(1) Holding shares not exceeding 0.5 % of the total number of shares with voting rights of PTTEP, our parent company, subsidiary companies, associated companies, major shareholders, or controlling persons, including shares held by related persons of such independent director

(2) Neither being nor used to be an executive director, employee, staff, or advisor who receives salary, or a controlling person of PTTEP, our parent company, subsidiary companies, associated companies, same-level subsidiary companies, major shareholders, or controlling persons, unless the foregoing status has ended for not less than two years prior to his or her appointment as the Company's independent director. Such prohibited characteristic shall not include the case where the independent director used to be a government official or advisor of a government unit, which is a major shareholder, or a controlling person of the Company.

(3) Not being a person related by blood or legal registration as a father, mother, spouse, sibling, and child, including spouse of a child of the Company's directors, executives, major shareholders, controlling persons, or persons to be nominated as a director, executive, or controlling persons of PTTEP or one of our subsidiary companies

(4) Neither having nor used to have a business relationship with PTTEP, our parent company, subsidiary companies, associated companies, major shareholders, or controlling persons, in the manner which may interfere with his or her independent judgment, and neither being nor used to be a significant shareholder, or controlling person of anyone having a business relationship with the Company, our parent company, subsidiary companies, associated companies, major shareholders, or controlling persons, unless the foregoing relationship has ended for not less than two years

The term 'business relationship' under the first paragraph shall include normal business transactions, rental or lease of immovable property, transactions relating to assets or services or granting or receiving of financial assistance. For example, these include receiving or extending of loans, guarantee, providing assets as collateral, and other similar actions which can potentially result in PTTEP or his counterparty being subject to indebtedness payable to the other party in the amount of three percent or more of the net tangible assets of the Company or twenty million baht or more, whichever is lower. The amount of such indebtedness shall be calculated according to the method for calculation of the value of connected transactions under the notification of the Capital Market Supervisory Board's governing rules on connected transactions *mutatis mutandis*. The consideration of such indebtedness shall include indebtedness occurred during the period of one year prior to the date on which the business relationship with the person commences.

(5) Neither being nor used to be an auditor of PTTEP, our parent company, subsidiary companies, associated companies, major shareholders, or controlling persons, and not being a significant shareholder, controlling person, or partner of an audit firm which employs auditors of the Company, our parent company, subsidiary companies, associated companies, major shareholders, or controlling persons, unless the foregoing relationship has ended for not less than two years

(6) Neither being nor used to be a provider of any professional services, including those as a legal advisor or financial advisor who receives service fees exceeding two million baht per year from PTTEP, our parent company, subsidiary companies, associated companies, major shareholders, or controlling persons, and not being a significant shareholder, controlling person, or partner of the provider of the professional services, unless the foregoing relationship has ended for not less than two years

(7) Not undertaking any businesses in the same nature and in competition to the business of PTTEP or our subsidiary companies, or not being a significant partner in a partnership or an executive director, employee, staff, advisor who receives salary or holds shares exceeding one percent of the total number of shares with voting rights of a company which undertakes its business in the same nature and in competition to that of the Company or our subsidiaries

(8) Not being a director appointed as representative of directors of PTTEP, the major shareholder or any shareholders who are related to the major shareholder

(9) Not having any other characteristics which cause an inability to express independent opinions regarding PTTEP's business operations

After being appointed as an independent director with the qualifications under (1) to (9), the independent director may be assigned by the Board to take part in the business decision of PTTEP, our parent company, subsidiary companies, associated companies, same-level subsidiary companies, major shareholders, or controlling persons, provided that such decision shall be in the form of a collective decision.

The definition of each of the specific words mentioned is subjected to the Notification of the Capital Market Supervisory Board's RE: Determination of Definitions relating to Issuance and Offer for Sale of Securities.

Business Relationship or Professional Services of Independent Directors for the Company during the Past Fiscal Year

– None –

8.1.4 Performance Appraisal of the Board

The Good Corporate Governance and Business Ethics of PTTEP Group (CG&BE) stipulates that there should be an annual performance appraisal for the Board. In 2016, the appraisal of the Board derived from the score from Board Performance Target, while the Chairman's and sub-committees' would be evaluated by the Board using the corresponding appraisal forms. This allows the Company's directors to review their performance, key issues, and obstacles with which they had faced during the past year as well as to enhance their directorship efficiencies. The Nominating Committee determines the appraisal forms and considers the Board Performance Target prior to proposing to the Board for consideration and approval.

The Board's performance appraisal comprises the followings:

(1) Individual self-appraisal and individual cross-appraisal by the other directors, including four evaluation topics, namely, (1) qualifications, (2) independence, (3) roles and responsibilities, and (4) training and self-development

(2) Appraisal of the entire Board, including six evaluation topics, namely, (1) corporate policies and strategic planning, (2) board performance, (3) management governance, (4) board meetings, (5) board structure and qualifications, and (6) training and development

(3) Appraisal of the sub-committees which includes questions on each of the sub-committee's performance efficiency according to the roles and responsibilities stated in their individual charter

(4) Appraisal of the Chairman which includes questions on the Chairman's performance efficiency according to the roles and responsibilities of the Chairman as stated in the CG&BE under Section 6.3: Roles of the Board of Directors and Management. This includes topics such as acting as the Chairman of the Board's meetings and the Annual General Shareholders' Meeting, setting agendas for the Board's meetings, and performing the others of the Board's meeting-related roles.

The 2016 appraisal included 4 parts as aforementioned with the weight of each topic unchanged from 2015, however, with major modifications as follows:

(1) Adjustment of scoring system: from 1 to 5 (1 = urgent improvement needed, 2 = improvement needed, 3 = fair, 4 = good, 5 = very good) to be 1 to 3 (1 = improvement needed, 2 = fair, 3 = good)

(2) The appraisal of sub-committees was evaluated by each sub-committee member to most accurately reflect performance of the sub-committees. The Board also evaluated each sub-committee but only in the overall scope.

Hence, the 2016 appraisal results were limited to be compared with those of 2015 due to scoring scale differentials.

The appraisal of the Board consisted of two parts, in which each weighs 50%, namely, score from the self-appraisal of the Board and score from the Board Performance Target. Details can be summarized as follows:

(1) The self-appraisal score in 2016 averaged at 2.84 which was within the highest range. The individual cross-appraisal by other directors' score averaged at 2.81.

(2) The 2016 appraisal score of the Board derived from two parts, namely,

(2.1) Score from the Board Performance Target was 3.91, where the score was 3.44 in 2015 (total score = 5).

(2.2) Score from the self-appraisal of the Board averaged at 2.91 (total score = 3).

The overall appraisal score of the Board for 2016 therefore averaged at 4.38 which was higher than 4.18 in 2015.

In addition, the 2016 self-appraisal of the Board included a new assessment part on the relationship between the Board and the management, where the latter also evaluated based on the same set of questions to deliver a two-way-communication results. The development plan on the topic in concern would consequently be established as part of the Board Performance Target in the following year and put into practice thereafter.

(3) The 2016 appraisal scores of the five sub-committees were within the highest range as follows:

- (3.1) The appraisal score of the Audit Committee was 3.00.
- (3.2) The appraisal score of the Remuneration Committee was 2.96.
- (3.3) The appraisal score of the Nominating Committee was 3.00.
- (3.4) The appraisal score of the Corporate Governance Committee was 2.73.
- (3.5) The appraisal score of the Risk Management Committee was 2.94.
- (4) The appraisal of the Chairman by the Board was 2.96.

PTTEP reports the score results to the Board for acknowledgement before disclosing them in the annual report. Recommendations from the Board's appraisal will then be used in the future for efficiency improvement of the Board, sub-committees, Chairman, and management in several aspects, such as time management in the Board's meetings, review of human resource management, and succession plan development for critical positions. In addition, the directors will put more emphasis toward self-development by attending trainings relative to the Board performance efficiency, fully supporting the initiatives which would enhance the Company's medium-term and long-term strategic planning.

8.1.5 Performance Appraisal of the President and Chief Executive Officer

The Board specifies that there must be an appraisal of the President and Chief Executive Officer (CEO). As for the current CEO who has assumed his position in late 2015, the Nominating Committee has been assigned to appraise the CEO's 6-month performance as well as year-end 2016 in the following areas.

- (1) Achievement
- (2) Leadership
- (3) Strategic Planning and Execution
- (4) People Management
- (5) Decision Making
- (6) Relationship with the Board, government sector, PTT, and other stakeholders

The Remuneration Committee also conducts the CEO's performance appraisal where the Nominating Committee approves that the CEO's Performance Agreement be measured by the Company's KPI which is also used to determine his or her remuneration in the given year. The appraisal result must also be approved by the Board to ensure check and balance system as well as to allow the Company to monitor the performance of CEO in comparison to his or her preset short- and long-term targets. The appraisal result essentially provides the transparency and justification in consideration of CEO's remuneration, in addition to promoting the Company's Good Corporate Governance and a greater operational efficiency in the future.

8.1.6 The Board's Meeting

The Board's monthly meetings and agendas are scheduled and predetermined in advance each year by the Board itself, while there are normally 12 meetings being held annually on the last Thursday of every month. The Board members have been informed of 2017 meeting schedule since September 2016. Meetings related to the Company's strategic planning, in which the Board has greatly committed its time and priority, are commonly held as an off-site meeting, whereas additional meetings will be held when deemed appropriate. In 2016, there were 16 of the Board's meetings. The Board usually receives meeting invitations from the Corporate Secretary, along with agendas and important documents related to the meetings, to consider at least within 7 working days prior to the meeting date, except in those urgent cases or insufficient information. In addition, the agenda documents are delivered to the directors through a software to facilitate the convenience and timeliness as well as to promote a paperless process.

Generally, the Company's Chairman, the President and Chief Executive Officer (CEO), and the Corporate Secretary are responsible for agenda proposals in the Board's meetings, but, in practice, the Company's directors are also eligible to make the proposals as well.

The Board's meeting agendas are clearly classified, namely, the agendas for approval, agendas for acknowledgement, and the monthly agenda of Performance Review as well as Budget Execution. In 2016, there were 65 and 156 agendas proposed for approval and acknowledgement, respectively, while the important standing agendas are as follows:

Month	Standing Agendas
January	- Annual General Shareholders' Meeting Documents Preparation, including: (1) Unaudited Annual Financial Statements (2) Dividend Payment (3) Auditor Appointment and Auditor's Fees Consideration (4) Board of Directors' and Sub-committees' Remuneration (5) Appointment of New Directors in Replacement of Those Who Are Due to Retire by Rotation - PTTEP's Board Performance Agreement
February	- Annual Registration Statement and Annual Report
March	- Annual Strategic Direction and Planning - Annual General Shareholders' Meeting Preparation
April	- Election of the Chairman, Appointment of Sub-committee Members and Authorized Directors Who May Sign to Bind the Company
May	- Strategic Direction and Annual Manpower Planning
July	- Interim Dividend Payment (If any)
September	- Board Meeting Schedule
November	- Business Plan, 5-Year Investment Plan, and Annual Expenditure Budgeting - Annual Procurement Plan

Month	Standing Agendas
December	- Annual Performance Appraisal of PTTEP's Board of Directors, Sub-committees, and the Chairman - PTTEP Corporate Key Performance Indicator (KPI) and Employees' Merit Increase and Annual Special Payment - President and Chief Executive Officer's Key Performance Indicator (KPI) and Performance Agreement

In 2016, there were also agendas for consideration corresponding to the business impacts from the continuous decline in oil price. These included strategic direction and management under low oil price, the Company's safety and technology management, oil price hedging process, cost reduction, business plan and budget adjustments, project investment plans, reorganization in accordance to long-term growth target, 2017 procurement plan, and the Company's Charters amendment such as those of the Risk Management Committee and Nominating Committee.

During each of the meetings, which usually lasted approximately three to four hours, the Chairman would allocate an adequate period of time for each agenda to provide the opportunity for the directors to express their opinions independently. The Company's executives were also invited to attend the meetings to provide necessary information as well as to acknowledge the policies and issues being raised to accommodate the implementation. The Corporate Secretary, who is also appointed as the Board's Secretary, had attended every meeting to administer and provide advice to the Board on related rules and regulations for proper practices, took minutes of the meetings, and kept a complete filing of all the necessary meeting information and documents.

The Board's resolution is based on the majority vote, whereas one director is eligible for one vote. Shall a director have a stake in one of the issues, he or she will not be allowed to attend the meeting and/or to exercise a vote in the particular issue. In the circumstance where the voting is tied, the Chairman of the meeting is entitled to the one additional and therefore final vote.

The issues which are required to receive an approval of no less than three-fourth of the total number of the Company's eligible shareholders attending the meeting are as follows:

- (1) Selling or transferring, in whole or a significant part, of the Company's business
- (2) Purchasing or accepting of transfer of business of other companies or private companies by PTTEP
- (3) Making, amending or terminating of contracts related to hiring of the Company's business, in whole or a significant part, including entrustment of the management to or consolidation of the business with other entities with the purpose of profit and loss sharing
- (4) Amending of the Company's Memorandum of Association or the Articles of Association
- (5) Increasing and decreasing of the Company's capital, issuing of debentures, merger and acquisition, and business dissolution
- (6) In case where the Company or one of our subsidiaries agrees to enter connected transactions or sales or acquisition of the Company's or the subsidiaries' assets, as determined by the Stock Exchange of Thailand's announcement on connected transactions of listed companies (as the case may be)

Minutes of the Board's meetings cover all significant matters in completion. For the issues seeking approval, the resolutions are unanimous. Name of the persons attending or absented from the meetings, name of meetings' attendants, and name and content of those who state his or her opinions, questions, answers, or clarifications are recorded in details, while the reports of the minutes are systematically filed and kept in safety. All directors of the Board usually attend all of the meetings unless an absence deemed necessary. In which case, the director must provide the Boards' Chairman with an absent letter which must be informed to all members before the meeting starts and will be subsequently recorded in the report of individual directors' meeting attendance.

In 2016, the non-executive meetings were held three times which were without presence of the management and were held prior to the ordinary Board's Meeting. The purpose of the meetings was to discuss and clarify some ongoing issues which were of interest, while the results were summarized and acknowledged to the CEO for further evaluation.

8.1.7 Meeting Attendance of PTTEP Directors in 2016

Director's Name		Board	Independent Directors Committee	Non-Executive Director Committee	Corporate Governance Committee	Audit Committee	Remuneration Committee	Nominating Committee	Risk Management Committee	Annual General Shareholders' Meeting 2016
		Total number of meetings: 16 times	Total number of meetings: 4 times	Total number of meetings: 3 times	Total number of meetings: 4 times	Total number of meetings: 11 times	Total number of meetings: 2 times	Total number of meetings: 8 times	Total number of meetings: 14 times	Total number of meetings: 1 time
1. Mr. Prajya	Phinyawat	16/16	4/4	3/3	-	-	-	-	-	1/1
2. Mr. Tevin	Vongvanich	14/16	-	3/3	-	-	-	-	-	1/1
3. Mr. Ampon	Kittiampon ¹	16/16	4/4	3/3	-	11/11	-	5/5	-	1/1
4. Mr. Manas	Jamveha ^{1,2}	15/16	-	3/3	-	-	1/1	5/5	-	1/1
5. Mr. Achporn	Charuchinda ²	14/16	4/4	3/3	-	11/11	2/2	-	-	-
6. Admiral Tanarat	Ubol	16/16	4/4	3/3	4/4	-	2/2	-	-	1/1
7. Colonel Nimit	Suwannarat ²	15/16	4/4	3/3	-	-	-	7/8	10/14	1/1
8. Mr. Sethaput	Suthiwart-Narueput ^{2,3}	14/16	4/4	2/3	-	10/11	-	3/3	14/14	1/1
9. Mr. Piti	Tantakasem ^{2,3}	15/16	4/4	3/3	4/4	-	-	3/3	14/14	1/1

¹ Mr. Ampon Kittiampon and Mr. Manas Jamveha ended chairmanship and directorship, respectively, of the Nominating Committee on September 29, 2016.

² From April 1, 2016, there were appointments of directors as follows:

- Mr. Manas Jamveha assumed directorship of the Remuneration Committee.
- Mr. Achporn Charuchinda assumed chairmanship of the Remuneration Committee and directorship of the Audit Committee.
- Colonel Nimit Suwannarat assumed directorship of the Nominating Committee and Risk Management Committee.
- Mr. Sethaput Suthiwart-Narueput assumed chairmanship of the Risk Management Committee and directorship of the Audit Committee.
- Mr. Piti Tantakasem assumed directorship of the Risk Management Committee and Corporate Governance Committee.
- Mr. Wirat Uanarumit assumed directorship of the Risk Management Committee
- Ms. Panada Kanokwat. assumed directorship of the Audit Committee

³ Mr. Piti Tantakasem and Mr. Sethaput Suthiwart-Narueput assumed chairmanship and directorship, respectively, of the Nominating Committee on September 29, 2016.

Director's Name		Board	Independent Directors Committee	Non-Executive Director Committee	Corporate Governance Committee	Audit Committee	Remuneration Committee	Nominating Committee	Risk Management Committee	Annual General Shareholders' Meeting 2016
		Total number of meetings: 16 times	Total number of meetings: 4 times	Total number of meetings: 3 times	Total number of meetings: 4 times	Total number of meetings: 11 times	Total number of meetings: 2 times	Total number of meetings: 8 times	Total number of meetings: 14 times	Total number of meetings: 1 time
10. Mr. Wirat	Uanarumit ²	15/16	-	3/3	-	-	-	-	12/14	1/1
11. Mr. Songsak	Saicheua	14/16	3/4	3/3	4/4	-	-	-	-	1/1
12. Mr. Twarath	Sutabutr	16/16	-	3/3	-	-	-	-	11/14	1/1
13. Mr. Pitipan	Tepartimargorn	14/16	-	3/3	-	-	-	-	12/14	1/1
14. Ms. Panada	Kanokwat ^{2,4}	14/14	4/4	3/3	-	9/9	-	-	-	1/1
15. Mr. Somporn	Vongvuthipornchai	16/16	-	-	-	-	-	-	-	1/1
Former Director Resigning During 2016										
1. Mr. Chakkrit	Parapuntakul ⁵	-	-	-	-	-	-	-	-	-

⁴ Ms. Panada Kanokwat was elected as director on February 12, 2016.

⁵ Mr. Chakkrit Parapuntakul resigned from directorship and directorship of the Remuneration Committee on January 6, 2016.

8.1.8 Number of PTTEP Shares Held by the Directors

Director's Name	Number of Shares		
	As of December 31, 2015	Changes in 2016	As of December 31, 2016
1. Mr. Prajya Phinyawat	15,000	Acquisition -	15,000
		Disposition -	
	-	Acquisition -	-
		Disposition -	
Minor child	-	Acquisition -	-
		Disposition -	
	-	Acquisition -	-
		Disposition -	
2. Mr. Tevin Vongvanich	146,543	Acquisition -	146,543
		Disposition -	
	-	Acquisition -	-
		Disposition -	
Minor child	-	Acquisition -	-
		Disposition -	
	-	Acquisition -	-
		Disposition -	
3. Mr. Ampon Kittiampon	-	Acquisition -	-
		Disposition -	
	-	Acquisition -	-
		Disposition -	
Minor child	-	Acquisition -	-
		Disposition -	
	-	Acquisition -	-
		Disposition -	
4. Mr. Manas Jamveha	-	Acquisition -	-
		Disposition -	
	-	Acquisition -	-
		Disposition -	
Minor child	-	Acquisition -	-
		Disposition -	
	-	Acquisition -	-
		Disposition -	
5. Mr. Achporn Charuchinda	-	Acquisition -	-
		Disposition -	
	-	Acquisition -	-
		Disposition -	
Minor child	-	Acquisition -	-
		Disposition -	
	-	Acquisition -	-
		Disposition -	

Director's Name	Number of Shares		
	As of December 31, 2015	Changes in 2016	As of December 31, 2016
6. Admiral Tanarat Ubol	-	Acquisition -	-
		Disposition -	
Spouse	-	Acquisition 12,700	-
		Disposition 12,700	
Minor child	-	Acquisition -	-
		Disposition -	
7. Colonel Nimit Suwannarat	-	Acquisition -	-
		Disposition -	
Spouse	-	Acquisition 40,000	-
		Disposition 40,000	
Minor child	-	Acquisition -	-
		Disposition -	
8. Mr. Sethaput Suthiwart-Narueput	-	Acquisition -	-
		Disposition -	
Spouse	-	Acquisition -	-
		Disposition -	
Minor child	-	Acquisition -	-
		Disposition -	
9. Mr. Piti Tantakasem	-	Acquisition -	-
		Disposition -	
Spouse	-	Acquisition -	-
		Disposition -	
Minor child	-	Acquisition -	-
		Disposition -	
10. Mr. Wirat Uanarumit	-	Acquisition -	-
		Disposition -	
Spouse	-	Acquisition -	-
		Disposition -	
Minor child	-	Acquisition -	-
		Disposition -	

Director's Name	Number of Shares		
	As of December 31, 2015	Changes in 2016	As of December 31, 2016
11. Mr. Songsak Saicheua	-	Acquisition -	-
		Disposition -	
	-	Acquisition -	-
		Disposition -	
	-	Acquisition -	-
		Disposition -	
12. Mr. Twarath Sutabutr	-	Acquisition -	-
		Disposition -	
	-	Acquisition -	-
		Disposition -	
	-	Acquisition -	-
		Disposition -	
13. Mr. Pitipan Tepartimargorn	-	Acquisition -	-
		Disposition -	
	-	Acquisition -	-
		Disposition -	
	-	Acquisition -	-
		Disposition -	
14. Ms. Panada Kanokwat	N/A	Acquisition -	30,000
		Disposition -	
	N/A	Acquisition -	-
		Disposition -	
	N/A	Acquisition -	-
		Disposition -	
15. Mr. Somporn Vongvuthipornchai	206,927	Acquisition 29,942	236,869
		Disposition -	
	3,500	Acquisition -	3,500
		Disposition -	
	-	Acquisition -	-
		Disposition -	

Director's Name	Number of Shares		
	As of December 31, 2015	Changes in 2016	As of December 31, 2016
Former Director Resigning During 2016			
1. Mr. Chakkrit Parapuntakul	-	Acquisition	-
		Disposition	-
Spouse	-	Acquisition	-
		Disposition	-
Minor child	-	Acquisition	-
		Disposition	-

8.2 The Management

As of January 1, 2017, PTTEP's management, according to the definition of management as defined by the Capital Market Supervisory Board (CMSB), consists of 20 members. Details of their biography, qualification, and past experience are disclosed in the "Information of the Board of Directors, Management, Controlling Persons and Corporate Secretary" section.

List of Names and Number of Shares Held by the Management*, Their Spouse and Minor Child

Name	Position of Management	Number of Shares		
		As of December 31, 2015	Changes in 2016	As of January 1, 2017
1. Mr. Somporn Vongvuthipornchai	President and Chief Executive Officer	206,927	Acquisition	Others -
				EJIP 29,942
			Disposition	Others -
				EJIP -
Spouse		3,500	Acquisition	-
			Disposition	-
Minor child		-	Acquisition	-
			Disposition	-

* The number of shares held by the management may also include shares purchased under the Employee Joint Investment Program (EJIP) which commences from 2013 to 2018 to build a motivation among the staff to work efficiently and effectively, create alignment between the employees, management and shareholders, as well as to establish long-term loyalty and a sense of ownership to PTTEP. Details are disclosed in the "Corporate Governance" section under "Policy on Treatment to Stakeholders - Employee" part.

Name	Position of Management	Number of Shares			
		As of December 31, 2015	Changes in 2016		As of January 1, 2017
2. Mr. Phongsthorn Thavisin ¹	Chief Operating Officer, Production Asset and Operations Support Group	34,362	Acquisition	Others -	49,715
				EJIP 15,353	
			Disposition	Others -	
				EJIP -	
Spouse		-	Acquisition	-	-
			Disposition	-	
Minor child		-	Acquisition	-	-
			Disposition	-	
3. Mr. Thiti Mekavichai	Executive Vice President, Human Resources and Business Services Group	47,914	Acquisition	Others -	72,661
				EJIP 24,747	
			Disposition	Others -	
				EJIP -	
Spouse		-	Acquisition	-	-
			Disposition	-	
Minor child		-	Acquisition	-	-
			Disposition	-	
4. Mr. Kanit Sangwongwanich	Executive Vice President, Engineering and Development Group	97,247	Acquisition	Others -	118,943
				EJIP 21,696	
			Disposition	Others -	
				EJIP -	
Spouse		-	Acquisition	-	-
			Disposition	-	
Minor child		-	Acquisition	-	-
			Disposition	-	

¹ Appointed as Chief Operating Officer, Production Asset and Operations Support Group (position equivalent to Executive Vice President) on January 1, 2016

Name	Position of Management	Number of Shares			
		As of December 31, 2015	Changes in 2016		As of January 1, 2017
5. Mr. Prapat Soponpongpiat ²	Executive Vice President, Geosciences and Exploration Group	30,049	Acquisition	Others -	50,685
				EJIP 20,636	
			Disposition	Others -	
				EJIP -	
Spouse		-	Acquisition	-	-
			Disposition	-	
Minor child		-	Acquisition	-	-
			Disposition	-	
6. Ms. Pannalin Mahawongtikul ³	Executive Vice President, Finance and Accounting Group	4,783	Acquisition	Others -	19,979
				EJIP 15,196	
			Disposition	Others -	
				EJIP -	
Spouse		-	Acquisition	-	-
			Disposition	-	
Minor child		-	Acquisition	-	-
			Disposition	-	
7. Mrs. Pranot Tirasai ⁴	Executive Vice President, Corporate Affairs and Assurance Group	133,158	Acquisition	Others -	153,128
				EJIP 19,970	
			Disposition	Others -	
				EJIP -	
Spouse		N/A	Acquisition	-	-
			Disposition	-	
Minor child		N/A	Acquisition	-	-
			Disposition	-	

² Appointed as Executive Vice President, Geosciences and Exploration Group on January 1, 2016

³ Appointed as Executive Vice President, Finance and Accounting Group on January 1, 2016

⁴ Appointed as Executive Vice President, Corporate Affairs and Assurance Group on January 1, 2017

Name	Position of Management	Number of Shares			
		As of December 31, 2015	Changes in 2016		As of January 1, 2017
8. Mr. Montri Rawanchaikul ⁵	Acting Executive Vice President, Strategy and Business Development Group	N/A	Acquisition	Others	N/A
				EJIP	N/A
			Disposition	Others	N/A
				EJIP	N/A
Spouse		N/A	Acquisition		N/A
			Disposition		N/A
Minor child		N/A	Acquisition		N/A
			Disposition		N/A
9. Mr. Chatchawal Eimsiri	Executive Vice President, attached to President and Chief Executive Officer	35,415	Acquisition	Others	-
				EJIP	13,461
			Disposition	Others	-
				EJIP	-
Spouse		-	Acquisition		-
			Disposition		-
Minor child		-	Acquisition		-
			Disposition		-
10. Mrs. Suchitra Suwansinpan ⁶	Executive Vice President, attached to President and Chief Executive Officer	76,054	Acquisition	Others	-
				EJIP	19,740
			Disposition	Others	8,000
				EJIP	-
Spouse		8,000	Acquisition		-
			Disposition		7,700
Minor child		-	Acquisition		-
			Disposition		-
11. Mr. Yongyos Krongphanich	Senior Vice President, Finance Division	80,831	Acquisition	Others	-
				EJIP	18,497
			Disposition	Others	-
				EJIP	-
Spouse		-	Acquisition		-
			Disposition		-
Minor child		-	Acquisition		-
			Disposition		-

⁵ Appointed as Executive Vice President, Strategy and Business Development Group on October 16, 2016

⁶ Appointed as Executive Vice President, attached to President and Chief Executive Officer on October 16, 2016

Name	Position of Management	Number of Shares			
		As of December 31, 2015	Changes in 2016		As of January 1, 2017
12. Ms. Jaroonsri Wankertphon ⁷	Senior Vice President, Accounting Division	53,171	Acquisition	Others -	65,604
				EJIP 12,433	
			Disposition	Others -	
				EJIP -	
Spouse		-	Acquisition	-	-
			Disposition	-	
Minor child		-	Acquisition	-	-
			Disposition	-	
13. Mrs. Chanamas Sasnanand	Vice President, Capital and Investor Relations Department	25,564	Acquisition	Others -	35,691
				EJIP 10,127	
			Disposition	Others -	
				EJIP -	
Spouse		-	Acquisition	-	-
			Disposition	-	
Minor child		-	Acquisition	-	-
			Disposition	-	
14. Ms. Pornpip Jansuksri ⁸	Vice President, attached to Finance and Accounting Group	17,317	Acquisition	Others -	28,588
				EJIP 11,271	
			Disposition	Others -	
				EJIP -	
Spouse		-	Acquisition	-	-
			Disposition	-	
Minor child		-	Acquisition	-	-
			Disposition	-	

⁷ Appointed as Senior Vice President, Accounting Division, Finance and Accounting Group on July 1, 2016

⁸ Appointed as Vice President, attached to Finance and Accounting Group, seconded as Vice President of PTT Energy Complex (EnCo) on October 1, 2016

Name	Position of Management	Number of Shares			
		As of December 31, 2015	Changes in 2016		As of January 1, 2017
15. Mrs. Sirirat Sararattanakul	Vice President, Financial Accounting Department	200,887	Acquisition	Others - EJIP 10,987	211,874
			Disposition	Others - EJIP -	
Spouse		-	Acquisition	-	
			Disposition	-	
Minor child		-	Acquisition	-	-
			Disposition	-	-
16. Ms. Kanchanan Panananda	Vice President, Managerial Accounting Department	43,007	Acquisition	Others - EJIP 8,479	51,486
			Disposition	Others - EJIP -	
Spouse		-	Acquisition	-	
			Disposition	-	
Minor child		-	Acquisition	-	-
			Disposition	-	-
17. Mrs. Maneeya Srisukhumbowornchai	Vice President, Tax Department	-	Acquisition	Others - EJIP -	-
			Disposition	Others - EJIP -	
Spouse		-	Acquisition	-	
			Disposition	-	
Minor child		-	Acquisition	-	-
			Disposition	-	-
18. Mr. Sakchai Sarawek ⁹	Vice President, Accounting Policy and Solutions Department	N/A	Acquisition	Others N/A EJIP N/A	23,522
			Disposition	Others N/A EJIP N/A	
Spouse		N/A	Acquisition	N/A	
			Disposition	N/A	
Minor child		N/A	Acquisition	N/A	-
			Disposition	N/A	-

⁹ Appointed as Vice President, Accounting Policy and Solutions Department, Accounting Division, Finance and Accounting Group on July 1, 2016

Name	Position of Management	Number of Shares				
		As of December 31, 2015	Changes in 2016		As of January 1, 2017	
19. Mr. Anutra Bunnag ¹⁰	Vice President, Treasury Department	N/A	Acquisition	Others	N/A	-
				EJIP	N/A	
			Disposition	Others	N/A	
				EJIP	N/A	
Spouse		N/A	Acquisition	N/A		-
			Disposition	N/A		
Minor child		N/A	Acquisition	N/A		-
			Disposition	N/A		
20. Mrs. Thanyaporn Vangvasu ¹¹	Specialist, attached to Finance and Accounting Group	N/A	Acquisition	Others	N/A	145,511
				EJIP	N/A	
			Disposition	Others	N/A	
				EJIP	N/A	
Spouse		N/A	Acquisition	N/A		-
			Disposition	N/A		
Minor child		N/A	Acquisition	N/A		-
			Disposition	-		
Management Who Retired or Resigned During 2016						
1. Mr. Kitisak Nualchanchai ¹²	Executive Vice President, Technology and Sustainability Development	54,992	Acquisition	Others	-	77,546
				EJIP	22,554	
			Disposition	Others	-	
				EJIP	-	
Spouse		-	Acquisition	-		-
			Disposition	-		
Minor child		-	Acquisition	-		-
			Disposition	-		

¹⁰ Appointed as Vice President, Treasury Department, Accounting Division, Finance and Accounting Group on October 1, 2016

¹¹ Appointed as Specialist, attached to Finance and Accounting Group on May 1, 2015

¹² Retired on January 1, 2017

8.3 Corporate Secretary

The Corporate Secretary plays a major role in coordinating internally among the Company's Chairman, and President and Chief Executive Officer, and management, and externally among companies, our shareholders, and regulators. The Board of Directors has appointed Mrs. Pranot Tirasai, Executive Vice President, Corporate Affairs and Assurance Group (effective from January 1, 2017) and Acting Senior Vice President, Corporate Secretary Division, as the Corporate Secretary and the Board's secretary, the Corporate Governance Committee's secretary, the Nominating Committee's secretary, the Remuneration Committee's secretary, and the Independent Directors Committee's secretary since October 1, 2013. Mrs. Tirasai is a law graduate and knowledgeable in managing corporate secretarial. She also has experience and other qualifications that contribute to efficiency and effectiveness in the discharge of corporate secretarial functions. In addition, she attended the seminars and trainings which were beneficial to her performance. Details of the Corporate Secretary are disclosed in the "Information of the Board of Directors, Management, Controlling Persons, and Corporate Secretary".

The Corporate Secretary has performed roles with fiduciary duties by having responsibility, and duties of care and loyalty, as stipulated in the Securities and Exchange Act, including preparing and safeguarding the Company's documents, namely (1) directors registry (2) notice and minutes of the Shareholders' meetings and (3) agenda, minutes of the Board's meetings, and Annual Reports; safeguarding the Conflicts of Interests Report submitted by the directors and management as well as sending a copy of the report to the Chairman of the Board and Chairman of the Audit Committee, as stipulated by law.

The Corporate Secretary is also responsible for the following duties as required by the Board of the Company.

- Overseeing and advising the Board to ensure that the directors perform their roles in compliance with relevant applicable laws, rules and regulations as well as the Company's objectives, AoA, resolutions from the Board's and shareholders' meeting
- Organizing meetings of the Board, sub-committees, and shareholders
- Arranging orientation for and providing advices to new directors
- Recommending necessary and appropriate training programs to directors
- Monitoring the Company's business operations of each function to ensure alignment with the directions set by the Board and shareholders and within the conditions set forth by external regulatory bodies overseeing listed companies
- Governing of subsidiaries, including preparing and safeguarding of their important documents
- Promoting and educating the directors, management, and employees about the Good Corporate Governance and Business Ethics of the PTTEP Group, which is regularly being revised to be in compliance with related laws and in line with international practices of leading organizations
- Ensuring all shareholders of the Company are being treated fairly, ethically and lawfully as well as promoting good relationship with minority shareholders
- Acting as a Case Coordinator, which is responsible for managing reports submitted through the Case Management System of the Company
- Performing other duties as appointed by the Company

8.4 Remuneration of Directors and Executives

8.4.1 Remuneration of the Board and Members of the Sub-Committees

PTTEP has a sound and transparent policy regarding remuneration of the Company's directors of the Board and sub-committees. The Remuneration Committee, who is responsible for the policy, reviews the remuneration with prudence by taking into consideration remuneration of listed and comparable companies in the industry, performance of PTTEP, duties and responsibilities of the directors, overall economic situation, and the shareholders' opinions. The 2016 Annual General Shareholders' Meeting (AGM) approved the following remunerations for members of the Board and sub-committees, as proposed by the Remuneration Committee.

Remuneration Rates for Members of the Board

- (1) Monthly allowance of THB 40,000 per person per month in a full-month payment
- (2) Meeting allowance of THB 40,000 per person per a meeting attendance
- (3) Bonus for the Board if there is a dividend in that year, totaling 0.1% of the Company's consolidated net profit in that year, but no more than THB 60 million per year, and proportionally to the director's period in the position
- (4) 25% increase in all of the above for the Chairman

Remuneration Rates for Members of the Sub-Committees

This is in association to the Company's five standing sub-committees, namely, the Corporate Governance Committee, the Audit Committee, the Remuneration Committee, the Nominating Committee, and the Risk Management Committee.

- (1) Meeting allowance of THB 40,000 per person per a meeting attendance
- (2) 25% increase for the sub-committee's Chairman
- (3) No remuneration in a case of circulation
- (4) Excluding the sub-committees' members who are in the management from the top executive level down.

Other Remuneration for PTTEP Directors

- None -

Remuneration of Members of the Board and Sub-Committees in 2016

Director's Name		Remuneration							2016 Bonus Paid in 2017 ^{\$}	Total
		Board		Audit Committee	Corporate Governance Committee	Remuneration Committee	Nominating Committee	Risk Management Committee		
		Meeting Allowance	Monthly Allowance	Meeting Allowance	Meeting Allowance	Meeting Allowance	Meeting Allowance	Meeting Allowance		
1. Mr. Prajya	Phinyawat	800,000	600,000	0	0	0	0	0	1,054,075.29	2,454,075.29
2. Mr. Tevin	Vongvanich	560,000	480,000	0	0	0	0	0	843,260.23	1,883,260.23
3. Mr. Ampon	Kittiampon	640,000	480,000	550,000	0	0	250,000	0	843,260.23	2,763,260.23
4. Mr. Manas	Jamveha	600,000	480,000	0	0	40,000	200,000	0	843,260.23	2,163,260.23
5. Mr. Achporn	Charuchinda	560,000	480,000	440,000	0	100,000	0	0	843,260.23	2,423,260.23
6. Admiral Tanarat	Ubol	640,000	480,000	0	200,000	80,000	0	0	843,260.23	2,243,260.23
7. Colonel Nimit	Suwannarat	600,000	480,000	0	0	0	280,000	400,000	843,260.23	2,603,260.23
8. Mr. Sethaput	Suthiwart-Narueput	560,000	480,000	400,000	0	0	120,000	700,000	843,260.23	3,103,260.23
9. Mr. Piti	Tantakasem	600,000	480,000	0	160,000	0	150,000	560,000	843,260.23	2,793,260.23
10. Mr. Wirat	Uanarumit	600,000	480,000	0	0	0	0	480,000	843,260.23	2,403,260.23
11. Mr. Songsak	Saicheua	560,000	480,000	0	160,000	0	0	0	843,260.23	2,043,260.23
12. Mr. Twarath	Sutabutr	640,000	480,000	0	0	0	0	440,000	843,260.23	2,403,260.23

[§] The 2016 Annual General Shareholders' Meeting (AGM) approved bonus for the Board if there is a dividend in that year, totaling 0.1 percent of the Company's consolidated net profit in that year.

Note: Mr. Tevin Vongvanich has returned his PTTEP directorship remuneration in 2016 to PTT Public Company Limited (PTT) according to PTT's President and Chief Executive Officer employment agreement.

PTTEP provides the Chairman with a corporate car to carry out corporate-related purposes while in the chairmanship.

Director's Name		Remuneration							2016 Bonus Paid in 2017 ^{\$}	Total
		Board		Audit Committee	Corporate Governance Committee	Remuneration Committee	Nominating Committee	Risk Management Committee		
		Meeting Allowance	Monthly Allowance	Meeting Allowance	Meeting Allowance	Meeting Allowance	Meeting Allowance	Meeting Allowance		
13. Mr. Pitipan	Tepartimargorn	560,000	480,000	0	0	0	0	480,000	843,260.23	2,363,260.23
14. Ms. Panada	Kanokwat	560,000	440,000	360,000	0	0	0	0	746,492.67	2,106,492.67
15. Mr. Somporn	Vongvuthipornchai	640,000	480,000	0	0	0	0	0	843,260.23	1,963,260.23
Former Directors Resigning in 2016										
1. Mr. Chakkrit	Parapuntakul	0	40,000	0	0	0	0	0	11,519.95	51,519.95
Total		9,120,000	7,320,000	1,750,000	520,000	220,000	1,000,000	3,060,000	12,774,470.90	35,764,470.90

8.4.2 Remuneration of the Directors of Subsidiaries and Associated Companies

PTTEP's subsidiaries and associated companies are functional units of the Company in carrying out E&P and related businesses to optimize the Company's benefits, taking into account of the business and investment conditions. The Company assigns our executives to hold a directorship position in our subsidiaries and/or associated companies in order to ensure that they are managed in compliance with the business direction and strategy of the Company.

The Company's executives who are assigned to be directors of the subsidiaries and associated companies either in the E&P business or related business, such as PTTEP Services Co., Ltd., and B8/32 Partners Co., Ltd. do not receive any additional remunerations since it is considered as a part of their duties and responsibilities on behalf of the Company. The executives who are assigned to be directors of subsidiaries or associated companies engaging in other business, for example, PTT ICT Solutions Co., Ltd., and Energy Complex Co., Ltd. however are entitled to an additional remuneration since it is considered as an additional assignment in accordance with the Good Corporate Governance and Business Ethics of the PTTEP Group.

8.4.3 Remuneration of the President and Chief Executive Officer

Remuneration of the President and Chief Executive Officer is defined under the principles which are unbiased, reasonable, justifiable, and transparent. PTTEP's Remuneration Committee is responsible for reviewing remuneration of the President and Chief Executive Officer prior to proposing for the Board's approval. The approval from the Board is based on his or her performance, duties and responsibilities, the Company's performance, remuneration of listed companies comparably in size and industry, and overall economic situation. The President and Chief Executive Officer's remuneration consists of both short- and long-term arrangements such as salary and bonus payment as well as eligibility in the Employee Joint Investment Program (EJIP).

Remuneration of the President and Chief Executive Officer is determined using fair and appropriate procedures, relating to his or her annual performance, and duties and responsibilities.

The ratio of annual compensation of the President and Chief Executive Officer compared to the average annual compensation of the executives is approximately 1.4:1, whereas the ratio of annual compensation of the President and Chief Executive Officer compared to the average annual compensation of all employees is approximately 8.8:1.

8.4.4 Remuneration of the Executives

PTTEP's Remuneration Committee is responsible for the salary structure of the Company's executives. The key principles are to establish an unbiased and reasonable structure, which reflects not only the Company's own business nature and its performance, but also some of the variables which can be compared to and justified by those of other leading companies in the industry. The Board must give an approval to the structure before its implementation.

The President and Chief Executive Officer meanwhile is responsible for reviewing the appropriateness of the remuneration of each of the executives as well as their annual salary increase, taking into consideration his or her overall target based performance and the Company's performance.

To maintain the Company's remuneration competitiveness, PTTEP conducts an annual survey on remuneration of leading companies in the industry. The information gathered through the survey allows the Remuneration Committee to better understand the current market situation to further increase our competitiveness in the job market as well as to be able to provide the Board with thorough explanations particularly when the changes in the salary structure and payment method are drastic.

Remuneration of the Executives

	2015		2016	
	Number	Total Amount (THB)	Number	Total Amount (THB)
Salary	10 ¹	80,943,178	10 ¹	78,142,595
Bonus		15,142,138 ²		35,151,487 ³
Other compensation ⁴		10,663,254		10,228,158
Total		106,748,570		123,522,240

In 2016, compensation (salary, bonus, and contribution to the provident fund) of PTTEP's and the subsidiaries' employees, including wages of the seconded employees, totaled THB 7,259,415,902.

8.5 Personnel

As of December 31, 2016, PTTEP and our subsidiaries had a total workforce of 3,794 employees.

Number of Employees^{*}

Employee Type	Total (Persons)
Thai Permanent Employees	2,101
Thai Contracted Employees	1,283
Non-Thai Contracted Employees	69
Local Employees in Overseas Subsidiaries	330
Seconded Employees from PTT Group Companies and Joint Venture Partners	11
Total	3,794

Remarks: ^{*} Based on the Company's database as of December 31, 2016

¹ Executives, 10 in total, consisted of the President and Chief Executive Officer, Executive Vice Presidents and equivalent, and PTT's executives who have been seconded to PTTEP.

² Bonuses for 2015, paid in January and February 2016

³ Bonuses for 2016, paid in January and February 2017

⁴ Provident Fund

Number of Employees in Each Function Group¹

Function Group ²	Thai Permanent Employee	Thai Contracted Employee	Non-Thai Contracted Employee	Local Employee	Seconded Employee
President and Chief Executive Officer	85	12	0	0	0
Engineering and Development Group	309	152	24	24	0
Finance and Accounting Group	131	97	0	0	0
Geosciences and Exploration Group	171	39	12	13	0
Human Resources and Business Services Group	121	88	1	0	0
Operations Support Group	279	242	21	7	0
Production Asset and Operations Support Group	840	613	8	286	11
Strategy and Business Development Group	63	4	2	0	0
Technology and Sustainability Development Group	102	36	1	0	0
Total	2,101	1,283	69	330	11

Remarks: ¹ Based on the Company's database as of December 31, 2016

² Based on the Company's organization structure as of December 31, 2016

8.5.1 Human Resources Development Policy

To increase the organization capability and accelerate the competency development of our staff for continuous expansion of the Company's business domestically and internationally, PTTEP has developed and improved the capability development systems and process by implementing a competency-based training and development, focusing on 70:20:10 development model (70% On-the-Job Training, 20% Coaching and Mentoring, 10% Formal Training). In 2016, the Company provided training and development programs to employees through the following channels.

(1) In-House and External Training

The Company provides in-house and external trainings, domestically and overseas, to staff and management at all levels. These trainings comprise a wide variety of courses, including technical and functional training, Safety, Security, Health and Environment (SSHE) training, organizational knowledge training, as well as other skills required to increase day-to-day work efficiency, such as computer skills training, foreign language training, business administration, and leadership skills training.

(2) Long-term Training and Development Programs

Long-term training and development programs are aimed to prepare our employees for roles and assignments in the Company's current and future projects. The programs are generally provided to selected employees based on their Individual Development Plan (IDP) in 1-3 years. By this approach, the employees are required to undertake on-the-job training through assignments with the Company's projects or assets or to be temporarily assigned to work with the Company's business partners or services companies in Thailand and overseas.

In 2016, the Company invested in human capital development programs at an amount of THB 44,373,962 with an average of 27 training hours per employee per year and 96 coaching and mentoring hours per employee per year. Meanwhile, with 105 mentors and 308 mentees in technical job trainings, the mentor to mentee ratio was at approximately 1:3 and is expected to continue to increase in 2017. In addition, 613 employees, or 26% of the Company's total permanent employees, had taken on-the-job assignment/job rotation to fulfil competency requirements. As a result, our employees' competency increased at an average of 7% which was higher than the target of 5%.

(3) Master's Degree Scholarship Programs for Employees

The Company provides scholarships to employees to help them pursue master's degrees in world-class universities all over the world in the following fields.

- (1) Petroleum Geosciences
- (2) Petroleum Engineering
- (3) Engineering
- (4) Drilling and Well Engineering
- (5) Business Administration

The Company also provides master's degree scholarships for employees to study in Thailand's reputable institutes as follows:

- (1) Business Administration (Executive), SASIN Graduate Institute of Business Administration of Chulalongkorn University
- (2) Petroleum Geoscience (International Program), Chulalongkorn University
- (3) Petroleum Geophysics (International Program), Chiang Mai University

The Company calculates the Human Capital Return on Investment (HCROI) in several dimensions which include man-hours and cost spent on development activities against total revenue, production, time to autonomy of young technical professionals, and readiness of immediate successors for senior management positions. The results are subsequently used to evaluate and elevate the efficiency and effectiveness of the development activities for continuous improvement.

9.1 Good Corporate Governance Policy

PTTEP Board of Directors (Board) recognizes the significance of strictly operating businesses under the Good Corporate Governance and Business Ethics of the PTTEP Group (CG&BE). The Board is confident that the strict adherence will successfully lead PTTEP to achieve the Company's goals of "Growth, Prosperity, Stability, Sustainability and Dignity" as well as to provide a strong support to enhance the confidence of our shareholders and other stakeholders. The Board has assigned the Corporate Governance Committee to govern, supervise and provide necessities to ensure that the Company's operations are in line with the CG&BE and that the good corporate governance is maintained at the level comparable to that of international standards.

In 2016, the Company earned various acceptances through numerous awards and recognitions for our good corporate governance, domestically and internationally. Details are disclosed in the "Awards and Recognitions for Good Corporate Governance" part. The Company also has dutifully continued to comply with the Corporate Governance Principles for Listed Companies of 2012 (CG 2012) established by the Stock Exchange of Thailand (SET), as well as practices comparable to those internationally accepted standards.

9.1.1 Shareholders' Rights and Equal Treatments

PTTEP understands the importance of shareholders' rights and equal treatments; the Company's Good Corporate Governance therefore has included a number of guidelines to assure shareholders of their basic rights which, among others, allow them to trade and transfer the Company's shares, declare the share ownership, and attend the shareholders' meetings in person or through their proxies. In addition, shareholders and their proxies are allowed to participate and vote in significant issues at the Company's shareholders' meeting. These issues are, for example, election of new members of the Board in replacement of those retired by rotation, determination of the Board's remuneration of all forms, appointment and approval of the external auditor and fees, approval of connected transactions, acquisition or disposition of assets which, according to relevant laws, are sizeable, and other issues which are of significance to the Company. Shareholders are also entitled to profit sharing in a form of dividend as well as to receive adequate and timely information from the Company. The Company has only one class of shares, namely, ordinary shares, while one share is equal to one vote. Our efforts to ensure and enhance shareholders' rights are as follows:

(1) **Annual General Meeting of Shareholders:** PTTEP respected and promoted shareholder's rights in Annual General Meeting of Shareholders (AGM or the Meeting) by continuously arranging key activities in 2016 as follows:

Before the Meeting

(1.1) Shareholders were allowed to propose agenda items and nominate qualified candidates for the election of PTTEP directors prior to the AGM from September 8 to December 31, 2015. Shareholders' proposals and the criteria were announced publicly through the SET's portal and the Company's website in advance on September 8, 2015. Shareholders' proposals were then considered using the Company's relevant rules and regulations to ensure that the

proposed agenda items are relevant and truly beneficial to the business. The Nominating Committee was responsible for short-listing of the nominated candidates to the Board for approval. Consequently, the Board would inform shareholders of the resolution together with the rationale for each proposal at the AGM. In 2016, none of such agenda or a candidate for the directors' nomination was proposed at the AGM.

(1.2) PTTEP disclosed the AGM date approximately two months before the Meeting date through the SET and the Company's website. The disclosure was made immediately when the Board determined the date on 28 January, 2016. In addition, the Company disclosed the record date on which shareholders have the right to attend the Meeting and to receive dividend to be on February 11, 2016, subsequently resulting the share registration closing date to be on February 12, 2016.

(1.3) The AGM invitation letter and supplementary documents, both in Thai and English, were published on the Company's website (www.pttep.com) more than 30 days prior to the Meeting, on February 26, 2016. The invitation letter included necessary details of each agenda, which clearly stated type of the agenda, be it for the acknowledgement or approval. The Board's opinions on each agenda item are clearly stated as well as other rules and regulations related to the Meeting. A proxy form, which was stipulated by the Ministry of Commerce, was also included in the invitation letter. A comprehensive list of required documents that shareholders were required to bring to the Meeting, on the other hand, was provided to preserve their rights to attend, while other important attachments included were instructions of the Meeting, voting procedures, and a map of the venue. The AGM invitation letter and supplementary documents, both in Thai and English, were distributed to shareholders by post 17 days prior to the Meeting.

(1.4) PTTEP provided names of the three independent directors in the proxy form to provide shareholders with an option to appoint one of them as their proxy. The Company also informed shareholders about the stake of the independent directors in each agenda item. In electing new directors in replacement of those retired by rotation, an independent director whose term was completed then re-nominated for another term, would be considered as having a conflict of interest (but not a special one). In the agenda to approve the remuneration of the Board, all of the directors would be however considered as having a special interest and therefore were abstained from the voting regardless of the percentage of their shareholding. The Company also provided shareholders with advices of how to use the proxy form which would properly represent their voting right to ensure that they could cast votes on their own.

(1.5) The Company also permitted shareholders to submit questions to the Board prior to the Meeting regarding matters relating to the Meeting or other information relevant to the Company.

At the Meeting

(1.1) The Meeting was held on March 28, 2016 at 14.00 hrs. at the Bangkok Convention Center, 5th Floor, Central Plaza Ladprao, Bangkok. The Meeting date, time, and venue were set up for the convenience of shareholders. The barcode and electronics system were used for registration, vote counting, compilation, and display of each resolution to ensure that the Meeting was carried out with full efficiency and accuracy. Assistants were adequately arranged to facilitate the process. To accelerate the registration process, the registration was opened to shareholders four hours prior to the Meeting. The Company also provided a revenue stamp to shareholders who intended to vote through a proxy.

(1.2) 14 out of 15 PTTEP directors attended the Meeting. The Company's Chairman presided over the Meeting, while Sub-Committee members, the Chief Executive Officer, senior executives from Finance and Accounting Group, and senior executives from other function groups also participated to respond and provide clarifications to inquiries from shareholders. Auditor, external legal advisors (Inspectors), right protection volunteers, including shareholder volunteers to witness vote counting, also participated in the Meeting. The Chairman ensured that the Meeting was carried out according to the Company's Articles of Association (AoA) and agenda items as stated in the invitation letter. The Chairman efficiently allocated time to each agenda item and provided adequate time and opportunity for shareholders to share their views and make in-depth inquiries regarding subjects relating to the Company's operations and the Meeting's agendas prior to the vote casting and resolution.

(1.3) PTTEP clearly provided information on the amount and ratio of shareholders who attended by themselves and proxies, including the procedure, vote casting, vote counting as indicated in the Articles of Association before the start of the Meeting. Shareholders and proxies were required to use voting ballot for voting on each agenda item scheduled for the Meeting whether to agree, disagree, or abstain. For each agenda item, a barcode system was used to tally the votes, while each agenda item was treated and voted separately, to ensure accurate and effective vote-counting procedure. The resolution was clearly reported and displayed in the Meeting as required by relevant laws and the Company's Articles of Association, while volunteers who were selected from shareholders and independent inspectors would be appointed to witness the vote-tallying and sign off on all ballot cards collected, counted, and signed. These cards were for internal reviews after the Meeting adjourned.

PTTEP permitted shareholders who arrived at the Meeting after it was commenced to cast their votes in the agenda that was in the consideration process or had not been considered or voted at the time of their arrival. The Company would also count the shareholders as participants in the Meeting starting from the agenda that they arrived.

(1.4) All information presented at the Meeting was available in both Thai and English, while a translator translating from Thai to English for foreign shareholders who attended the Meeting was also provided to ensure fairness and equality among shareholders.

(1.5) External independent legal advisors, acting as inspectors as well as witnesses, were engaged to oversee the Meeting to ensure the Meeting's transparency and that it was conducted lawfully according to the AoA. Responsibilities of inspectors included examination of documents provided by shareholders or their proxies eligibility of quorum as well as verification of potential conflicts of interest as to whether he/she shall be abstained from voting on the given agenda item, voting procedure, and voting count and as to whether they were in line with the AoA or as informed by the Chairman of the Meeting. The inspectors were also responsible for ensuring ballot collection from attended shareholders, and auditing the vote-tallying. In addition, volunteers, who represented shareholders at the Meeting, were appointed to act as witness for vote-counting procedure for each agenda item.

After the Meeting

(1.1) PTTEP disclosed Minutes of the Meeting together with vote-tallying results from each agenda item to the SET and also disclosed them in the Company's website on the same day immediately after the Meeting.

(1.2) Minutes of the Meeting, in both Thai and English, were accurately and completely recorded, and they covered explanations of the Meeting's voting and vote-tallying procedure, contents, questions, and opinions related to PTTEP's business operations and the Meeting's agenda, as well as clarifications of each agenda item made by the Company's directors and top executives. In addition to the inclusion of directors who attended and who were absent from the Meeting, the Company also recorded the resolution of each agenda, categorized as agreed, disagreed, abstained, and voided (if any) as well as the name and position of the directors and executives. Meanwhile, within 14 days after the Meeting, the final version of the Minutes of the Meeting would be delivered to the Ministry of Commerce, SET, Office of the Securities and Exchange Commission (SEC), and the Company's shareholders to provide evidence of the Meeting as well as to allow shareholders to make objections within the timeline enforced by relevant laws. In 2016, the Company however did not receive any objections or inquiries from shareholders regarding the Meeting. The approved Minutes, video and audio clips of the Meeting were also published in Thai and English in the Company's website.

(2) Disclose of material information which was significant to shareholders: PTTEP ensures that information communicated to shareholders is timely and accurate, not only for the information that is required by related regulations, but also other information which the Company considers as substantial for shareholders to be well informed. The disclosures are made through various channels such as the SET, media or printed media, and the Company's website.

PTTEP clearly discloses the Company's shareholding interests in our subsidiaries and associated companies as well as the controlling shareholder, PTT, to ensure shareholders that our organization structure is transparent, verifiable, and does not constitute any forms of cross- or pyramidal-shareholding structure.

(3) Ensure understanding of the Company's business operation and develop long-term engagement with shareholders: PTTEP continuously organizes various activities for shareholders and society. The Company equally provides the chance to all shareholders to participate. In 2016, major activities were as follows:

(3.1) PTTEP organized activities for shareholders by inviting 100 of them to join the forest plantation activity under the Forest Rehabilitation at Sri Nakhon Khuen Khan Park Project, Bang Kachao, Samut Prakan province.

(3.2) PTTEP organized trips for 240 shareholders to visit our Sirikit Oil Field in Kampheng Phet province to enhance understanding and ensure confidence in the Company's operation. In this event, our executives had a chance to take enquiries about the Company directly from shareholders, while the age limit policy for activity participation was not in effect to promote equal treatment to all shareholders.

(3.3) PTTEP published the quarterly newsletter to provide additional means of communication between the Company and our shareholders. The newsletter included the operational performance, progress of the key projects, Corporate Social Responsibility (CSR) activities, and corporate governance activities. The Company also presented information regarding the Royal Guidance of His Majesty the King Bhumibol Adulyadej on the four moral principles which are correlated with our corporate governance, operation, and anti-corruption measures. The information was publicized on the Company's website and sent to the shareholders who requested.

(4) **PTTEP values and takes care of shareholders equally:** the Company provides a direct communication channel between our minority shareholders and independent directors through e-mails. Shareholders, for example, are able to attain more information from or make inquiries to independent directors regarding their activities, corporate governance, and audit-related issues. In addition, shareholders are allowed to directly contact the Corporate Secretary or Investor Relations Unit of the Company for additional information. The Company operates businesses with optimal efficiency, with a focus on sustainability of the organization, appropriate and consistent returns to shareholders, and long-term relationship with stakeholders. We ensure that all of which are managed and assessed by the use of modern and well-accepted management tools.

(5) **Insider Trading Prevention**

PTTEP puts a great emphasis on controlling the use of our internal information by including this matter in the CG&BE. In addition to being in line with securities laws, policies relating to use of the internal information are regularly reviewed to preserve the integrity and equality among all stakeholders. Key approaches are as follows:

(5.1) The Compliance Department is assigned as the center for monitoring the insider trading prevention program and preparing a list of personnel bearing material internal information (Insider List) which includes directors, management, and related employees.

(5.2) Directors, management, and employees are always informed of PTTEP's regulations and policies regarding insider trading prevention through various communications as well as trainings to ensure that they are understood and strictly followed to prevent one from misusing such information directly or indirectly for his or her personal interests. Disciplinary actions are clearly specified, while the supervisors, who are appointed as the CG leaders, are responsible for advising and encouraging their subordinates to follow suit. In 2016, there was no report of any misuses of internal information.

(5.3) PTTEP requires a group of personnel to abstain from trading of the Company's securities during the silent periods, when material information is being disclosed, which may affect the securities price. These are, for example, release of the Company's financial statements or operating results and investment in new projects as announced in advance by the Compliance Department. These personnel include all directors and senior executives, including all Executive Vice Presidents (EVPs) and Senior Vice Presidents (SVPs), Vice Presidents (VPs) of the Finance and Accounting Group (FNA) as well as other management and employees bearing material internal information. This prohibition also applies to their spouses and minor children. The individuals are also refrained from directly and indirectly selling and/or buying of PTTEP's securities during the periods. Violation of this prohibition is considered as a disciplinary offense.

(5.4) Directors, management holding position of SVPs and above, and VPs of FNA must disclose a complete information regarding their securities possession as well as related activities to the Compliance Department, not only to the SEC, but also to the Board on a monthly basis according to the CG&BE. Shareholding by the directors and senior executives is also disclosed in the Company's annual report as required by the SEC.

(6) PTTEP requires directors, EVPs, and VPs of FNA to immediately report their conflicts of interest to the Company shall there be concerns, either by himself or herself or a related person. The Chairman of the Board and the Chairman of the Audit Committee must then review the report within seven working days after receiving the report from the Corporate Secretary, as stipulated by the Board, the Securities and Exchange Act (Volume 4), B.E. 2551, and the Capital Market Supervisory Board.

(7) PTTEP assembles a set of guidelines to handle conflicts of interest in the CG&BE for the directors, management, and employees to strictly follow. These guidelines require all mentioned to report to the Company regarding conflicts of interest of themselves and their related persons. Shall there be a conflict of interest, the individual must immediately report to the Company and be excluded from participation or abstained from voting in the issues involved.

9.1.2 Roles of Stakeholders

The Board has approved PTTEP's mission which puts an emphasis on significance of the stakeholders' rights. The Company's mission is to operate globally to provide a reliable energy supply and sustainable value to all stakeholders, and we also have a vision to become a leading Asian E&P company driven by technology and green practices. The Company's stakeholders, whether they are internal or external parties, have always been taken into account when decisions are made. Major stakeholders of the Company are, including but not limited to, shareholders, customers, employees, governments, joint venture partners, communities and societies, environment, suppliers, creditors, competitors, customs and traditions, and human rights. The importance of the Company's stakeholders is clearly written in our CG&BE in which practical guidelines with respect to business ethics are established in an effort to maintain the balanced duties and responsibilities between the Company and our stakeholders. Details of the CG&BE are disclosed in the Company's website.

9.1.2.1 Anti-Corruption

Importance

PTTEP's Board of Directors (Board) recognizes the importance of corporate governance, and how it needs to be transparent, fair and free from all forms of direct and indirect corruption, with zero tolerance for any form of corruption, primarily achieved through the use of a mechanism in accordance with our Good Corporate Governance and Business Ethics of the PTTEP Group or CG&BE that has been designed to regulate every area in order to maintain internal consistency, which is considered fundamentally vital to all regulations of the PTTEP Group. All people in the organization, including directors, executives and employees at all levels are strictly obligated to sign and conform to our Commitment of Compliance with the highest standards. The Board also has determined to apply this CG&BE approach to our subsidiaries, while the Company also supports other related parties such as agents, vendors and joint venture partners in upholding the best practices on this matter.

Furthermore, the Board understands that effective anti-corruption measures require good corporate governance with clear management and governance structures as well as adequate and appropriate risk management and internal control, coupled with supervision for effective compliance, as well as independent audit and clear guidelines in all relevant issues as stipulated in the CG&BE by having the Board and management function as an exemplary role model and Corporate Governance Leader (CG Leaders), while the Corporate Governance Committee additionally performs in a role in monitoring compliance. Our CG&BE is written in accordance with internal control principles and published for related stakeholders in Thai, English, and Burmese. It is also posted on the PTTEP Group's website (www.pttep.com). Those who are interested may download the full version for their further study and information. In addition, PTTEP has announced the "Standard of Practices for Anti-Corruption", one of the Company's internal control measures, in order to provide suggested models of conduct for management and employees in circumstances that they may encounter during the course of their work, in order to prevent and minimize corruption risk.

In addition, in order to ensure transparency within the PTTEP Group operations, the Company has insisted on the “No Gift Policy” whereby accepting gifts and other benefits from external parties is prohibited. PTTEP has also clearly communicated this policy to external parties. PTTEP has adopted “Integrity & Ethics” as PTTEP values and is instilling them into all employees across the organization.

Scope of PTTEP Group's Anti-Corruption Policy

PTTEP's CG&BE is also treated as anti-corruption policy, which importantly means that it includes all principles, practical guidelines, and clear examples of the issues involved related to anti-corruption measures, such as a good corporate governance structure as stipulated in the Corporate Governance component, practical guidelines for conflicts of interest problems, procurement and contracts issues, anti-money laundering provisions, political neutrality positions, the use and maintenance of data and assets as well as plentiful practical steps and guidelines for anti-corruption in the part of Business Ethics. CG&BE has mandatory conditions with regard to the directors, management and employees of PTTEP and our subsidiaries, as well as with the PTTEP Group's vendors, who are required to sign an agreement to conduct their business in accordance with our CG&BE.

PTTEP defines corruption based on related principles and laws, at both domestic and international levels, where there are mandatory conditions with which PTTEP Group has to comply. The Company primarily considers that no action must inappropriately entail the use of an individual's authority or another person's for undeserved exploitation in order to gain benefits, as such an act is deemed a violation of the laws and/or the PTTEP Group's regulations. Anti-corruption policy covers all forms of corruption whether conducted as a giver, receiver, or through a designated representative or agent. PTTEP recognizes that certain activities such as political support, not-for-profit donations, sponsorship, or facilitation of payments may be determined risky, as these can potentially be used as a channel for corruption. The definition of “corruption” therefore also extends to include such activities with mala in se. Extra precaution must be taken to ensure all activities are conducted without corruption.

Measures and Principles for Implementation

The implementation of anti-corruption measures is necessarily closely related to internal control systems, risk management, compliance and auditing channels in addition to dedicated cultural and ethical enhancement of the organization, where each topic is under the responsibility of a designated unit. PTTEP utilizes internal control forms and risk management procedures according to the following Three Lines of Defense:

(1) First Line of Defense: The departments with knowledge and understanding of the laws directly related to their operation are to be compliant with applicable laws and regulations. Internal control and appropriate risk management are conducted by the person responsible for the First Line of Defense. The person is required to pass rigorous training in order to ensure that he or she has an adequate level of knowledge and is ready to carry out their duties, being responsible for handling a variety of different situations effectively.

(2) Second Line of Defense: The units which perform duties and/or are responsible for the general laws, regulations and policies of the organization. In 2016, the Corporate Affairs and Assurance Group was set up to serve as the main responsible function in the Second Line of Defense. It comprised a Corporate Governance Unit, Risk Management Unit,

Internal Control Unit, and Compliance Unit, under the same function group to establish a Governance, Risk, Internal Control, Compliance - Management System (GRC MS) for integrated proactive management that would be able to achieve the stated objectives under an adequate internal control procedure. The sections were divided into seven major operations: (1) Leadership and Commitment, (2) Strategic Objectives and Policies, (3) Organization and Resources, (4) Communication and Training, (5) Assessment, (6) Monitoring and Enforcement, and (7) Audit.

(3) Third Line of Defense: The Audit Unit works together with PTTEP's external auditors to perform auditing for the overall system in both the First and Second Lines of Defense.

The units responsible for GRC have conducted internal control assessment sessions on the potential for fraud, which comprise the risk of asset misappropriation, corruption, and fraudulent financial reporting following the evaluation of the adequacy of the internal control system that is issued by the Office of the Securities and Exchange Commission (SEC). The Vice Presidents from each function assessed risks for fraud on the basis of 3 considerations, including pressure, opportunity and rationalization. The results of such assessment indicate that PTTEP has an adequate and appropriate level of internal control, and majority of the function groups have carefully assessed the 3 considerations and adjusted their measures so that they're timely and appropriate.

PTTEP also has other tools to prevent corrupt activities, including:

(1) We assess the risk of corruption by interviewing PTTEP management to prioritize corruption risks, and then use the high risk activities to stipulate internal control measures; for example, we have established a "Standard of Practices for Anti-corruption", an approval process form, along with a process for the monitoring of offering of gifts and other benefits, a reporting process for procurement conflict of interest, a corruption audit plan. This includes the additional internal control measures to prevent corruption in procurement and third-party hiring, for example, the assessment of procurement of high risk contracts and the additional review of possible conflicts of interest among the related persons in the procurement process.

(2) We review and include anti-corruption risks into our Corporate Risk Profile and specify Key Risk Indicators and Mitigation Plans to closely monitor risks as well as report their status to the Risk Management Committee on a quarterly basis.

Continuing to Provide Communication, Knowledge and Training

Our Corporate Governance Committee has a clear plan to inculcate Corporate Governance and Business Ethics, together with anti-corruption policies in everyone in the organization through continuous trainings and activities for all related parties in every dimension. The activities have been designed to accommodate interest and background knowledge to all targets and expanded to cover external parties, e.g., vendors. Achievement indicators for both internal and external parties were set up and reported to the Corporate Governance Committee and the Board on a quarterly basis. These steps were taken to ensure that all parties adhere to the policies thoroughly and efficiently. In 2016, the following operations related to anti-corruption measures were implemented:

Measures for internal parties

(1) Induction for the new Board members, new executives and new employees to the principles of Governance, Risk Management, Internal Control & Compliance (GRC), so that they all clearly understand and adhere to them.

(2) Promotion of GRC to Board members and management to provide related information and case studies that are beneficial to the Board of Directors and management before the start of Board meetings and management meetings whereby the chairman of each meeting would emphasize the importance of GRC and encourage all directors and management to put what they had learned into practice.

(3) Arrangement of GRC full-day courses for employees who had passed the induction course. The courses covered in principle the Company's tools for risk management and internal control, and CG&BE, with a focus on anti-corruption and related issues.

(4) Arrangement for online training on anti-corruption topics for management and employees in order to increase their understanding of the causes, impacts, regulations, risk management, internal control, including standard of practices for anti-corruption. A total of 73.26% of target management and employee have participated in and passed this training. The participation and passing results of the employees of each function group were used as a part of KPIs of the executives in 2016. The results of this training were also reported to the CEO and Corporate Governance Committee.

(5) Conducting CG&BE Workshop for employees in Myanmar at the Yangon office, which was a continued activity from 2015 to promote understanding of CG&BE and apply it to the operation effectively. The workshop was led by the top management of the Myanmar Asset and the Executive Vice President of the Corporate Affairs and Assurance Group in order to underline the importance of CG&BE that top management has placed on it. The exchange of discussion points related to operations was encouraged together with enjoyable activities helped to steer the success of this workshop.

(6) Arrangement for "Compliance Communication" on anti-corruption and use of inside information prevention for management and employees at the Petroleum Development Support Base (Songkhla) and S1 projects, where there were presentation and exchanges of discussions on related topics in order to ensure compliance to the policies by providing clarifications and knowledge. The comments and topics acquired from the session have been used to further develop the related company standards of practice.

(7) Organization of the annual "PTT Group CG Day 2016" with PTTEP serving as the host. The event was held under the title "PTT Group CG Day 2016: See Through the Future". The theme was to focus on transparency in the PTT Group to sustainable growth and it emphasized anti-corruption. The event was aimed at promoting values among all levels of employees of the PTT Group in order to have them get involved with all stakeholders fairly and expand their communications with vendors. The CEOs of the PTT Group confirmed their visions and expressed their commitment to anti-corruption, including expansion of communication among the general public, e.g., schools. Approximately 60 PTT Group vendors participated in this event.

(8) Arrangement of a Whistleblowing Communication system to promote the Company's Whistleblowing channels and create greater understanding of protection and process. The Company continues to disclose cases and penalties on an annual basis (details are shown under "Whistleblowing Reporting and Protection Procedures" part). This is to promote not only anti-corruption, but also the transparency of the values within the Company.

(9) Continuation of organizing communication channels, such as standee/notice boards, newsletters to provide continuous knowledge for the Company's employees at the headquarters and at all of our operating sites.

Measures for external parties

PTTEP has a strong and clear intention to become a leading company in the realm of Corporate Governance (CG) by committing to CG adherence and expansion to external parties. This includes implementation of a clear policy that covers external parties; for example, vendors, partners and representatives of the PTTEP Group. PTTEP encouraged external parties to remain ethical and to avoid corrupt practices by organizing various activities as follows:

(1) Arrangement for a sharing session on Anti-corruption policy by our Corporate Governance Committee member, Mr. Piti Tantakasem, in the SSHE Contractor Forum, where the importance of PTTEP's Anti-corruption policy was explained, including encouraging vendors to become members of the Private Sector Collective Action Coalition Against Corruption (CAC). Nearly 300 management and employees of vendor companies participated in this event.

(2) Organizing a session to explain "Private Sector Collective Action Coalition Against Corruption (CAC)" where the content covered the importance of anti-corruption measures as explained by the advisor of CAC, Thai Institute of Directors Association (IOD) where vendors and top management of PTTEP exchanged points of discussion. The aim of this even is to clarify for vendors the process of becoming a member of CAC, together with describing PTTEP's policies.

(3) Arrangement for a session on GRC for the vendors in the Vendor Symposium on quarterly basis, so that knowledge could be provided continually to vendors.

(4) Publishing the PTTEP quarterly newsletter to provide a means of communication among our shareholders, investors, and the public. This newsletter is on our PTTEP website, where in 2016, there were topics on PTTEP anti-corruption efforts, and the Company's role in coordinating with society to fight against corruption. All the above was done to reassure stakeholders that PTTEP is truly committed to operating business on transparency, fairness, and efficiency.

(5) Communication clearly to external parties PTTEP's "No Gift Policy" whereby the Board of Directors, management, employees of PTTEP now refrain from accepting gifts or other benefits in all business contacts and cases.

(6) Promotion of anti-corruption values in society by participating in various activities during the year in 2016. Details are shown under "Collective Efforts with the Public to Counter Corruption" part.

In addition, the Company has provided channels for external parties to contact the Company for enquiries related to Corporate Governance and Business Ethics through email to the Corporate Secretary Unit at CGPromotion@pttep.com.

Whistleblowing Reporting and Protection Procedures

PTTEP's Board of Directors has established the Reporting and Whistleblowing Regulation for the PTTEP Group to further ensure effectiveness, transparency, fairness, and equivalency to international standards in regard to the complaint handling process. This is meant to provide protection to whistleblowers and those cooperating with the Company in good faith. The procedure is a mechanism which allows an opportunity for both internal and external parties of the organization to report suspicious misconduct or wrongdoing committed by the Board, management, employees, or representatives of the PTTEP Group which might be in violation of laws, CG&BE, anti-corruption policy, and other PTTEP Group regulations.

Investigations of complaints are conducted strictly in an orderly way, in the manner, and within the timeframe and procedure as prescribed in the regulation that is clearly published on both the Company intranet (CG Portal) and the website (www.pttep.com). Any person who acts in violation of or non-compliance with the regulation or treats whistleblowers and related-person unfairly, such as committing defamation, harassment and discrimination is subject to disciplinary action. This is to ensure the transparency and fairness of the complaint handling process. The procedure and timeframe of the complaint handling process are as follows:

- The Corporate Secretary will take into account the information and adequacy of the preliminary evidence before forwarding the complaint to the Company's investigator within seven working days. If this period must be extended, the extension can only be made with the approval from the CEO. Each extension must not exceed seven working days.
- The review procedure and conclusion of the complaint depend on the type of the case. Non-complex cases will be normally be completed within a timeframe of 30 working days, while more complex cases will be completed within a timeframe of 60 working days. If the period is extended due to necessity, the extension can only be made with the approval from the CEO. Each extension must not exceed 30 working days. Investigators of a complaint cannot be individuals who are stakeholders of the complaint. Every complaint received from the whistleblowing channels will be summarized and reported to the Corporate Governance Committee and/or Audit Committee, depending on the case, in addition to the Company's Board of Directors.

Whistleblowing channels of the PTTEP Group to report a complaint are as follows:

- (1) Mail to PTTEP director, supervisor, or the Corporate Governance Section of the Corporate Secretary Division:
PTT Exploration and Production Plc.
555/1 Energy Complex Building A, 33rd Floor,
Vibhavadi Rangsit Road, Chatuchak, Bangkok 10900
- (2) Fax to supervisor or the Corporate Governance Section of the Corporate Secretary Division (+66-2537-4949)
- (3) E-mail to supervisor or the Corporate Governance Section of the Corporate Secretary Division (cg hotline@pttep.com)
- (4) Report through the whistleblowing system, which is available in PTTEP intranet (CG Portal) for employees and PTTEP website (www.pttep.com) for external parties. The whistleblower can follow up on the progress of the reported complaint and request further details and make inquiries. The system will assign an individual Report Number and PIN to the whistleblower in order to ensure strong security and forbid access by unauthorized personnel.

In 2016, PTTEP received a total of nine complaints through the CG Hotline. After reviewing these complaints, the evidence and the witness accounts, the Company's Corporate Secretary Division acknowledged/accepted six of the nine complaints submitted. Complaints from 2016 and 2015 are compared in the table below.

Topic	2015	2016	Change
Number of whistleblowing cases through CG Hotline	5	9	44% (↑)
Whistleblower			
- External reporter	3	4	25% (↑)
- Internal reporter	2	4	50% (↑)
- Anonymous reporter	-	1	100% (↑)
Number of accepted cases after considering evidence and witnesses	3	6	50% (↑)

Results of investigations from the six 2016 cases are as follows:

- There were four cases of wrongdoing. One case was related to the “Use and Protection of Information and Assets” and three cases were related to the “Human Resources” category of PTTEP’s Good Corporate Governance and Business Ethics Policy. The wrongdoers were punished with a verbal warning in two cases, and written warning was issued in the other two cases based on the Company’s guidelines for disciplinary actions.
- The final remaining two complaints were determined to have no grounds for misconduct and were not deemed as cases of persecution or defamation.
- No complaints of violating the anti-corruption policy were filed.
- The results of the complaint investigations were subsequently reported to the complainants, the Audit Committee or the Corporate Governance Committee (as the case may be), and the Board.
- The results of the complaint investigations were used for further improvements of the Company’s internal control measures.

Furthermore, in 2016, the Company performed a control self-assessment (CSA) on PTTEP’s whistleblowing system in order to evaluate its whistleblowing procedures and processes. The assessment results were then applied in process improvement efforts.

Monitoring the Implementation of Anti-Corruption Measures

The Board has assigned the Corporate Governance Committee to monitor implementation of the Company’s anti-corruption policy, which is a part of CG&BE. The Corporate Secretary is responsible for gathering of the information and reporting of the results to the Corporate Governance Committee at meetings on a quarterly basis. The implementation of PTTEP Group’s anti-corruption measures functions with the cooperation of several units serving as the Second and Third Lines of Defense. Each unit has its own individual reporting system, for example, reporting to the Risk Management Committee and the Audit Committee. Additionally, all performance results will be reported to the Board of Directors and Company’s shareholders via the Annual Report.

On June 27, 2016, the Corporate Governance Committee visited S1 Project (Operation Site) at Kamphaeng Phet province to follow up on implementation of the Company's CG&BE. This re-emphasized how much the Company insists on the importance of our anti-corruption policy and this visit also allowed for management to exchange view points on the Company anti-corruption policy.

The Corporate Governance Committee also monitors performance on a yearly basis, following the CG&BE plan and evaluates performance by using Key Performance Indicators (KPIs) to ensure that performance goals are met.

Audit

PTTEP has designated the Internal Audit Division to perform auditing tasks, which include investigation of corruption, by setting out an annual audit plan and undertaking further examination when any related complaint or issue appears. The Internal Audit Division currently has practical guidelines on the investigation of corruption that covers risk assessment, prevention and detection of corruption, as well as practical guidelines used in the investigation process for complaints of corruption.

The Internal Audit Division reviewed the public donation procedure where improvements were suggested and were also completed by owners in 2016. The Internal Audit Division also conducted regular reviews on the internal control system of procurements and contracts, which is in accordance with the Company's corruption risk assessment, and suggests have been made for further improvement.

PTTEP has procedures to regularly review sales and marketing activities in order to monitor and prevent the risk of corruption as well as to provide solutions as needed. The Company sells most of our products to PTT, and the pricing structure is reviewed and specified clearly in the purchase agreement between the two. Sales prices are based on the global market prices on which the mutual agreement between the Company and the joint venture partners are based. The pricing structure requires approval from the Audit Committee and the Board prior to arrangement of the purchase agreement. The Board members who have a vested interest in such an agreement cannot participate in the review session and must abstain from voting on that matter.

Review of Sufficiency and Adequacy of Anti-Corruption Measures

PTTEP believes that, for anti-corruption measures to be effective, they must be reviewed regularly. The units responsible for overseeing GRC must work together to evaluate the effectiveness of the anti-corruption measures and also monitor the process in each of the units. The evaluation results should be used as a reference in outlining the PTTEP Group's operation plans. The results of the evaluation in 2016 led to a revision of the Company's CG&BE, Reporting and Whistleblowing Regulation and stipulation of internal control measures for the units involved with transactions. This was done in order to ensure that clear guidelines were put in place for everyone in the organization to follow and so that such disbursements and expenditures were recorded appropriately with transparency and accountability.

Collective Efforts with the Public to Counter Corruption

PTTEP acknowledges the significance of our role as a listed company by assuring our shareholders and stakeholders with the confidence that the Company's management is transparent, fair, and corruption-free. PTTEP, as a company whose major shareholder is the government, has a responsibility to lead by example, and encourage society in general to adopt better anti-corruption standards. In the past year, the Company proactively took several measures to counter corruption and participated in several activities to help achieve this; for example, Thailand's National Anti-Corruption Day, which was organized at Sanam Luang by The Anti-Corruption Organization of Thailand (ACT), on September 11, 2016, where our CEO, and more than 100 management and employees participated in pledging to combat against corruption. On November 4, 2016, PTTEP also set up and ran an information booth to provide information on PTTEP Corporate Governance and our anti-corruption policy in a public seminar organized by Anti-corruption Strategic Management Course for Senior Executive, Office of the National Anti-Corruption Commission (NACC), at the office of the NACC.

PTTEP became an "Active Level" member of the United Nations Global Compact (UNGC) in 2011, and on April 1, 2015, the Company was promoted by the UNGC to the "Advanced Level" for complying with the UNGC's principles in the areas of human rights, labor, environment, and anti-corruption. The Company considers such international recognition as one of our proudest achievements. Moreover, in 2016, PTTEP became a founding member of Global Compact Network Thailand, in which it additionally supports UNGC's principles.

PTTEP was certified as a member of Thailand's Private Sector Collective Action Coalition Against Corruption on July 4, 2014. This certification again highlights our dedication and commitment to fight all forms of corruption. In this same vein, the Company has also continuously felt it to be vital to expand our anti-corruption efforts among our subsidiaries, joint venture partners, vendors, and business partners.

9.1.2.2 Policy on Treatment to Stakeholders

(1) Shareholders

PTTEP respects the shareholders' rights and treats them with equality, while adhering to carrying out the Company's business with the CG&BE in order to achieve the sustainability and create the optimal value for the shareholders. Details are disclosed in the "Shareholders' Rights and Equal Treatments" part.

(2) Employees

(2.1) PTTEP complies with the UN principles by not employing illegal workforce and child labor in every area in which we invest. The following guidelines are described in the Company's CG&BE.

(1) To understand and comply with all laws applicable to the PTTEP Group's operations in the locations where we conduct our business

(2) To understand the local customs, cultures and traditions of the locality in which we operate

(3) To respect the local traditions, cultures and cultural differences, and not to behave in any ways that contradict them

(4) Not to discriminate against any individuals based on our personal relationship with that individual, his or her ethnicity, nationality, gender (including pregnancy, and sexual preference), age, religion, disability, personal views, or any other conditions or characteristics which are not concerned with work

(2.2) PTTEP recruits, selects, and employs employees based on their qualifications, experience and abilities to work in the target positions. According to the Good Corporate Governance and Business Ethics of the PTTEP Group, both internal and external candidates shall be fairly treated during our transparent recruitment process. Our employees are given opportunity to develop and grow in their professional career as well as to join external activities under the Company's policy.

(2.3) PTTEP sets up and regularly reviews compensation and benefits packages to ensure fairness to both the Company and the employees according to our short-term and long-term business performance, pay positioning in petroleum industry in each country, types of work, required skills and expertise, difficulties of work, responsibility and accountability of each position, and the individual employees' performance results in order to attract and retain competent and capable employees.

(2.4) PTTEP provides and regularly reviews welfare and benefits packages to ensure fairness to both the Company and the employees according to our ability to pay at the present and in the long run, focusing on the welfare and benefits which help to enhance the quality of life of the employees and their families. These are, for example, housing interest subsidy program, and healthcare benefits for employees and their families which are comparable to those provided by other petroleum companies in each country. The Company regularly reviews welfare and benefits program to suit the changing social, economic and other obligatory conditions of the business. In addition, the Company also provides psychological and legal consultation services via "Sabaijaidee" program to the employees, their spouses and children to help them guard against anxiety from their family, private life, and work concerns. The services are provided by psychologists and professionals from one of our consulting companies.

The Company has established a provident fund program for our employees to ensure their financial security after resignation and retirement. The fund consists of contributions from both the Company and the employees. The Company makes a monthly contribution at a rate of 15 percent of our employees' basic monthly salary, while the employees contribute 2 to 15 percent of their basic monthly salary. Receiving this fund is subject to the Company's regulations.

The Company has also established the Employee Joint Investment Program (EJIP) which is intended to encourage the employees to invest, on a voluntary basis, on the accumulative buying of the Company's shares on a periodic basis to incentivize performance, create alignment among the employees, management, and shareholders, as well as to establish a long-term loyalty and sense of ownership. This program was commenced on February 1, 2013 and will remain effective until January 31, 2018, carrying over a total period of 5 years. Purchasing of ordinary shares is generally carried out through SET's trading system. Eligible employees shall make a request to the Company to deduct a sum from their basic salary, ranged from 2 to 10 percent, while the Company will contribute another portion equal to 100 percent of the employees' contribution in each month to purchase the shares. Receiving and realizing the share value, on the other hand, is subject to the Company's performance in the long-term.

In addition, the Company has also established the Long Service Awards Program to celebrate and commemorate the long-term commitment and loyalty of our employees who have achieved significant milestone years of service, i.e., 5, 10, 15, 20, and 25 years of employment with the Company. Award recipients are honored at the special event held at our headquarters in June of each year. The purpose of the program is to strengthen corporate employee engagement through recognizing and honoring the commitment and dedication of long-term employees, while promoting long-standing careers within the Company.

(2.5) PTTEP gives priority to human resources development to increase the organization's capability to drive business performance as the Company always considers that human resources is a key to our success. The Company provides opportunities for employees to develop and enhance their knowledge, skills and experience through both short-term and long-term training and development programs. Apart from professional capability and necessary skills building, the Company also embeds the working values to all employees, so they can work with the same standard of expected behaviors to attain the Company's vision and mission. In 2016, our employees attended training and development programs such as ISO 14001 Environment Awareness Course for an average of 27 hours per person per year. Details are disclosed in the "Management Structure" section, "Human Resources Development Policy" part.

(2.6) PTTEP realizes the value and importance of a regular consultation between the Company's employees and their supervisors to solve the problems incurred in day-to-day operation as fast as possible as well as to maintain a good working relationship between them. Shall any conflicts arise between the employees and their supervisors, the employees may file a complaint through one or more communication channels provided. The employees who comply with the provided measure and procedure and act in good faith as well as the relevant witnesses shall be protected, without facing a penalty, termination, or any other negative consequences. The CG Hotline channels have also been established for the employees to raise the issues relating to frauds. The reports received through these channels will be investigated confidentially and made known only to relevant persons to protect the whistleblower.

(2.7) PTTEP conducted the Employee Engagement Survey for the fifth time in 2016 with an objective to understand the factors relating to our employees' engagement with the Company to improve the policies and practices. The result showed that 53% of employees had engaged with the Company, which was 3% higher than last year. The Company has also conducted focus group interview sessions to gather information to establish the improvement plan at both the organization and the function group levels. In 2017, the Company will continue to regularly monitor the progress of such plan and continue to conduct the annual Employee Engagement Survey.

(3) Clients

PTTEP is committed to our mission to be a leading producer and supplier of crude oil, natural gas, condensate and LPG at fair and competitive prices. The Company sells the products under short-term to long-term contracts as well as in the spot markets. The Company assesses clients' suitability by the following four criteria, namely, economic return of the product prices, financial stability, safety standards, and compliance to local laws and regulations of each client. The Company treats all buyers equally for the optimal benefit of all and is also committed to strictly complying with the contracts and regularly coordinating with buyers so that we can produce and deliver quality products as specified in the contracts on time and according to their demand.

(4) Governments

PTTEP conducts business by adhering to the Good Corporate Governance and Business Ethics of the PTTEP Group (CG&BE). The Company strictly complies with all the laws applicable to our operation in all locations in which we operate.

(5) Joint Venture Partners

Joint venture projects between PTTEP and our domestic and foreign joint venture partners operate under mutual working agreements according to the international standards. These agreements include details regarding the rights and duties of joint venture partners such as the right to be a member of a project's management committee. The committee is responsible for establishing guidelines on the procurement of products and services as well as for developing a strategic plan and an annual budget with a clear scope and approach. The partners also have the right to audit annual financial and accounting records as well as to set appropriate and clear measures, for example, penalty imposed on partners for failures to honor an agreement. The Company meanwhile remains focused on distributing information to joint venture partners and external parties with transparency.

(6) Communities and Societies

PTTEP commits to giving the utmost importance in building sustainable relationships with all stakeholders. We develop and elevate the quality of life for people in the communities where we operate. When engaging with the communities, the Company adopts the Issue and Stakeholder Management System (ISMS) as a tool to analyze social risks which may impact our operation.

(7) Environment

PTTEP strives to achieve excellence and for a leadership position in Safety, Security, Health and Environment (SSHE). Our SSHE Policy is the core of the SSHE management, allowing us to deliver our vision and commitment in SSHE. The Company continues to publicly disclose our SSHE performances indexes, such as Lost Time Injury Frequency Rate, Total Recordable Injury Rate, and Hydrocarbon and Chemical Spill rates in the Company's website. The information is routinely informed to the stakeholders, including company staff, in our annual Sustainability Report as well as reported to the Department of Mineral Fuels. The Company also has the SSHE Management System (SSHE MS) which comprises seven elements and regularly updated 27 standards to be employed throughout all of the Company's operations.

A cornerstone of sustainability is a strong environmental performance. The Company's approach to managing of the environmental impacts concentrates on our green practices, such as having an international standardized environmental management system, eco-efficiency practices for mitigating environmental impacts from our operations, lowering our ecological, carbon and water footprints, increasing biodiversity, as well as creating value added processes to our business. To mitigate environmental impacts from our operations, the Company has implemented and maintained the ISO 14001:2004, a common system to improve the efficiency of environmental management system. The 2014's certification was issued by AJA Registrars under the United Kingdom Accreditation Services (UKAS). The certified sites include the Arthit Project, Greater Bongkot North and South fields of the Bongkot Project, S1 Project, PTTEP 1 Project,

Sinphuhorm Project, Petroleum Core Research Center, PTTEP Petroleum Development Support Base, and in Australia for PTTEP Australasia Project's support base in Darwin and office of PTTEP Australasia (Ashmore Cartier) Pty Ltd. For 2017, the Company is planning to acquire the new revision of ISO 14001 (ISO 14001:2015) certification.

The Company has a green practice roadmap which outlines our strategy to reduce ecological footprint and carbon footprint. The roadmap emphasizes on maintaining the biodiversity of our operating sites as well as improving our business values by reducing costs, improving resource efficiency, and reducing wastes. The Company also follows the 5S program throughout our offices similarly to those implemented within the PTT Group as well as the Group's green supply chain practices which involve green procurement, green logistic and green office to use green and environmentally friendly products. In addition, the Company also encourages all employees to understand our environmentally friendly business practices by organizing fundamental and intensive environmental awareness training courses for them, including existing and new hires as well as the management. Details on our green practices are disclosed in the 2016 Sustainability Report.

For the first time in Thailand, the Company also hosted "Biodiversity and Ecosystem Services (BES) Peer-to-Peer training workshop: Managing Biodiversity and Ecosystem Services issues in the oil and gas industry" arranged by International Petroleum Industry Environmental Conservation Association (IPIECA), International Association of Oil and Gas Producers (IOGP) and the United Nations Environment Programme World Conservation Monitoring Centre (UNEP-WCMC). This workshop was part of a training series developed by IPIECA, aimed at oil and gas professionals to exchange their knowledge on biodiversity and ecosystem services for efficient practice which aligned with PTTEP's green practice roadmap.

(8) Suppliers

As stated in the Good Corporate Governance and Business Ethics of the PTTEP Group (CG&BE), suppliers are an important part of our businesses. PTTEP therefore employs a policy which aims to treat our business partners equally. Our procurement operations are performed on the basis of equality and fair competition. We also comply with the laws and terms of concerned legal transactions, taking into account the Safety, Security, Health, and Environment (SSHE). Suppliers must follow the operational standards which adhere to the Company's policy. Their employees meanwhile are also required to have good business ethics and respect human rights.

PTTEP Vendor Guide

PTTEP has developed the Vendor Guide to provide our suppliers with the Company's business information and practices, such as the Good Corporate Governance and Business Ethics of the PTTEP Group, Procurement Processes, Contract Management, the PTTEP Vendor Sustainable Code of Conduct and related laws, and the supplier communication channels.

Details of the PTTEP Vendor Guide are available in the Company's website at www.pttep.com > E-Service > Procurement and Contract > PTTEP Vendor Guide.

Vendor Registration

PTTEP maintains the concept of fairness and free competition without trade barriers toward all suppliers. There are 3 channels for the interested suppliers to register with the Company.

(1) PTTEP website: Suppliers can offer their products and services through the Company's website at www.pttep.com > E-Service > Procurement and Contract > Vendor Registration.

(2) The Category & Vendor Management Section: Suppliers can contact the Category & Vendor Management officers during business hours to offer their products and services.

(3) PTTEP Users: Suppliers can directly propose their products and services to the users who may provide the names of the suppliers to the Category & Vendor Management Section for the vendor pre-qualification process.

New Vendor Pre-qualification

PTTEP pre-qualifies the suppliers by screening and evaluating them according to their product and service categories. The evaluation process is performed by the Committee and comprised of three functional areas.

- (1) Technical and QA&QC
- (2) Safety, Security, Health and Environment (SSHE)
- (3) Commercial, Legal and Social

Independently, with equality and transparency, each function of the Committee has the authority to consider and evaluate the suppliers to ensure that they have the qualifications to deliver the products or provide the services needed.

SSHE Contractor Management and Plan

PTTEP has enhanced the measures relevant to the management of suppliers in the SSHE which is one of the Company's core values. The SSHE Contractor Management Procedure and Plan has been implemented to ensure the understanding and improve the SSHE performance of the suppliers. It includes operations guidelines to ensure that correct actions are taken. The Company also encourages the suppliers to strictly comply with the SSHE Contractor Management Procedure and Plan through our annual SSHE Contractor Forum, as an effort to ensure that they correctly understand the SSHE policy, standards, manual and work procedures, and plan of the operations in all locations in which the Company operates.

The Notification of the National Anti-Corruption Commission (NACC) or Por.Por.Chor

According to the notification of the NACC, PTTEP has provided a page at www.pttep.com > E-Service > Procurement Announcement to disclose the information regarding reference prices of procurement transitions for the suppliers and stakeholders.

The Company has also recommended all the suppliers to comply with the NACC's announcement concerning the principles, methods and submission of accounting records by the persons being a party to the contract made with a State Enterprise or State Agency B.E. 2554.

Procurement Sourcing Strategy

PTTEP has prepared a business analysis especially to review the overall procurement performance by using the procurement spending data from the past three years. This data is to be analyzed to identify the supplier classification and risk assessment relating to the operations and market trends. The results from the analysis help to identify critical suppliers who are vital to the Company.

Upon identifying the critical suppliers, the Company uses the analysis to prepare procurement and contract strategy plans for each product and service group. The supply market analysis will then be generated to support future procurement and contractual activities.

The Company needs to submit the procurement and contract strategy plan, including the bidder list, to the Procurement Committee (PC) and joint venture partners (if any) for approval before proceeding with the bidding. (The bidder list and the procurement/contract strategy plan must be internally approved by three parties, namely, the operations, assets, and procurement functions before being submitted to the PC and the joint venture partners to counter balance for transparency purposes.)

Suppliers Selection

For the bidding process, two sealed envelopes and two-stage bidding are required. One envelope is for technical proposal, while the other is for commercial proposal. The technical envelope is opened first for evaluation of the technical aspects, quality and the SSHE. Then for the technically acceptable bidders from the first stage, the process will continue with the opening of the commercial envelope.

The results of the bidding will be submitted to the Procurement Committee (PC), joint venture partners (if any), and the Board (for high value procurement) for approval before contracting activities with the suppliers are initiated.

The Company will only select those suppliers who are technically and SSHE qualified and able to offer the lowest price or the best interest to the Company.

Contract Management and Assessment

As an important and integral part of PTTEP's Contract Management and Supplier Relationship Management (SRM) for operating in the petroleum exploration and production business, the contract holders need to ensure that the suppliers and all relevant parties fully understand and comply with the work plan, contract objectives, SSHE standards, and risks mitigation plan as well as critical key performance indicators (KPIs). They periodically need to assess and follow up on the performance to ensure that the suppliers operate according to the contractual terms regarding the quality, SSHE, and human rights. At the end of the contract management, the contract holders must complete the Contract Closed-out Report to record their performance result, identify area of improvement and development of the supplier's capability for the long-term relationship.

Suppliers Collaboration Initiatives

In 2016, PTTEP aimed to develop an effective supply chain management and supported supplier collaboration initiatives to cultivate good relationships between suppliers and the Company. The objective of the "Vendor Symposium Program" is, not only to allow the vendors to understand our procurement sourcing processes and the SSHE Management System (SSHE MS), but also to establish awareness and knowledge regarding sustainability among the vendors. More than 70 vendors joined the program.

The Company also organized a seminar called “Supplier Day”. The seminar was to encourage suppliers to mutually seek new innovative techniques and technologies to create cost optimization and petroleum development opportunities, apart from maintaining the collaboration and sustainable relationships with suppliers.

The Company, our suppliers and contractors altogether also organized the Corporate Social Responsibility (CSR) with business partners in September 2016 at Sairee Beach, Amphoe Savee, Chumphon province. This CSR program helped to develop collaborations and sustainable relationships with the society and business partners to enhance the productivity and sustainability development driven by safety, technology, and green practices.

Local Content

To enhance the capability of the local suppliers in Thailand to compete with international companies, PTTEP supports domestic procurements and services from the operation areas. This is to increase employment and income generation to support the locals as well as to reduce the transfer of Thai currency to other countries. As a result of our commitment to building long-term relationships with the communities where we operate, the Company has gained from each of the communities a license to operate. Meanwhile, the Company also encourages our suppliers to operate with care and responsibility wherever they are and to support local procurement within their area to lower the cost of goods as well as to support the community.

Whistleblowing

To instill confidence and give protection to the suppliers and related parties from possible retaliation as a result of reporting in good faith of suspicious misconduct or wrongdoing of the directors, management, employees, or persons acting on behalf of the Company that might be in violation of the laws, CG&BE, or other regulations of the PTTEP Group, we have established the CG Hotline channels to handle whistleblowing cases from the suppliers. The suppliers can email to the cghotline@pttep.com, report through “PTTEP Whistleblowing System” at www.pttep.com, or fax at +66-2537-4949.

(9) Creditors

PTTEP recognizes the importance of the Company’s internal and external stakeholders including creditors. This is based on our policy of equitable treatment for all stakeholders, and an integral part of the CG&BE.

Emphasis is placed on accurate, complete, timely, and transparent information disclosure to all of the stakeholders. Information disclosed by the Company consists of financial and non-financial information. Financial information particularly the financial statements is reviewed and audited by an independent auditor in compliance with the Generally Accepted Accounting Principles (GAAP). The information is also endorsed by our Audit Committee as well as the Board of Directors prior to public disclosure.

Regarding creditors, PTTEP’s debentures issuance and all relevant processes are in compliance with the laws, policies and regulations stipulated by the SEC as well as the policies, purposes, and resolutions set forth at the Company’s shareholders’ meeting. The Company agrees to fulfill the obligations stated in the terms and conditions of the debenture and loan agreements and to ensure that the information is accurately and adequately disclosed to all stakeholders. The Company also maintains all of the necessary measures to remedy incidents or other types of impairments which may arise as a result of non-compliance.

(10) Competitors

PTTEP treats our competitors with professionalism, equality, and transparency. The Company, in our greatest effort, tries to avoid all unethical manners and ill-intentions to defame the reputation of our competitors through false or unfair statements or acts. The Company is also committed to complying with local laws and regulations regarding trade competition. Details of the Trade Competition Policy are disclosed in the CG&BE.

(11) Customs and Traditions

PTTEP adheres to local customs and traditions of all the areas and locations in which we operate. Trainings are provided to our employees by knowledgeable and experienced instructors as well as representatives from the Ministry of Foreign Affairs or the Embassy who will provide suggestions and information regarding customs, traditions, sensitive issues, and local practices to the employees who will be transferred there in order for them to understand and behave appropriately.

(12) Human Rights

PTTEP has a human rights policy where the Company is committed to respecting fundamental human rights by complying with all applicable legal requirements, cultures, customs and values in dealing with all of our stakeholders, avoiding complicity in human rights abuses, and strictly prohibiting ourselves from direct and indirect employment of child and forced labor. The Company's Human Rights Policy complies with the UN Universal Declaration of Human Rights and its corresponding covenants, where applicable to the business, including the international principles relating to labor practices and the United Nations Declaration on the Rights of Indigenous Peoples. The Company also actively participates in the United Nations Global Compact (UNGC). Our UNGC Communication on Progress Report has met the criteria required for "Advanced Level" status for two consecutive years.

In 2016, PTTEP together with 14 other Thai organizations who have placed high priority on sustainable development established the Global Compact Network Thailand (GCNT) with the objective of encouraging the Thai business sector to recognize the importance of conducting their business under the UN Global Compact principles.

In addition, the Company is committed to providing fair employment, while ensuring that the employees have a safe and hygienic working environment, whether or not the country in which we invest has local laws on human rights. The Company ensures that no threats exist to employees or those related to the Company's operations. Only ethical partners without any infringements of human rights are employed. The Company also encourages consultation between our executives and employees through the employees' representatives in the welfare committee. Views and suggestions are communicated for improvement of welfare and other benefits to improve our employees' well-being.

(13) Laws

PTTEP respects laws everywhere in which we operate. The Board sets the matters related to the compliance with applicable laws in the Business Ethics of the PTTEP Group. The directors, management and employees are required to understand them as well as strictly abide by laws related to our operations in all areas to enable the PTTEP Group to operate with accuracy and efficiency.

The Company has established the Compliance Department as the center of compliance performance supervision for the PTTEP Group. The Department has a direct reporting line to the Senior Vice President of the Legal Division, the Executive Vice President of the Corporate Affairs and Assurance Group, and the President and Chief Executive Officer, respectively. In 2013, the President and Chief Executive Officer announced the Compliance Policy to express our commitment to full legal compliance as well as to define roles of all managers and employees in promoting of the compliance. The Compliance Program has also been implemented to enhance awareness on compliance-related matters among the Company's employees.

9.1.3 Information Disclosure and Transparency

9.1.3.1 Disclosure of Financial and Non-Financial Information

Information disclosure is a key aspect of good corporate governance. PTTEP gives importance to the information disclosed to the Stock Exchange of Thailand (SET) as well as to the shareholders. At the very least, the information must be accurate, sufficient, timely, and equally available to all parties. The information is prepared according to the Company's Business Ethics Guidelines. The departments which are responsible for providing information and replying to external queries from the SET and general public are the Investor Relations Section (IR) and the Corporate Communications Department.

Our information disclosure consists of financial information and non-financial information. Financial information is disclosed through financial statements which are reviewed and audited by the external auditor to confirm that they are presented accurately, in all material respects, according to the Thai Financial Reporting Standards. The financial statements are subsequently approved by the Audit Committee and the Board prior to being disclosed to the public. The Board reports their responsibilities with respect to the financial statements in the PTTEP Annual Report. In addition to the SET's requirements, the Company also releases unreviewed quarterly and unaudited annual financial statements in advance to allow timely access to the financial information for shareholders and investors. Unless stated otherwise, the information before and after review and audit usually and generally does not contain any significant changes. The Company also discloses non-financial information, such as acquisition and disposal of assets, related party transactions, dividend payments, the management discussion and analysis, risk management, invitation letter for shareholders' meetings, minutes of meetings, annual corporate governance report and the 56-1 Form, as well as other information which is important for investment decisions according to the SET's and SEC's requirements.

Information that PTTEP discloses to SET, the Company's shareholders, investors and the general public are disseminated in both Thai and English in the Company's website which also features other up-to-date information viewed to be of interest to the aforementioned audiences. Key information available in the website comprises petroleum exploration and production projects, investment projects, quarterly and annual analyst meeting presentations, webcasts, roadshow presentations, downloadable excel spreadsheet which contains historical financial information and operating results, historical and latest stock performance, analyst coverage, and news releases. The Company also reports Safety, Security, Health and Environment performance which is included in the annual Sustainability Report. The Company also makes available in the website VDOs and infographic presenting financial information and operating results for those interested.

The Company also publishes a quarterly investor newsletter, Explorer's Journal, which includes information which may be beneficial to our shareholders and investors, such as quarterly performance highlights, project updates, good corporate governance practices, topics on sustainable development, and knowledge sharing on the fundamentals of the exploration and production business. The newsletter is bi-lingual, Thai and English, and available in both hardcopy and electronic formats. The latter can also be downloaded from our website, effectively serving as another communication channel between the Company and shareholders for news and updates.

In 2016, PTTEP disclosed a total of 30 articles through the SET portal and organized the following activities for the shareholders and analysts.

Activities	Amount (Times)
Domestic and overseas roadshows/conferences	13
Analyst meeting	4
Opportunity day (by SET)	4
Shareholders' and investors' site visit	7
Knowledge sharing event for investor	4
Company visit and conference call	50

Apart from the activities above, the Company also participated in events organized by the SET to meet retail investors, such as "SET in the City", and daily telephone correspondence. The information above could also be found at the AGM Meeting, while IR was readily prepared to provide information and answers to questions raised by the Company's shareholders.

The Company understands that disclosure of the information which is accurate, complete, timely and transparent is a key to the CG&BE and therefore is committed to performing our best in this area.

9.1.3.2 Investor Relations

The Investor Relations Section (IR) is responsible for communication of relevant information and news that reflect PTTEP's fair value to analysts, the Company's shareholders, and general investors under rules of the SET and SEC to foster confidence within the analysts and investment community. IR is also entrusted with upholding the corporate image and perception among analysts and investors, while also relied upon to coordinate and to advise over IR related issues to the Company's executives.

Our IR can be contacted through the following three channels.

- (1) By phone: +66-2537-5919, +66-2537-5304, +66-2537-5779, and +66-2537-4446
- (2) By e-mail: ir@pttep.com
- (3) By fax: +66-2537-4444

9.1.4 Board's Responsibilities

The followings are major responsibilities of the Board. Details are disclosed in the "Management Structure" section, "Duties and Responsibilities of the Board" part.

(1) Policy-Making and Operational Direction

The Board is responsible for making decisions regarding PTTEP's operational policies and determination of the corporate vision, mission, and values. The Board is also assigned to be directly involved in the Company's budgetary and planning, and organization development strategy to accommodate continuous changes in the business environment, as well as to provide the management with advices to lead the Company toward our five ultimate goals, being "Growth, Prosperity, Stability, Sustainability and Dignity".

(2) Good Corporate Governance and Business Ethics

The Board is responsible for establishment of PTTEP's CG&BE for all of the directors, management, and employees to adhere to, while operating businesses for the PTTEP Group. This is to ensure that our businesses are operated under good standards, justification and ethics with transparency and efficiency. In addition, the rights of the Company's stakeholders are preserved proportionately to their fair share to maintain the general confidence and acceptance in the Company. The Corporate Governance Section meanwhile has been established to be responsible for matters regarding the CG&BE.

(3) Internal Control and Auditing

The Board is responsible for assuring that the PTTEP Group is equipped with an effective internal control system which is comparable to the acceptable risk levels. The Audit Committee and the Internal Audit Department are assigned to periodically and regularly review and monitor the internal controls as well as to submit the results directly to the Audit Committee to ensure that they are in line with the operational objectives of the PTTEP Group, in compliance with relevant laws and regulations, and in trust of the management, investors, and other stakeholders.

Our internal control system is comparable to those accepted by the international standards, considering the control environment, risk assessment relative to objectives, effective control plans, internal and external provisions of adequate and reliable information and communications, as well as routine monitoring and evaluation procedures.

(4) Risk Management

The Board is responsible for regulating and overseeing the management of risks which can potentially deter PTTEP from achieving our strategic goals. In doing so, the Board has appointed the Risk Management Committee which is a standing sub-committee to monitor and ensure an efficient and effective management of risk for the PTTEP Group as defined by the Risk Management Charter of 2014. The Risk Management Committee has also been assigned to assess the significant risks at the organizational and project levels, evaluate and monitor operational plans, oversee the implementation and revision of risk mitigation to allow for continuous evaluation of risks to ensure that the risks are at acceptable levels, as well as to report the results to the Board on a regular basis.

(5) Prevention of Conflicts of Interest

The Board establishes various management measures to ensure that the management is efficient and transparent and acts in the best interest of the PTTEP Group, by assuring that the Company and our management are without any conflicts of interest. Shall anyone of the Company's directors, executives, or employees have a stake potentially leading to a conflict of interest, he or she must withdraw from participation or be abstained from voting in the given issue. Consequently, a report must be filed to inform the authority of the stake as specified for the directors, management, and employees to follow as our codes of conduct in business ethics.

(6) Compliance

The Board values importance of full legal compliance in all of the areas in which the PTTEP Group operates. The Board also provides the Group with the supports required to conform to the applicable laws as well as to properly manage relevant compliance risks. Compliance is considered one of the keys that allow the Group to function discretely as well as to be able to operate according to our strategy toward the business goals. The Compliance Department has been assigned by the Board to be responsible for this matter.

9.2 Sub-Committees

The Board is responsible for appointing the directors who have expertise and knowledge in certain areas as specified by the Company. Each sub-committee meanwhile is responsible for a specific set of tasks as specified by its respective charters' directors. Qualifications, responsibilities, and service terms of the sub-committees are prescribed by the Company's regulations through the designated charter. All the members of the Audit Committee and the Corporate Governance Committee must be independent directors, while the majority of the members of the Nominating Committee and Remuneration Committee must be independent directors. The Chairman of the Board however is not allowed to obtain any chairmanships or directorships in the sub-committees. In addition, each Chairman of all sub-committees, only with exception of the Risk Management Committee, must be an independent director.

From every meeting, the sub-committees are required to report the results to the Board for acknowledgement as well as to disclose in the 56-1 Form and PTTEP Annual Report of their duties completed over the year.

Currently, the Company has five sub-committees, namely, (1) the Corporate Governance Committee, (2) the Audit Committee, (3) the Remuneration Committee, (4) the Nominating Committee, and (5) the Risk Management Committee. Details of the directors' names, duties and responsibilities, meeting attendance, and remuneration policy are disclosed in the "Management Structure" section. Reports regarding all of the Company's sub-committees meanwhile are disclosed in the "Reports of the Sub-Committees" part.

9.3 Nomination of Directors and Management

9.3.1 Nomination of Directors

When there is a vacancy of a director position, it is a duty of the Nominating Committee to select the candidates that fit with the required skill, experience, and in line with the Company's strategy (Target Skill Mix). This is to ensure that the Board composition is complete, well-rounded, and for the optimal benefit to PTTEP. The Company places importance on the

Board's diversity, gender, independency, conflicts of interest, and transparency. Gap Analysis of Skill Mix and Target Skill Mix are taken into account, while during 2016-2017, the Target Skill Mix at Risk & Crisis Management and Economic & Finance was and will continue to be assigned as the priority. This is to be in line with the Company's Strategic Director 2016-2017 of Reset, Refocus, Renew which emphasizes on risk management, costs reduction for more competitiveness, and refocusing of investment areas in response to the oil price volatility, economic situation, and global demand and supply.

The process begins with the Committee searching through PTTEP's directors' pool along with the State Enterprise Policy Office (SEPO)'s directors' pool which comprises a list of directors from state-owned enterprises who are regarded as highly-qualified in state-enterprising. The Company also seeks advices from our major shareholder, PTT, as well as from the Company's minority shareholders (if any) according to the rules regarding nomination of a person to fill in the positions which are due to retire by rotation in advance.

Election of directors to replace those who are due to retire by rotation must obtain an approval from the AGM by the majority vote which is based on the number of the Company's shareholders with voting eligibility at the Meeting. The election process is as follows:

(1) The Nominating Committee proposes a list of qualified candidates, firstly to the State Enterprise Policy Committee according to the Regulations of the Office of the Prime Minister on State Enterprise Policy and Governance Determination, then to the Board for their review prior to the AGM. The approved proposal also includes comments, if any, from the Board or the State Enterprise Policy Committee. PTTEP's shareholders meanwhile may also nominate other individuals whom they see fit for the director position. The Company provides channels for the minority shareholders to nominate the candidates prior to the Meeting during 8 September – 31 December, 2015. The nominating process is declared through the SET, and published on the Company's website which also includes the nominating procedure for shareholders as well as the Director Nomination Form.

(2) Should the number of the director candidates be less than the number to be elected, PTTEP will propose at the Meeting to elect those candidates as the directors by voting for the individual candidates, under which each of them must receive majority votes.

(3) Should the number of the director candidates exceeds the number to be elected, a ballot is to be held. Each shareholder may vote for as many director candidates as the number of the opened positions, while the voting will then be carried out for each of the individuals. Those with the highest ballots will be elected, as many as the number of the opened positions. Each of them must receive majority votes.

When a director position becomes vacant for reasons other than rotation, the Board may elect a new director, using the three-fourth majority voting rule, with approval from the State Enterprise Policy Committee. The elected director is permitted to remain in his or her directorship for only as long as the remaining term of the predecessor.

9.3.2 Nomination of Management

The Board has granted the President and Chief Executive Officer an authority to select and appoint the individuals who possess the right knowledge, capabilities, and experience to management positions in consultation with the Career Review Board Committee (CRB) and the presence of PTTEP Rules and Regulations for Human Resources Management. The nomination must then be acknowledged by the Board. Exceptions are made to the appointment of the Executive Vice Presidents and the President and Chief Executive Officer, where the Board's approval is required. If the nominee is from outside of the organization, an interview with the interview committee is required. Nomination of the Head of Audit Function requires an approval from the Audit Committee.

9.4 Development of Directors and Executives

9.4.1 Directors Development

Orientation of New Directors

The orientation which is provided to the Company's new directors consists of the following elements.

(1) Presentation by the President and Chief Executive Officer, and executives: This briefing involves the nature and operation guideline of the business, knowledge and techniques regarding to the petroleum exploration and production business of the PTTEP Group, relevant rules and regulations, CG&BE, and essential information for the directors to perform duties with efficiency.

(2) Director Manual: This contains essential information, including the strategic plan, relevant rules and regulations, and CG&BE, which will be beneficial for him or her to perform the director's duties. The Manual is regularly reviewed and updated for the directors to use as a reference.

(3) Plant visit: New directors visit operational sites of the PTTEP Group as appropriate to increase their understanding of the Company's operations.

At the end of each orientation, new directors will evaluate the effectiveness of the orientation for further improvement. The director elected to be the Chairman and/or a member of a sub-committee is also required to attend an extra session to be informed of the important subjects which come with the additional new role, including performing duties of the Chairman and/or a member of a sub-committee with efficiency as well as conducting and leading meetings of the Company's directors and shareholders.

Trainings of Directors

PTTEP's directors are knowledgeable, yet they are ambitious to learn and understand more about the business and their duties as a director. They are always encouraged to attend seminars and trainings organized by the Thai Institute of Directors Association (IOD) as well as those others in the topics related to the Company's business operations. The followings are details of the seminars and trainings attended by 11 of the Company's directors during 2016.

Directors	Courses
(1) Mr. Prajya Phinyawat	- The Power of Culture: From Performance Culture to Winning Culture Seminar by IOD - Anti-Corruption: Leadership Role of the Board by IOD
(2) Mr. Tevin Vongvanich	- Anti-Corruption: Leadership Role of the Board by IOD
(3) Mr. Manas Jamveha	- Anti-Corruption: Leadership Role of the Board by IOD
(4) Admiral Tanarat Ubol	- Board that Make a Difference (BMD 1/2016) by IOD - How to Develop a Risk Management Plan (HRP 9/2016) by IOD - Risk Management for Corporate Leaders (RCL 26/2016 by IOD - Anti-Corruption: Leadership Role of the Board by IOD
(5) Colonel Nimit Suwannarat	- Director Certification Program (DCP 216/2016) by IOD
(6) Mr. Piti Tantakasem	- Boards that Make a Difference (BMD 2/2016) by IOD - Anti-Corruption: Leadership Role of the Board by IOD
(7) Mr. Wirat Uanarumit	- Anti-Corruption: Leadership Role of the Board ๒๑๖ IOD
(8) Mr. Twarath Sutabutr	- Anti-Corruption: Leadership Role of the Board ๒๑๖ IOD
(9) Mr. Pitipan Tepartimargorn	- Anti-Corruption: Leadership Role of the Board ๒๑๖ IOD
(10) Ms. Panada Kanokwat	- Anti-Corruption: Leadership Role of the Board ๒๑๖ IOD
(11) Mr. Somporn Vongvuthipornchai	- Anti-Corruption: Leadership Role of the Board ๒๑๖ IOD - Director Certification Program (DCP) 224/2016

Currently, 12 of 15 of the Company's directors have participated in IOD's Director Certification Program (DCP), while one has attended the IOD's Director Accreditation Program (DAP). As a result, there are 13 out of 15 directors (86.67%) who have attended the two mentioned courses. In addition, the Company has applied an IOD membership for all of the directors and provided them with the information regarding new and updated seminars or trainings to keep the directors consistently informed. Details of the training courses attended by the directors are disclosed in the "Information of the Board of Directors, Management, Controlling Persons, and Corporate Secretary" section.

To continuously provide knowledge and share opinions with the directors, the Company also invited speakers from the management to provide a lecture and exchange opinions with the Board on "Petroleum Act Draft and its Effects on PTTEP" and "PTTEP's Reserves Resource Definition" in 2016. The Company also updates the directors regularly with laws and best practices regarding good corporate governance for an even better understanding.

9.4.2 Management Succession Plan

PTTEP has a systematic succession plan for vacant management positions resulting from retirement and reorganization in the next 5 years to support the Company's business expansion domestically and internationally. The Career Review Board (CRB) Committee is authorized to select and appoint successors for management positions using the Company's Management Success Profile of each business area (Asset Management, Business Development, Technical Support and Business Support) as screening criteria. These profiles comprise of Competency, Personal Attribute, Organization Knowledge

and Experience required for target positions, while Currently Estimated Potential (CEP) is also taken into consideration. Once the successors are identified, their individual short-term and long-term development plans will be created with focus on technique and functional knowledge, managerial skills, and soft skills required according to the corporate values and organizational culture, to ensure that the successors are readily qualified for the target positions by the time of requirement.

9.4.3 Nomination and Succession Plan of the President and Chief Executive Officer

The Nominating Committee has added to its Charter the role to consider the President and Chief Executive Officer's succession plan and appropriate executive-level management's development system to ensure a candidate list with the skills and qualifications in line with the Company's target growth.

The Nominating Committee is responsible for considering the candidates' skills, experience, and various other specific qualifications to bring about the best of interests to the Company as well as looking into their probable conflicts of interest. Subsequently, the Committee will propose the qualified candidates to the Board for approval.

The Company formulates a succession plan for the President and Chief Executive Officer to prepare the Company for the time when the President and Chief Executive Officer is unable to perform his or her duties or when the serving term is completed. The plan helps to minimize the risks and the impacts, potentially resulting from the discontinuity, on the management. The succession planning procedure is as follows:

(1) PTT Group Management Committee (PTTGMC), a committee in which the Company's President and Chief Executive Officer is a director, forms the Group Leadership Development Program (GLDP). The program's primary focus is to enhance the capability of the PTT Group's executives, Senior Vice Presidents and above to prepare them for the possible nomination to become a President and Chief Executive Officer in one of the PTT Group of companies.

(2) PTTGMC, with PTT being the Company's major shareholder, reviews the shortlisted executive names from (1) above and proposes them to PTT's Board of Directors who is responsible to select PTTEP's next President and Chief Executive Officer.

(3) After receiving the candidate names, accompanied by opinions of PTT's Board from (2) above, and comparing with the Company's potential candidates in the executive vice president level, the Company's Nominating Committee will reassess the individual's knowledge, capability, and experience beneficially related to the business, conflicts of interest, and his or her vision to lead the Company to grow according to the strategic plan.

(4) The Nominating Committee proposes the name of the final candidate, together with the opinions and a fair and reasonable package proposed by the Remuneration Committee, to the Board for approval and appointment of the Company's new President and Chief Executive Officer.

9.5 Authority of the President and Chief Executive Officer

9.5.1 Authority under Resolutions from the Shareholder Meetings

The President and Chief Executive Officer is the authorized signatory who may sign to bind PTTEP with external parties under clause 9, paragraph 6, of the Company's Articles of Association registered with the Ministry of Commerce.

9.5.2 Authority under Resolutions from the Board's Meetings of PTTEP

The Board authorizes the President and Chief Executive Officer to act and conduct, on the Company's behalf, normal course of business operations under the stated objectives in our Memorandum of Association, petroleum concessions, and other agreements, including other businesses in which the Company has interests. In addition, the President and Chief Executive Officer is also authorized to be the acting body and conduct the business under PTTEP regulations, namely, the Budgetary, Finance and Accounting Charter B.E. 2555, Regulation on Human Resources Management B.E. 2548, Regulation on General Procurement B.E. 2558, Regulation on Procurement for E&P Business B.E. 255, and Regulation on Project Investment Management B.E. 2557, by applying of the practices comparable to those of other private companies in the E&P business as well as in best interests of the Company. Delegation of the authority is permitted unless the concerned attorney has a direct or indirect conflict of interest with the Company or our subsidiaries in exercising of the authority.

9.6 Corporate Governance Concerning Subsidiaries and Associated Companies

Details are disclosed in the "Policy and Business Operations Overview" section, "Structuring Policy of PTTEP Group" part.

9.7 Directors' Serving Terms and Their Directorship in Other Companies

PTTEP prescribes that one-third of the directors shall be retired by rotation in each AGM. According to PTTEP's Articles of Association, the Board shall consist of no more than 15 members, each with a 3-year serving term. The Board has determined to allow each director or independent director to serve on the Board for no more than nine consecutive years. Any director who has served on the Board for nine years will not be considered for another term. This essentially allows our competent and qualified directors the time to continuously and effectively perform their duties.

A two-term limit, or six years in equivalence, is too stringent for the Company to benefit from the capability and experience which our directors have earned over the years in the position as well as often too soon for the Nominating Committee to best select the replacements for the optimal benefits of the Company and our shareholders.

In terms of the qualifications, the Company's directors shall not assume a directorship or executive-level position in more than four other listed companies at once. Details on the number of directorships held by each of the Company's directors are disclosed in the "Information of the Board of Directors, Management, Controlling Persons, and Corporate Secretary" section. Currently, none of the directors holds a directorship or executive-level position in more than three other listed companies. Similarly, serving term in each of the sub-committees, namely, Audit Committee, Remuneration Committee, Nominating Committee, Corporate Governance Committee, and Risk Management Committee, is equivalent to each of the directors' Board term. For practicality purpose, the Board resolved on October 22, 2015 to adjust this regulation from the previous sub-committees' serving term of three years. This modification has been effective since April 2016.

9.8 Roles of the Chairman and the President and Chief Executive Officer

The Chairman, and the President and Chief Executive Officer of PTTEP are of two different directors. The Chairman does not participate in the daily management of the business, providing that conducting and monitoring of the business policies are entirely separated from the daily operational management. Duties and responsibilities of the Chairman of the Board are as follows:

- (1) Lead and supervise the Board to perform its duties with efficiency, and independency from the management
- (2) Determine agendas for PTTEP's meetings with the President and Chief Executive Officer as stipulated in the duties and responsibilities of the Board
- (3) Be the Chairman at the Board's and the shareholders' meetings to ensure that all of the Company's directors carry out their duties as stipulated in the CG&BE

For transparency and appropriateness, the Chairman is not allowed to hold any positions in any of the Company's sub-committees as clearly stated in the charter of the sub-committees. The President and Chief Executive Officer meanwhile is responsible for the Company's daily management with the authority as empowered and granted by the Board.

9.9 Independence of the Chairman

PTTEP considers independency as the first priority in electing the Company's Chairman of the Board. Shall there be none who is suitable for the position, other of the Company's directors will be considered. The current Chairman, Mr. Prajya Phinyawat, is an independent director and has performed his duties with autonomy and discretion (The appraisal score of the Chairman in 2015 was 4.95 where 5 is the highest). The Chairman and his performance are appraised and examined for future improvements by the Board members. Details on the appraisal results are disclosed in the "Performance Appraisal of the Board" part. (The appraisal scale has been revised to 1=need improvement, 2=meet expectation, 3=good which the appraisal score of the Chairman in 2016 was 2.96, close to 3, the highest score).

In addition, all of the Company's directors are allowed to independently express their views with freedom regarding the business operation, whether in the meetings of the Board, sub-committees, or in other occasions. This is to ensure that the management is able to operate the businesses with efficiency, accuracy, transparency, and in the best interests of the shareholders.

9.10 Policy and Practices for the President and Chief Executive Officer, and Executives with Directorships in Other Companies

PTTEP recognizes the value of knowledge and experience which the President and Chief Executive Officer, and executives have gained from holding a directorship in other organizations outside the Company. To ensure a productive, an uninterrupted and effective management, the Company clearly states in the CG&BE regarding the duration which the President and Chief Executive Officer, and executives are allowed, on only-if-necessary and no-harms-done basis, to hold a directorship position in other companies or organizations which are not of their own or families. In addition, the individuals must be given an approval from the Company's authorized personnel as well as accept the condition that they shall not, in every aspect, associate PTTEP and their position held in PTTEP in those external activities. Meanwhile, remuneration of the executives, who are assigned by PTTEP to assume a directorship in the organizations or units in, or related to, the petroleum exploration and production is considered PTTEP's. In other cases assigned by PTTEP, the remuneration is considered theirs. Details on the number of directorships held by each of the executives are disclosed in the "Information of the Board of Directors, Management, Controlling Persons, and Corporate Secretary" section.

9.11 Conflict of Interest Policy

PTTEP, with the following principles, is committed to preventing all potential conflicts of interest to ensure the Company's stakeholders' confidence that our business management is efficient, transparent, and in compliance with the CG&BE.

(1) Directors, management, and employees shall treat the interests of the PTTEP Group with priority and shall not involve or be involved in any activities potentially leading to any conflicts of interest.

(2) Directors, management, and employees shall review and disclose their transactions potentially leading to a conflict of interest to the Company.

(3) Directors, management, and employees shall not participate in considering or voting in any matters in which they have stakes and, if such exists, shall completely disclose the information.

(4) Directors, management, and employees shall strictly adhere to the laws and regulations as required by the SET particularly when involved with connected transactions.

The Company establishes preventive measures of conflicts of interest as follows:

(1) Directors, management, employees, and related persons must avoid financial involvement or engagement in a relationship with outsiders which may result in the PTTEP Group's loss of benefits, conflicts of interest, or operational inefficiency.

(2) Directors, management, and employees who may have a potential conflict of interest regarding procedures relating to a bidding process, and selecting and awarding of a transaction must report to their supervisor or those participating in the given process through the Company's "Conflict of Interest Declaration Form". They must also withdraw themselves from participating in such processes.

(3) Directors, management, and employees must notify the Company immediately shall there be a suspicion or uncertainty that what they or their related persons are involved in or their shareholding in the business which has a transaction with the Company may lead to a conflict of interest.

9.12 Business Ethics

PTTEP is committed to operating ethically as the Business Ethics are regarded as the behavioral framework and guideline for the Company's directors, management, and employees to carry out our business operations effectively, transparently, and ethically, as well as to treat all stakeholders equally. These practices will result in confidence and acceptance in the efficiency and transparency of the Company's business operations, creating a long-term sustainable value for stakeholders.

The Business Ethics of the PTTEP Group is a part of the CG&BE. The Board first established the Business Ethics in 1989, and it has since been revised every year. The current version of the CG&BE was approved by the Board on January 26, 2017, and it is regarded as the highest regulation for operating of the businesses within the PTTEP Group. The CG&BE is available for download from the Company's website.

Business Ethics consist of principles, samples of questions and answers, information for additional study, and the departments which are responsible for each principle. There are 10 ethical issues reflecting our organizational values in operating of the businesses to which all of the Company's directors, management, and employees must adhere.

- (1) Compliance with the Laws, Regulations and Rules, and Respect for Different Customs and Cultures
- (2) Political Neutrality
- (3) Human Resources
 - Workplace Environment
 - Privacy, Equal Treatment and Anti-Harassment
 - Illegal Drugs, Substance Abuse and Alcohol
 - Outside Employment, and Executives and Employees' Participation in Outside Activities
- (4) Use and Protection of Information and Assets
 - Keeping Records, Using, Disclosing and Safeguarding Information
 - Use and Storage of Electronic Data and Information Technology Resources
 - Use and Protection of Intellectual Property
 - Insider Trading and Use of Inside Information
- (5) Conflicts of Interest
- (6) Procurement and Contracts
- (7) Anti-Corruption
- (8) Trade Competition
- (9) Anti-Money Laundering
- (10) Safety, Security, Health and Environment

PTTEP distributes the CG&BE booklets to all of our directors, management, and employees for their reference and adherence. They are also required to sign their name as an accord to be committed to applying the CG&BE principles and carrying them out to the highest working standards. In addition, the booklets are provided to the Company's business partners, regulatory organizations, parties with regular business relationships with the Company, and other interested parties. For the convenience of the Company's shareholders, investors, and interested parties, contents of the CG&BE booklets can also be found on the Company's website under the Corporate Governance section.

PTTEP continuously enhances and promotes the knowledge and understanding of the Company's CG&BE among the directors and personnel. The Board governs the ways which the CG&BE is communicated to the directors and personnel to ensure that they are able to perform and conduct the business according to the CG&BE. Communications also extended to external parties, for example, vendors, joint ventures, and agents of the PTTEP group to encourage ethical culture among the group and society as a whole. The details are explained under "Continuing to Provide Communication, Knowledge and Training" part in "Anti-Corruption" part.

The Board's role is monitoring and evaluating CG&BE activities. The Corporate Secretary is in charge of reporting them to the Corporate Governance Committee and the Board on a quarterly basis to ensure that CG&BE activities achieve the target performance. The Corporate Governance Committee reviewed the 2016 operation plan, while taking into account the 2015 evaluation results, to ensure continuity and efficiency for the development of the following year's operation plan.

9.13 Internal Controls

PTTEP places high importance on continuously enhancing the internal control system based on the updated 2013 COSO (The Committee of Sponsoring Organizations of the Treadway Commission) framework to reasonably assure that three business objectives can be accomplished. These objectives are, namely, (1) efficient and effective operations with prudent use of resources and safeguarding of assets, (2) accurate, reliable, and timely disclosure of financial and non-financial information for internal and external uses, and (3) compliance with laws, rules, and regulations as well as the Company's policies and procedures.

PTTEP's internal control system comprises five key components as follows:

(1) Control Environment

PTTEP has a control environment which creates ethical working attitude among our management and employees, along with an atmosphere and awareness of the Company's internal control according to the principles of good corporate governance which aims toward specific corporate objectives: Growth, Prosperity, Stability, Sustainability and Dignity. The Board is responsible for governing and enhancing this internal control system. The Company has appropriately designed the organizational structure, reporting lines, and delegation of work authority.

The Company also focuses on human resources management by developing strategies and processes to attract, develop, and retain competent individuals in line with the corporate objectives. The management and employees are also held accountable for their internal control responsibilities to ensure achievement of the objectives.

(2) Risk Assessment

PTTEP places importance on risk management by appointing the Risk Management Committee who is responsible for regulating and overseeing the effectiveness of the company-wide risk management. The Company has also applied for the ISO 31000 Risk Management concept company-wide, targeting identification and assessment of all risks related to our businesses, including fraud risk or risks which may arise as a result of significant changes within the Company, to appropriately manage such risks in a timely manner.

(3) Control Activities

PTTEP has adequate control activities which are able to mitigate risks to acceptable levels for their respective business environments or business units. A variety of control activities have been established to mitigate these risks; these activities include development of general controls over technology or their deployment through regulations, policies, and working procedures. Control activities are periodically reviewed and improved. The Company also encourages employees to be constantly aware of the importance of conformance to the control activities and compliance with related laws and regulations to ensure that our internal control system is as effective as designed.

(4) Information and Communication

PTTEP realizes the significance of information and communication, particularly information processing processes that are accurate, complete, up-to-date, accessible, protected, verifiable, and consistent for both internal and external uses. The Company also restricts the access to confidential information and permits the access to authorized persons only. The main objective of establishing these processes is to support business operations in making of effective decisions. In addition, the Company has effective internal and external communication systems in place to support the functioning of the internal control system as well as a special communication channel to allow our stakeholders to confidentially report their concerns or complaints.

(5) Monitoring Activities

PTTEP assesses the effectiveness of our internal control system through ongoing evaluations which are built into the Company's daily operational activities, along with separate evaluations to ensure that the system is adequate and appropriate for the current business environment and dynamic risk factors. Subsequently, once the deficiencies are identified, improvement plans will be developed and responsible parties will be assigned to respond with timely resolutions. For separate evaluations, the Company has developed the control self-assessment evaluations on an annual basis at both the corporate and business process levels. The Internal Audit Division, which has a direct reporting line to the Audit Committee, meanwhile has responsibilities to perform independent audits correspondingly.

Details of the 2016 results of the internal control adequacy evaluation are disclosed in the "Internal Controls and Risk Management" section.

9.14 Risk Management

PTTEP's Board and management recognize the importance of strong and effective risk management as changes in business environment are uncontrollable and may impact business of the Company. PTTEP therefore established the Risk Appetite Statement, Metrics & Risk Governance Framework to be the guideline for conducting the business. Risk management meanwhile is considered a responsibility of all personnel, while the Risk Management Policy requires the directors, management, employees, suppliers and contractors to manage risk thoroughly and systematically to ensure our target achievement.

The Company has applied risk management guidelines of the ISO 31000, an international standard for risk management, throughout the Company. Risk management practices are taken into account within the organization at all levels, including the corporate, function groups, divisions, departments, working units, project management, and assets management, as well as processes such as investment and divestment decision making.

The Risk Management Department is responsible for ensuring the adequacy of the risk management system and its effectiveness across the organization. In addition, the Department is responsible for systematically and effectively mitigating the Company's exposure to risks as well as monitoring the results and continuously reporting them to the management, the Risk Management Committee, and the Board. The Risk Management Department is also responsible for cultivation of a positive risk management culture throughout the organization.

9.15 Remuneration of Auditor

9.15.1 Remuneration of Auditor

(1) Audit Fee

In 2016, PTTEP and the subsidiaries, both domestic and overseas, had paid audit fees to the Office of the Auditor General of Thailand (OAG) and other auditing firms for a total of USD 1.2 million.

(2) Non-Audit Fee*

In 2016, PTTEP did not have to pay any non-audit fees to the OAG.

*Remarks: "Non-Audit Fee" - This terminology is commonly used by the Securities and Exchange Commission of Thailand (SEC reporting requirement).

9.15.2 Summary of the Auditors' Report for the Past Three Years (2014-2016)

The OAG expressed an unqualified opinion in the Auditors' Report on the PTTEP's consolidated financial statements for the past three years.

9.16 Other Good Corporate Governance Practices

PTTEP places importance on governing our business operations with the CG&BE as well as almost all of the best practices followed internationally by integrating them with our existing practices. This integration takes place while also taking into account the appropriateness of these international best practices, the current business environment, the benefits for the Company, and, of course, the benefits for our shareholders and stakeholders. Some of the practices that have resulted from our continuous effort to surpass the requirements of CG 2012, which was established by the SET, are as follows:

(1) For an election of a director, each candidate must receive a vote of more than half of the total number of shareholders attending the shareholders' meeting and casting their votes (majority vote) even if the number of candidates is equal to the number of director positions required from the election at the time.

(2) A director, who turns 70 years of age, is immediately disqualified to serve as a director of PTTEP.

(3) PTTEP allows each director, or independent director to serve on the Board for no more than nine consecutive years. Any director who has served on the Board for nine years will not be considered for another term.

(4) The total number of independent directors must not be less than half of the total number of directors.

(5) The right to attend a shareholder meeting must be carefully examined to ensure that granting of a proxy is conducted properly, and that this granting does not interfere with the rights of shareholders attending the meeting.

(6) A Director's Skill Mix is to be reviewed on an annual basis with a clear definition of required skills and experience. The Target Skill Mix is reexamined each year to match with PTTEP strategies and withstand the volatility of economic situation before nomination and development of the director. In addition, PTTEP ensures to take into account Board diversity without any gender and nationality discrimination.

(7) PTTEP has appointed a female director who was graduated from the accounting field and who is qualified as an independent director to become an Audit Committee member. This is beneficial to the Audit Committee in terms of gaining reasonable assurance of the Company's financial statements. In addition, the new Nominating Committee members have been appointed and all the members are independent directors. This is to ensure transparency within director nomination process, prevent conflicts of interest, and assure accordance with the Corporate Governance of the PTTEP Group.

(8) Performance appraisals of the Board and the sub-committees are conducted with integrity using the Performance Evaluation Form and the Board Performance Target. Appraisals include an individual self-appraisal and individual cross-appraisals by other directors, an appraisal of the Chairman, and an appraisal of the Board and each sub-committee. Results of the appraisals are then translated into plans for further performance improvements of the directors.

(9) The Independent Directors Committee had four meetings and there were three Board meetings without management present in 2016 to discuss and exchange opinions on significant and beneficial matters related to the Company and our shareholders. The minutes of the meetings were well reported to the CEO.

(10) PTTEP stated our policy to determine compensation of the CEO and executives to become aligned with the short-term and long-term performance of the Company, including Company financial performance (Tied to Performance). The Company also disclosed the ratio of annual compensation of the CEO to the average of the annual compensation of all employees.

(11) Effective and tailored activities were organized to promote the understanding of the CG&BE for the Company's directors, members of specific committees, executives and employees. The activities expressed clear planning and performance indicators for evaluating knowledge and a system for keeping track of the results. With the Corporate Governance Committee in charge of planning the activities and designing the performance indicators, it also took part in the activities along with executives and employees in order to underline the importance of these activities. The Corporate Governance Committee was also responsible for monitoring to ensure that substantial results were achieved. These activities were also extended to vendors in order to foster a shared good culture in the business sector and society. Details of these activities are available in the "Business Ethics" section of this report.

(12) The Board of Directors led in a significant supervisory role to ensure that all employees had embedded the 6 principles of Corporate Governance of the PTTEP Group in their work process. In 2016, The Board of Directors assigned the Corporate Governance Committee to assess key work processes by using the CG 6 principles as a framework, i.e., business development process, corporate price assumption, oil price hedging process, and impairment process. The Corporate Governance Committee has provided constructive recommendations to the management team for each process under CG principles.

PTTEP has also implemented the following practices.

(1) PTTEP has always felt it vital that the Company's Chairman remain independent, thus has set independence as the first priority for Chairman nomination except there are other qualified reasons to select from other list of directors. The Company place importance and consider the fundamental attributes of business-related knowledge and expertise, working experience, and leadership characteristics as well as performance appraisal results to ensure that the Chairman governs the Company with full independency. More details along this line are discussed in the "Independence of Chairman" section of this report. The current Chairman of PTTEP is qualified as an independent director.

(2) PTTEP's Articles of Association (AoA) stipulates that the number of PTTEP directors shall not be less than five, but not greater than 15. As of December 31, 2016, the Company had 15 directors. This is in line with the Company's AoA, and is reasonable for the current business environment of the petroleum exploration and production industry where experts from numerous disciplines are required in order for the directors to adequately and effectively monitor various areas of the business operations. At present, PTTEP has five sub-committees that are responsible for specific tasks, as described in their respective regulations. All of the Company's five committees' performances are assessed on a yearly basis.

(3) In accordance with the Budget Procedure Act B.E. 2502, PTTEP, a state-owned entity, is required to assign the independent and reliable Office of the Auditor General of Thailand (OAG) to be the Company's external auditor.

(4) Although PTTEP has a free float ratio of less than 40 percent of the total paid-up shares, the Company always puts great importance on protecting the rights of the minority shareholders by organizing several activities to periodically communicate information beneficial to these shareholders as well as to gain acceptance from other external agencies.

(5) PTTEP has specified that a quorum, at the time of the Board passing a resolution, must comprise at least two-thirds of the Board members who are present at the meeting. The Company stipulates that if a director fails to attend a Board meeting three times consecutively, unless an absence is deemed necessary, he or she will automatically be disqualified from the director position. The Company also uses attendance as a performance indicator for the Board Performance Target evaluations. In addition, PTTEP schedules meetings in advance throughout the year, and always makes sure the directors will be available to attend the meetings. These measures collectively are already deemed sufficient, as evidenced by the attendance of the Board meetings in 2016 when the ratio always exceeded the two-thirds. Before voting at the meetings, the Chairman allows all directors to ask questions and discuss various issues in detail in order to ensure that the Board's resolutions have unanimous consent.

(6) PTTEP does not have an Employee Stock Option Program (ESOP) for management. The Company, however, has established an Employee Joint Investment Program (EJIP) to allow the Company's management and employees to voluntarily purchase PTTEP stock every month throughout a five-year period, during which the Company will contribute an additional amount equal to the amount deducted from the payroll of the eligible candidates on a monthly basis. All shares purchased each month are suspended from trading for three years from the date of acquiring them. The objective of the EJIP is to encourage management and employees to become more dedicated and be loyal to the organization as well as to create an increased sense of group ownership in the long run.

(7) PTTEP has not implemented a cumulative voting system as our AoA prescribes that a director is elected through the use of a majority vote. The Company, however, has provided other mechanisms to protect the rights of our minority shareholders, such as allowing them to propose a director candidate in advance during the nomination process.

(8) PTTEP places high importance on distributing the Annual General Meeting (AGM) invitation letter prior to the meeting date to provide the Company's shareholders with adequate time to appropriately review the agenda. To ensure that our shareholders receive full benefits, such as rights to receive their dividend payments from the Company in a timely manner, the meeting is usually held in March every year. For the best interest of the shareholders, the audit of PTTEP's financial statements, however, normally requires relatively more time than other companies due to the complexity of having international

operations across various countries. Currently, the Company is able to distribute the invitation letter in 17 days, and publish it on the Company's website at least 30 days prior to the date of the meeting.

9.17 Awards and Recognitions for Good Corporate Governance

(1) PTTEP was rated "Excellent" and received 5 of the National Corporate Governance Committee's symbols, the highest level, according to the Corporate Governance Report of Thai Listed Companies (CGR) 2016 of the Thai Institute of Directors Association (IOD). The survey criteria of the reports are similar and comparable to those of the ASEAN CG Scorecard Standard. The Company has continuously been rated and placed at this highest level since the first assessment in 2001.

(2) PTTEP received four awards from The Asset Magazine, Hong Kong, namely, (1) Platinum Awards in The Asset Corporate Awards for the eighth consecutive year for demonstration of excellent performance in five aspects of businesses, namely, finance, corporate governance, social responsibility, environmental responsibility, and investor relations, (2) The Asset Best Initiative in Innovation for the second consecutive year (3) The Asset Best Investor Relations Team Award for the second consecutive year, and (4) The Asset Best Initiative in Environmental Responsibility.

(3) PTTEP received Asia's Best CFO (Investor Relations) for the third consecutive year, Best Investor Relations Company (Thailand) for the fourth consecutive year, and Asia's Best Environmental Responsibility for the third consecutive year from the Corporate Governance Asia Magazine, a financial journal focusing on corporate governance in Hong Kong and Asia, at the 6th Asian Excellence Award 2016.

(4) PTTEP received Diamond and Gold Level of the National Occupational Safety and Health Awards for the second consecutive year from the Department of Labour Protection and Welfare, Ministry of Labour.

(5) PTTEP received the ISO 22301 : 2012 certification for Business Continuity Management System (BCMS) which effectively has classified the Company to be an organization with effective and resilience systems in managing business disruptions.

(6) PTTEP received three awards for excellence in the Safety, Health and Environmental Management Awards or "2016 SHE Award" for the Greater Bongkot South Field, S1, and Sinphuhorm projects. The SHE Award is organized by the Department of Mineral Fuels, Ministry of Energy particularly to promote safety, health and environment management systems in petroleum exploration and production.

(7) PTTEP received the Platinum Award in the Best Community Program category for the recognition of PTTEP-LKC DD Free Healthcare Center Project at the 8th Annual Global CSR Summit and Awards 2016 held in Indonesia. The Company has partnered with Dompot Dhuafa which is a leading Indonesian non-profit organization dedicated to social responsibility to serve the Indonesian communities in Northern Jakarta in 2014.

(8) PTTEP received Bronze Stevie Award in the Innovation in Community Relations category from the Asia-Pacific Stevie Awards Program for the Parasite-Free School Program which is the Company's corporate social responsibility project, established in 2009 near our Zawtika Project, in the Republic of the Union of Myanmar. The objective of the program is to reduce the rate of parasite infection among the students, resulting in better sanitary conditions and standard of living. More than 6,000 students have benefited from the program.

(9) PTTEP's Ms. Petchun Jarikasem, the Company's former Executive Vice President of the Finance and Accounting Group, was awarded the Best CFO Award in the Resources Industry category for the fifth consecutive year from the Investment Analysts Association. The IAA Awards which are nominated and voted by analysts and fund managers are presented to the management of listed companies in eight industries, considering demonstration of management excellence, insightful and accurate information, good corporate governance and business ethics, and industry in-depth knowledge.

(10) PTTEP received Sustainability Report Award 2016 in the outstanding category for the fourth consecutive year. This award is organized annually by the CSR Club, the Securities and Exchange Commission, and the Thaipat Institute to encourage registered companies to publicize their Environmental, Social, and Governance (ESG) information for investors and stakeholders.

(11) PTTEP received the SPE Distinguished Corporate Support Award, Northern Asia Pacific at the 2016 SPE Asia Pacific Oil & Gas Conference and Exhibition (APOGCE) Conference for the Company's outstanding support and contribution to the Society of Petroleum Engineers (SPE) in the Asia Pacific through excellence in leadership and commitment of time, energy, and professional resources.

SPE is the largest individual-member organization which provides opportunities for professionals in the upstream segment of the oil and gas industry to enhance their technical and professional competence.

(12) PTTEP received BG Group's Gold Hard Hat Award from BG Asia Pacific Pte Limited. The award is for development and implementation of the Bongkot Major Accident Event Prevention Tool which demonstrates the Company's strong leadership and commitment to improve the safety performance of our oil and gas operations.

(13) PTTEP received the Carbon Neutral Certificate from the Thailand Greenhouse Gas Management Organization (Public Organization) or TGO for being a company with outstanding practices in sustainable development activities for carbon offsetting in the Greenhouse Gas Emission Reduction.

9.18 Reports of the Sub-Committees

9.18.1 The Corporate Governance Committee Report

PTTEP places great importance on adherence of the Good Corporate Governance and Business Ethics of the PTTEP Group (CG&BE), which has continuously been improved, for the Company's business operation. The Board has assigned the Corporate Governance Committee, which consists of at least three independent directors, to govern and ensure that the CG&BE is in compliance with throughout the organization.

In 2016, the Committee convened four times, while all of the incumbent members attended every meeting. The results of the meetings in 2016 can be summarized as follows:

(1) Assessed and reviewed the CG&BE to be in compliance with the laws, practices of international standards and other leading companies, as well as recommendations from well-recognized institutions. All of the results were submitted for the Board's approval

(2) Promoted business operations of the PTTEP Group and performance of the Board, management, and employees to be in line with the CG&BE by monitoring and providing recommendations over the CG&BE-related activities to enhance knowledge and understanding of the CG&BE, as well as over the complaints received through the CG Hotline on a quarterly basis.

(3) Governed PTTEP to have an efficient and adequate system in place to appropriately support the anti-corruption policy, practices, and internal control systems for everyone in the organization to cultivate and for the vendors to uphold the best practices on this matter and abide by the CG&BE of the PTTEP Group.

(4) Considered PTTEP's long-term 2016–2020 Corporate Social Responsibility (CSR) and communication work plan prior to submit for the Board's approval. The Committee also monitored the progress and provided recommendations regarding the CSR and related activities on a quarterly basis to create sustainable growth and attain the trust of stakeholders in all locations in which the Company operates.

(5) Established corporate governance reporting guidelines according to the SET's principles to incorporate the CG Report in PTTEP Annual Report for the stakeholders.

The Corporate Governance Committee reported minutes of all meetings to the Board on a regular basis. In 2016, the Committee abided by its assigned tasks according to the Charter for the Corporate Governance Committee and its amendments with prudence, competence and independence. The Committee properly provided straightforward opinions for optimal benefits of PTTEP, the Company's shareholders as well as stakeholders.

(Signed) Admiral Tanarat Ubol

(Tanarat Ubol)

Chairman of the Corporate Governance Committee

9.18.2 The Audit Committee Report

PTTEP is determined to continue to operate under an effective and efficient management. E&P operation however is relatively high risk, requires relatively large investment, is involved by several parties, and must be in compliance with a large number of complex laws and regulations. The Audit Committee, as a result, is appointed by the Board to review the Company's financial reports and to provide an in-depth and effective oversight of the Company's internal control and internal audit system to achieve the Company's goal. The Audit Committee consists of at least three independent directors and no more than five independent directors, while at least one member shall be a designated financial expert to be able to conduct reviews and evaluations of the financial statements.

In 2016, the Audit Committee convened 11 times to discuss the related matters with the management, the Company's internal auditors, and external auditors. The Committee's 2016 principal activities are as follows:

(1) Review of Financial Reports

The Audit Committee reviewed the Company's quarterly and annual financial statements together with the management and the external auditor, namely, the Office of the Auditor General to ensure the accuracy, completeness, and compliance with laws and regulations as well as the generally accepted accounting standards including the International Financial Reporting Standards (IFRS). The Committee also ensured that the statements were sufficient, complete, adequate, and timely disclosed with essential information to serve investors and users of financial statements.

In addition, the Audit Committee provided recommendations regarding the Company's Management Discussion and Analysis (MD&A) to ensure clear and timely information, to give an explanation of the internal management which has significant impact on financial statements, to provide an analysis of the factors having an effect on the Company's operation, as well as to identify of action plans to cope with domestic and international circumstances.

(2) Review of the Internal Control System

The Audit Committee provided oversight to ensure that the Company's internal control is effective. The Committee also encouraged implementation of preventive controls and collaborated with the Risk Management Committee by sharing information with each other to improve the internal control system and to ensure that Company's risks remain within the risk appetite, resulting in efficiency and sustainability.

The Committee continuously monitored the Company's operations by encouraging the management to perform a Post-Project Review to gather lessons learned to improve the evaluation and consideration process of future investments.

In addition, the Committee reviewed the Oil Price Hedging process to ensure the effectiveness of the internal control and appropriateness of the Check and Balance system.

(3) Review of Connected Transactions or Transactions with Potential Conflict of Interest

The Audit Committee conducted review of connected transactions or transactions with potential conflicts of interest prior to the Board's consideration to ensure their rationality and benefits for the Company and our shareholders, particularly minority shareholders. The Committee also reviewed the disclosure of such information to ensure accuracy and completeness.

(4) Examining Compliance with Laws and Related Regulations

The Audit Committee reviewed the Company and our subsidiaries' performance in terms of their compliance with the securities and exchange laws, SET's regulations, and other related laws. The Committee also encouraged the Company to monitor and study new laws to recognize their practice and consider an effect on the Company's operations as well as to regularly communicate with and provide training to our employees.

The Committee acknowledged the compliance report relating to the Company and the subsidiaries' business operations as reported by the Compliance Department and other compliance audit results as reported by the Internal Audit Division. The Committee also provided opinions to ensure the effectiveness of the Company's compliance process as well as to ensure that the Company and the subsidiaries are in compliance with related laws and regulations.

(5) Oversight of Internal Auditing

The Audit Committee conducted the oversight of internal auditing as follows:

- Approved the annual audit plan which is in line with the Company's key risks and direction
- Reviewed audit results for both in-house audits and joint venture audits
- Considered major audit issues, provided recommendations for audit findings to improve efficiency of the operations and regularly monitored the management's follow-up plans to resolve the issues originating from both internal operations (for in-house audits) and external operators (for joint venture audits)
- Encouraged to summarize recurring joint venture audit findings to discuss with the operators to find preventive measures
- Supported the implementation of a Continuous Control Monitoring System-Procurement to Pay process which is an approach which introduces an information system to monitor and detect irregularities on a continuous basis. This approach alerts the deviations to the management, process owners, and internal auditors, providing them an opportunity to address and resolve the irregularities. This system also enables a collaboration regarding anti-corruption with the public sector.
- Considered a revision of the Audit Committee Charter and the Audit Charter
- Appraised the annual performance of the Head of the Internal Audit Division
- Endorsed budget and reviewed the manpower of the Internal Audit Division

(6) Nominating of/Meeting with the External Auditor

The Audit Committee considered nomination of the Office of the Auditor General to continuously serve as the Company's external auditor and proposed audit fee for the 2016. The Committee also met separately with the external auditor and the Internal Audit Division, in the absence of the management, to acknowledge the external auditor's approach and audit plan as well as to consider the contents of Key Audit Matters and other additional contents in the auditor's report according to the revised Auditor Reporting Standards which are to be effective for the period commencing on or after 2016.

(7) Other Oversight Roles

Economic Forecast Review

The Audit Committee provided recommendations, considering the global economy as well as domestic economy which affected the risks of the Company's overall investment and strategy. The Committee also ensured that the management had continued to follow up on factors that impacted oil prices such as the changing in the future demand to review and analyze long-term strategies for the Company's optimal benefit.

The Audit Committee made their effort to provide practical and valuable recommendations to promote the Company's Good Corporate Governance and to enhance efficiency of the operations, delivering the best performance compared to the industrial peers while preserving the best interests for the shareholders and stakeholders. The Audit Committee has continuously reported all Committee's comments and results of the Board's meetings. The Audit Committee's 2016 performance was assessed by completing a self-appraisal and an assessment by the Board and related parties. The Audit Committee was graded "Very Good" for its performance.

In 2016, The Audit Committee provided the opinions regarding the Company's operations and internal control systems as follows:

- The Company's accounting system and financial reports were accurate, reliable, and disclosed in a complete, sufficient, and timely manner.
- The Company's internal control systems were adequate and suitable. They have also been continuously improved to suit the Company's businesses at the present and in the future, as well as being in compliance with the securities and exchange laws, SET's regulations, and other laws related to the main business.
- The Office of the Auditor General, who is the Company's external auditor, was independent and experienced in auditing of financial reports to ensure accuracy and reliability. The reports were also complete, adequate, and timely disclosed with essential information.
- Based on reviews of the Company's connected transactions or transactions with potential conflicts of interest, the Audit Committee regarded the Company's disclosure of such information as being accurate and complete. The conditions and prices related to the transactions were fair, appropriate, and approved by the management and the Board prior to their execution.

(Signed) Ampon Kittiampon

(Mr. Ampon Kittiampon)

Chairman of the Audit Committee

9.18.3 The Nominating Committee Report

PTTEP's Good Corporate Governance requires the Nominating Committee to consist of at least three directors where most of the Committee members are independent directors, and their terms are equivalent to their director's term. The Committee's main duties and responsibilities are to evaluate the Board's structure and composition which includes an appropriate proportion of directors with essential skill mix for PTTEP's business nature and current circumstances, to set out director nominating process and rules for shareholders to propose names of qualified candidates to be nominated as PTTEP director as well as to consider the President and Chief Executive Officer's succession plan for the Company's continuous and efficient performance.

In 2016, the Nominating Committee convened eight times, where the duties and responsibilities of the Committee can be summarized as follows:

- (1) Reviewed the Board's Skill Mix which includes Core Skills and Specific Skills to cope with the Company's business and short-term and long-term strategic directions
- (2) Specified Target Skill Mix of director nominees by taking into consideration the annual business environment and presented the findings to shareholders for proposing director nominees in replacement of those who are due to retire by rotation
- (3) Compiled PTTEP Directors' Pool to supplement the director nominating process along with the State Enterprise Policy Office (SEPO) and the Thai Institute of Directors Association (IOD)'s Director's Pool and presented the list of director nominees to the Board's and shareholders' meetings for consideration
- (4) Nominated directors as sub-committee members to the Board for election when there is a vacancy
- (5) Considered annual Board Performance Target, set the Performance Evaluation Form of the Board, sub-committees, and Chairman, and reported the assessment result to the Board for acknowledgement
- (6) Regularly reviewed the Nominating Charter, where assurance of an efficient Management Succession Plan system was added to ensure the candidate's skills and qualifications required for PTTEP's target growth

The Nominating Committee has performed its duties and responsibilities with prudence and independence for the best interest of all shareholders and stakeholders. The results of all meetings were regularly reported to the Board for acknowledgement.

(Signed) *Piti Tantakasem*

(Mr. Piti Tantakasem)

Chairman of the Nominating Committee

9.18.4 The Remuneration Committee Report

PTTEP's Good Corporate Governance requires the Remuneration Committee to consist of at least three directors where most of the Committee members are independent directors. The Committee's responsibility is to evaluate an appropriate remuneration for the Board, sub-committees, President and Chief Executive Officer, as well as the salary structure of the Company's senior executives by adhering to fair and reasonable principles, procedures, and structure.

In 2016, the Remuneration Committee convened two times where all members had attended the meetings, and the duties and responsibilities of the Committee can be summarized as follows:

(1) Reviewed the remuneration of the Board and sub-committees on fair and reasonable principles based on their duties and responsibilities, benchmarking with other listed companies of similar industries and business size, PTTEP annual performance, as well as industry and economic environments

(2) Considered the President and Chief Executive Officer's performance and remuneration based on the assigned duties and responsibilities, PTTEP annual performance, and benchmarking with other companies under the PTT Group

The Remuneration Committee performed its roles in a transparent, fair, cautious, and independent manner, while providing straightforward opinions for the best interests of shareholders and stakeholders according to PTTEP's Good Corporate Governance and as specified by the Stock Exchange of Thailand. The results of all meetings were regularly reported to the Board for acknowledgement.

(Signed) *Achporn Charuchinda*

(Mr. Achporn Charuchinda)

Chairman of the Remuneration Committee

9.18.5 The Risk Management Committee Report

PTTEP has focused on effective risk management to enable the Company to achieve the business goal. As petroleum exploration and production business is relatively more complicated in terms of technical and operation procedures, risk management in Safety, Security, Health and Environment (SSHE) has been taken into consideration at all times. In 2016, due to the oil price crisis which affected directly the Company's revenues as well as the bottom-line, The Risk Management Committee (RMC) had to play a more active and significant role in considering the impacts from various factors particularly those related to strategic risks, market risks, financial risks, and investment risks. The Risk Management Committee, as appointed by the Board, consists of six directors of which three are independent, is responsible for overseeing and supporting risk management throughout the organization.

In 2016, the Committee convened 14 times. The duties and responsibilities of the Committee can be summarized as follows:

(1) Governed the continuation of comprehensive risk management within PTTEP Risk Appetite Statement and Risk Limit as well as revised and approved the revision of the Enterprise Risk Management Policy to be in line with the international standard of ISO 31000. The revision covered the areas of managing risk to an acceptable level, and monitoring and reporting of risks, resource availability, and conflicts of interest. To strengthen the Check & Balance, the Committee also endorsed the transfer of Risk Management and Internal Control Division to currently directly report to the President and Chief Executive Officer.

(2) Managed risks under the oil price crisis, focusing on efficient oil price and financial risk management by recommending the setup of cross-functional committee to review and revise hedging objectives and to improve work process including internal control, segregation of duties, hedging committee establishment and electronic application. The Committee had closely monitored these matters and requested to be reported on a regular basis. Other mitigations under the oil price crisis had been continuously monitored, including cost and unit cost reduction (SAVE to be SAFE Program) and production optimization.

(3) Managed strategic risks in response to changes of the environment by adjusting strategic planning session to being agenda-based, stimulating discussions among the directors and top management on strategy and portfolio rationalization, as well as turning strategy to be 3R, i.e., reduce costs for more competitiveness (Reset), refocus area of investments for sustainable growth (Refocus), and develop new technology and study opportunities of other related businesses (Renew). RMC has also considered and endorsed 2017 strategy, key performance indicators, corporate risks and mitigations, five-year investment plan (2017-2021) and 2017 budget, and advised to adjust KPI to be in line with priority of 2017 strategic directions.

(4) Emphasized on long-term risk management specifically investment risks. The Committee considered and screened new investments, divestments, and withdrawal of investments to be in line with PTTEP's growth strategy and portfolio rationalization, while following up on major development projects to mitigate critical risks and create investment values. RMC also advised to improve the efficiency of investment consideration, i.e., consideration of strategic partnering, implementation of standard investment templates, application of lessons-learned checklist for screening of new projects and provision of minority views within the Committees.

The Risk Management Committee reported its findings to the Board on a monthly basis. In 2016, the Committee had performed its duties in risk management systematically, prudently, competently and independently, while providing candid views to all parties for the benefits of PTTEP, and the Company's shareholders and stakeholders.

(Signed) Sethaput Suthiwart-Narueput

(Mr. Sethaput Suthiwart-Narueput)

Chairman of the Risk Management Committee

9.18.6 The Independent Directors Committee Report

PTTEP Board of Directors has appointed the Independent Directors Committee to promote Good Corporate Governance within the Board's functioning for the best interest of the Company and equal treatment to all stakeholders, by providing constructive opinions transparently and independently.

The Independent Directors Committee consists of nine independent directors out of 15 directors from the Board, a selection ratio which is more stringent than the Securities and Exchange Commission (SEC)'s requirement of one-third of the entire Board.

In 2016, the Committee convened four times, and the results of the meetings can be summarized as follows:

(1) Provided recommendations in the preparation of clarifications of 2016 strategic plan to investors and shareholders, particularly concerning the corporate direction under low oil price, cost reduction, investment plan, project management, and business growth within E&P and other fields

(2) Recommended the strategic plan between PTTEP's LNG operation with PTT as a value chain by combining the strengths of PTTEP's upstream expertise and those of PTT in trading experience together

(3) Provided recommendations regarding the Draft Amendment of Petroleum Act for PTTEP's readiness and competitiveness in the upcoming bid round and concession contract expiry to secure the domestic petroleum supply

(4) Established policies to prevent and monitor insider trading

(5) Specified Independent Directors Committee meetings in 2017 and reviewed 2016 Independent Directors Committee Report to be disclosed in the annual report

(6) Provided comments and useful enquiries with independence when considering agendas with connected transactions between PTT and PTTEP to appropriately protect the benefits and rights of minor shareholders. The Committee also promoted transparency and independent decisions in the Board's meetings and ensured that directors with conflicts of interest to the context of the agenda are abstained from the meeting and voting for the best interest of the Company, shareholders and stakeholders.

The Independent Directors Committee has performed its duties by providing beneficial recommendations to the Company and our shareholders to assist the Board to perform with highest efficiency and effectiveness.

(Signed) *Prajya Phinyawat*

(Mr. Prajya Phinyawat)

Chairman of the Independent Directors Committee

10.1 Operational Policy towards Responsibility for the Society and the Stakeholders

PTTEP commits to the vision to become a leading Asian E&P company, driven by competitive performance, advanced technology and green practices, creating sustainable values for all of the stakeholders.

The Company has developed the Sustainable Development Policy, also known as the G.R.O.W.T.H Policy, to be adopted across the entire organization. The purpose is to demonstrate the Company's definite sustainability objectives and determination to overcome all of the challenges towards developing and becoming a sustainable organization. For the Sustainable Development Policy, please see the Company's website.

The Company has also developed the Sustainable Development Guideline underlying various aspects that are important to sustainability of the organization in an effort to establish a universal understanding of the Company's approach to sustainability. Harmony in respect to social responsibility among the divisions across the Company is also established by having them operate in accordance to international standards and policies such as ISO 26000, Safety, Security, Health and Environment (SSHE) Policy of the International Association of Oil & Gas Producers (IOGP), and the United Nations' Universal Declaration of Human Rights (UDHR).

As for the stakeholders, the Company has designated each of the divisions to have its own separate responsibility and participation programs for the different groups of stakeholders that they are involved with.

For more details, please see the PTTEP 2016 Sustainability Report.

10.2 Operation and Reporting

PTTEP has adopted the Global Reporting Initiative (GRI) which is one of the world's most prevalent guideline for sustainability reporting to provide information regarding the Company's economic, environmental, and social and governance performance. Information about the Company's capability to reduce greenhouse gas emission, for example, is included in the report. The high standard, comparable to those of financial management, allows the Company to monitor our sustainability effectively. The report includes sustainability data and performance indicators from all parts of the Company's business. This ranges from business planning, corporate risk assessment, internal control process, internal auditing, monitoring and reporting of the Company's performance. In 2016, PTTEP has implemented actions to address these issues as planned.

In addition, the Company has another report dedicated to sustainability. The report is of a standard comparable to the GRI's sustainability reporting as well as those required of the oil and gas industry. The Company's sustainability reporting demonstrates our continuous effort in fulfilling the ten principles of the United Nations Global Compact (UNGC) as well as other reporting standards relevant to the oil and gas industry. The Company fully discloses the information regarding sustainability as it is vital for our stakeholders to be aware of the Company's sustainability performance.

For more details, please see the PTTEP 2016 Sustainability Report.

10.3 Impacts of Business Operation on Social Responsibility

In August 2016, a claim was filed against a PTTEP subsidiary company in Australia, alleging that the oil spill in 2009 from the Company's Montara Field has had an impact on marine environment of the Timor Sea and damaged the livelihoods of seaweed farmers in East Nusa Tenggara in West Timor, Indonesia. The claim was brought as a representative action in the Federal Court in Sydney, Australia. The extent of the class of litigants and the value of the claim are as yet unquantified.

The Company is strongly defending the claim, based upon independent scientific evidence obtained in conjunction with the Australian Department of the Environment in the years following the Montara oil spill. The evidence has concluded that no oil reached the coast of Indonesia and no long-term environmental damage was caused to the flora and fauna of the Timor Sea.

10.4 Projects and Activities for Benefits of the Society and the Environment (After Process)

To be a sustainable organization with a vision of becoming a leading Asian E&P company driven by competitive performance, advanced technology, and green practices, PTTEP believes that the key to our license to operate and license to grow are the sustainability of social and environmental stewardship.

To meet the stakeholder's needs as well as to gain their trust and support, in 2016, the 5-year CSR and Communication Roadmap 2016-2020 was initiated as a guidance with an even greater emphasis on social and environmental stewardship. All CSR projects have been categorized into four themes which are Basic Needs, Education, Environment, and Culture & Sports. Currently, the Company has been focusing on six key environmental CSR projects, namely, Crab Hatchery Learning Center, Forest Restoration Project for Eco-learning at Sri Nakhon Khuean Khan Park and PTTEP Reforestation Project, Waste to Energy Project, PTTEP Love Sea, Love Beach, PTTEP Teenergy Project, and Underwater Learning Site of H.T.M.S. Project.

For more details, please see the PTTEP 2016 Sustainability Report.

11.1 Board of Directors' Evaluation of PTTEP's Internal Controls

PTTEP's Board of Directors (the Board) and management place a great emphasis on effectiveness of the internal control system. The management appoints the Internal Control Section to annually assess the adequacy and effectiveness of the system, while the Board appoints the Audit Committee to review the assessment results to ensure that the internal control system supports the Company to have effective and efficient operations, provides accurate and reliable reporting, and be in compliance with relevant laws and regulations.

In 2016, the Board endorsed the Audit Committee's report on the assessment result of all of the five components of the Company's internal control system, namely, (1) control environment, (2) risk assessment, (3) control activities, (4) information and communication, and (5) monitoring activities. The report stated that the Company's internal control system is adequate and effective to minimize key risks which are potentially harmful to the business operations. Moreover, when control deficiencies are detected, they are continuously corrected to support business operations to ensure they are in compliance with laws and regulations at all times. In addition, there is an adequate internal control system in place to govern and monitor business operations of the Company's subsidiaries.

The Internal Control Self-Assessment Form provided by the Office of the Securities and Exchange Commission of Thailand (SEC) is employed to assess the Company's internal control system, covering the five components of the framework developed by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). The assessment results are as follows:

1. Control Environment

PTTEP has appropriate control environment that can be summarized below.

- PTTEP operates businesses under principles of the Good Corporate Governance and Business Ethics (CG&BE), which is regularly updated to ensure compliance with international standards and best practices and considered as the highest internal regulation of the Company. The management and employees at all levels are required to sign the CG&BE to formally acknowledge it and to act accordingly. In 2016, the Company revised the CG&BE by updating the anti-corruption policy to be in line with the Organic Act on Counter Corruption B.E. 2542 (as amended), while ensuring that the CG&BE is well understood by the management and employees through various training courses and activities, such as the Anti-Corruption Online Training and CG&BE Workshop for those working in the Republic of the Union of Myanmar. In addition, joint venture partners, suppliers/vendors and company representatives are acknowledged of the principles and revisions.
- PTTEP establishes a clear segregation of duties between the Board and the management. The Board's task is to develop the corporate operational strategies and govern business performance of the management to achieve objectives set in the strategies. The Board also delegates their power to the management through the group's regulations, appropriately ensuring flexibility and efficiency of the operations. In 2016, the Board closely monitored the Company's business performance and continuously provided the management with advices on several business improvement processes in response to the oil price fluctuation.

- PTTEP organizational structure is designed with flexibility and efficient collaboration in line with the internal control principles, such as segregation of duties, and check and balance. In 2016, to appropriately respond to the market dynamic. The Company had an organizational restructuring, including restructuring of the Enterprise Risk Management and Internal Control Division (CRM), and the Finance and Accounting Group (FNA), as well as establishing of a new business unit for the SAVE to be SAFE Project (S2bS) to manage the Company's budget and spending. The Company also set up the Hedging Committee to manage the risks relating to the oil price fluctuation.

- PTTEP has appropriate reporting-line structures and hierarchy of authorities for the Company's business requirements and responsibilities of the management and employees, while they are clearly defined and documented in the Company's Functional Description and the Delegation of Authority and Signatures (DAS). In 2016, PTTEP standardized DAS to ensure consistency of delegation of authorities for both domestic and international operations (Global DAS).

- PTTEP has an extensive set of resource management regulations and policies which focus on attracting, developing, and retaining individuals. The Company also develops the Individual Competency Development Plan (ICDP) for the management and employees based on the five capability themes which are in line with our business objectives. These five themes are, namely, (1) operating assets, (2) exploration success, (3) development projects, (4) joint venture management, and (5) mergers and acquisitions. The Company also sets level of knowledge and competency for personnel and continuously reviews and updates them for manpower development planning to facilitate business growth and future expansion. In addition, a specific development plan for high potentials, management succession plan, job rotation, and promotion plan have also been developed, while an employee engagement survey is carried out annually to achieve a higher level of employee satisfaction. As for the corporate remuneration policy, the Company employs the pay-for-performance compensation system to retain highly competent individuals.

- In 2016, PTTEP revised the Internal Control Policy and Standard, and the updated documents were subsequently communicated with the management and employees through training courses and activities such as GRC Newsletter, to ensure accurate understanding of the principles, roles, and responsibilities of each individual in relation to internal control principles.

2. Risk Assessment

PTTEP employs an international risk management approach which can be summarized below.

- PTTEP establishes Risk Appetite Statement, Risk Governance Framework, and Risk Metrics to clearly define roles, responsibilities, and authorities relevant to risk management at all levels of the Company, including the Board, the Risk Management Committee, and the management, as well as supporting and operational business units.

- PTTEP develops risk management policy, standard and guideline for the management, employees, and suppliers/vendors to comply to facilitate achievements of the Company's business objectives. In 2016, the Company revised the Risk Management Guideline by including counterparty risk management to minimize the potential default risk of our counterparty and to ensure that all contractual obligations are fulfilled.

- PTTEP manages risks throughout an organization based on the four risk categories, namely, Strategic Planning and Management, Investment and Divestment Decision Making, Operations and Business Process Management, and Capital Project Management. In addition, the Company develops the Risk Profile to identify and assess risks at all levels, ranging from the corporate, function group, division, and department levels down to the asset/project level.

- PTTEP clearly defines business objectives which enable risk assessment for both internal and external risk factors to evaluate the impact and likelihood of those risks. Risk mitigation plans are also developed, executed, and monitored to reduce the level of risk through various measures, including development of the Key Risk Indicator (KRI), which is used to provide an early warning of risks to prevent and develop mitigation plans for risks that can potentially prevent the Company from achieving our business objectives. In 2016, the Company developed and updated the Business Continuity Management System, resulting the PTTEP Headquarters in Bangkok to receive and the PTTEP Petroleum Development Support Base (PSB) in Songkhla to maintain the ISO 22301:2012 certification.

- PTTEP appoints the Operational Risk Committee (ORC) to specifically manage technical and safety risks to ensure efficient management of the Company's assets and projects. In 2016, ORC convened four times. The Company also establishes the Business Continuity Management Committee (BCMC) to provide strategic directions and assist the management to obtain the resources required to support the Business Continuity Management program. In 2016, BCMC convened three times.

- At the corporate level, PTTEP assesses business activities with high exposure to fraud risk which comprises asset misappropriation, corruption, and misstatement of financial reporting. The Company considers historical information, incentives and/or pressure, opportunities, and rationalization of fraud to evaluate of the likelihood to develop a preventive plan to mitigate the fraud risk.

- At the process level, process owners are responsible for managing both fraud and operational risks arising from processes under their responsibilities. In 2016, PTTEP assessed the risk of corruption for four business processes related to government officials.

- (1) Offering of bribes by PTTEP employees or third parties working on behalf of the Company to government officials

- (2) Offering and acceptance of gifts, hospitalities or other benefits to and from government officials

- (3) Payment of travelling and other miscellaneous expenses for government officials

- (4) Donation, sponsorship and offering of social responsible activities to government officials

The Company also continuously updates our internal control measures and developed the Standard of Practices for Anti-Corruption, which is considered as a part of the CG&BE for the management and employees to comply with.

- In 2016, PTTEP revised corporate strategies and business planning to respond to the oil price fluctuation. These are, such as revision of the corporate strategy to be "Reset, Refocus, and Renew", revision of the objective and business process for the oil price hedging process, increase of the frequency for geopolitical report to the Risk Management Committee (RMC) to be on a monthly basis, and addition of the monthly business performance report under adverse oil price market environment to RMC and the Management Committee.

Details of risk management are disclosed in the "Risk Factors" section.

3. Control Activities

PTTEP has adequate and efficient control activities to appropriately manage and mitigate risks to an acceptable level. Our key control activities can be summarized below.

- PTTEP has extensive sets of written regulations and policies with which the management and employees have to strictly comply, whereas the management and supervisors are responsible for governing and monitoring such compliance. In 2016, to ensure higher level of work efficiency within an organization, the Company developed and revised corporate policies, standards and guidelines, such as developments of GFNA Procedures and Grievance Handling Procedure, as well as revisions of Procurement and Contract Management Procedure, Document Management Policy, and Business Continuity Management Policy. Several documents relating to Safety, Security, Health and Environment (SSHE), were also updated.
- PTTEP recognizes significance of control activities at the process level, including segregation of duties and review and authorization of transactions, to ensure that the Company's business operations are efficient and able to prevent fraudulent acts. In 2016, the Company carried out a number of business process improvements to achieve higher level of work efficiency and effectiveness as well as to implement the check and balance system. These were implementations relating to, such as oil price hedging, geosciences review, mergers and acquisitions processes. Several IT systems and processes with a purpose to serve as control activities, such as the Contract Management Intelligence System for the contract management process, were also developed, while the Continuous Control Monitoring System was also implemented for the procure-to-pay process to screen and monitor abnormal transactions.
- PTTEP closely monitors the Key Risk Indicator (KRI) of significant risks and related mitigation plans such as oil price hedging risk on a monthly basis.
- PTTEP develops, configures, and implements the Information Technology (IT) systems and processes, as well as establishes related policies and strategies according to the COBIT 5 which is the business framework for the governance and management of enterprise IT. The Company, as an example, has received the ISO 27001 certification for information security of the exchange server of internal e-mails due to such effort.
- PTTEP places an emphasis on developing IT security policies for general controls activities such as IT governance. The Company also develops controls on right of access to information, such as Segregation of Duties Manual, and controls related to security systems such as firewalls. In 2016, the Company conducted an annual disaster recovery exercise for the critical applications and several workshops, as well as carried out the IT Security Assessment survey to measure employees' understanding of IT security.
- PTTEP governs subsidiaries, associated companies and joint ventures by appointing the Company's management and employees to manage these entities. The Company has developed several standards and procedures, such as International Asset Policy and Procedure and Joint Venture Management Manual, to ensure standardized and efficient business operations throughout the organization. The Internal Audit Division also has the responsibilities to monitor and audit Assets or Projects in which the Company has invested.

4. Information and Communication

PTTEP has effective and efficient information and communication systems for internal and external stakeholders, and they can be summarized below.

- PTTEP determines data and information from internal and external sources, as well as develops the information technology infrastructure to store and manage them to support our business operations. In addition, the Company imposes the use and protection of information and assets as described in the Business Ethics of the PTTEP Group. The Company also establishes the Document Management Policy and PTTEP Rule on Important Document Management to ensure all documents are appropriately managed and categorized. In 2016, PTTEP developed the Corporate Reference Document Center, also known as “FindMe”, to be a centralized data storage system for all of our important documents.

- For internal communication, PTTEP has effective and efficient internal channels to ensure that the management and employees can access to the information essential for their work requirements. The Company has also set up the “Call Tree” network for communication during a crisis. In 2016, the management informed employees of the GRC concept on a quarterly basis to ensure that they can appropriately integrate this concept into their work responsibilities. GRC is an integration of the Company’s assurance processes, which are corporate governance, risk management, compliance and internal control, aiming to improve our business efficiency and effectiveness.

- For external communication, PTTEP establishes business units which are responsible for communicating with each specific group of stakeholders, such as the investor relations, corporate communication, and corporate secretary units. This is to ensure that information disclosed to external stakeholders are accurate, complete, sufficient, and timely. In 2016, the Company provided business-related information, such as the market outlook of the exploration and production (E&P) industry, the exploration theme, and key audit matters to investors. The Company also transmitted E&P facts to shareholders, as well as the Anti-Corruption Policy to suppliers/vendors through various communication channels, such as Contractor Forum, PTT Group CG Day, and Symposium on PTTEP's Vendor Pre-Qualification & Development. Suppliers/vendors are required to sign a form to accept their acknowledgement of the Company's Business Ethics.

- PTTEP establishes whistleblowing channels for employees and external stakeholders to accurately, completely, and timely report wrongdoings committed by our directors, the management, employees, or third parties acting on behalf of the Company. Based on the PTTEP Reporting and Whistleblowing Regulation, complaints can be reported through various channels such as letter, facsimile, email, and the Company's official website.

5. Monitoring Activities

PTTEP has adequate and efficient monitoring systems which can be summarized below.

- PTTEP regularly monitors and assesses internal controls results to ensure that they can appropriately respond to dynamic business environments in terms of corporate, technical, or other business related risks. In 2016, the Company monitored and reported business performance results under the oil price fluctuation to the Risk Management Committee. GRC-related activities were also monitored on a quarterly basis through the annual GRC Plan to effectively implement the GRC concept within the organization.

- PTTEP employs two levels of Control Self-Assessment (CSA), namely, the corporate and process levels. For the corporate level, the CSA is performed based on the Internal Control Self-Assessment Form provided by the Office of the Securities and Exchange Commission of Thailand (SEC) and the internal control questionnaires. For the process level, process owners of business processes with significant impact on the Company are required to assess risks and controls of such processes. Findings from the two levels of CSA are subsequently used to develop improvement plan and follow-ups.
- The Compliance Department (CCC) is responsible for monitoring, reviewing, and reporting two types of non-compliance within an organization, namely, (1) non-compliance with external laws and regulations to be reported to the President and Chief Executive Officer and the Audit Committee on a monthly and semi-annually basis, respectively, and (2) non-compliance with internal regulations and policies to be reported to the Management Committee on a quarterly basis. For any non-compliances with a significant impact on the PTTEP Group, CCC shall immediately report them to responsible parties.
- The Internal Audit Division (CIA) is responsible for auditing and providing recommendations for improvements to ensure adequacy and effectiveness of the internal control system. CIA is also responsible for developing improvement plans to resolve the issues identified and subsequently communicate with responsible parties, while regularly report the findings and improvement progress to the Audit Committee.

11.2 Head of the Internal Audit Division and Head of the Compliance Department

11.2.1 Roles and Responsibilities of Head of the Internal Audit Division

PTTEP has established the Internal Audit Division which has the functional and direct reporting line to the Audit Committee and administratively (dotted line reporting) reports to the President and Chief Executive Officer. Key roles, responsibilities and scopes of work of the Internal Audit Division include the followings:

(1) In-house and Subsidiary Audits

The purpose is to assure that the operations achieve the Company's target. The auditors evaluate and improve the effectiveness of risk management, internal control and corporate governance process.

(2) Joint Venture Audits

The auditors conduct audits on the operators for projects that PTTEP has invested in to ensure that the operators comply with the Joint Venture Agreements and other related contractual arrangements, that they possess appropriate internal control, and that the expenditures charged are fair, equitable and reasonably incurred for the benefit of all involved.

(3) Consulting Services

The auditors pre-determine all scopes of their services with requestors before starting the engagement. Consulting engagements are designed to improve the efficiency and effectiveness of existing processes and to propose additional recommendations on risk management, internal control, and corporate governance. Such recommendations may also include sets of advices on design, aiming at improving control processes.

(4) Fraud Investigation

The Head of the Internal Audit Division is responsible for undertaking the investigation of any reported or suspected fraud, following the Reporting and Whistleblowing Regulation B.E. 2556. The auditors should be alert to deceptive schemes with potential for frauds, or schemes which are likely to lead to other illegal actions. It is also important that the auditor identifies control weaknesses which could potentially create opportunities for frauds as well as provides recommendations for enhancement of the internal control. The actions regarding the prevention, detection, further investigation and prosecution of fraud offenders are however under responsibility of the management.

(5) Special Audit Requests

Special audit requests are not included in the annual audit plan. The Internal Audit Division performs special audits as requested by the Company's management and/or Audit Committee to prevent and mitigate risks which may arise.

Referring to the Audit Committee Charter, the Audit Committee has a duty to determine an internal audit unit's independence as well as to endorse the appointments, transfers, performance appraisal or punishments of the Head of the Internal Audit Division.

Ms. Chaveeporn Chamsang has been appointed as the Acting Senior Vice President of the Internal Audit Division, having functioned in this position since January 1, 2017. The Audit Committee deems that the Head of the Internal Audit Division, under the aforementioned title, is qualified to undertake the responsibility based on her educational background, necessary knowledge, skills, and work experience. She has also been up-to-date in terms of professional knowledge and expertise, primarily through extensive training on internal auditing methodologies, management program, and internal auditor competency development. Such stringent attention to the person holding the title and the supports provided to the entire team highlight the importance which the Company has placed on the efficiency and effectiveness of the Internal Audit Division and excellent performance of the Audit Committee.

Details of the Head of the Internal Audit Division are disclosed in Attachment 3: Details of Head of the Internal Audit Division and Head of the Compliance Department.

11.2.2 Roles and Responsibilities of Head of the Compliance Department

PTTEP has established the Compliance Department which has a direct reporting line to the Senior Vice President of the Legal Division, the Executive Vice President of the Corporate Affairs and Assurance Group, and the President and Chief Executive Officer, respectively. The key responsibilities are to encourage the PTTEP Group to fully comply with applicable laws and to support management in managing compliance risk efficiently through various compliance programs, including providing of communication and training programs, developing and maintaining of the Legislation Database and Compliance Monitoring System, identifying and conducting compliance risk assessment, providing advice upon the new issuance or amendment of the PTTEP Group's internal regulations, coordinating with regulators, and reporting the performance of the compliance programs to the Audit Committee and the management.

Mr. Verasak Manchuwong has been appointed as the Vice President of the Compliance Department, having already functioned in this position since October 1, 2013. More details of the Head of the Compliance Department are disclosed in Attachment 3: Details of Head of the Internal Audit Division and Head of the Compliance Department.

12.1 Connected Transactions between Related Companies

Connected transactions of PTTEP and/or our subsidiaries with other entities that may result in conflicts of interest in the fiscal year ending December 31, 2016 are as follows:

Connected Company	Relationship	Transaction	Value (Unit: Million USD)	Pricing Policy and/or Reason
PTT Public Company Limited (PTT)	- PTT, the Company's major shareholder, holds 65.29% of the Company's registered and paid-up capital. - PTT's executives who serve as PTTEP's directors are: - Mr. Tevin Vongvanich - Mr. Wirat Uanarumit - Mr. Somporn Vongvuthipornchai	Petroleum product sales: crude oil; natural gas; liquefied petroleum gas; and condensate - Total income 3,659.22 - Accounts receivable 355.07		Condition and price setting follows normal business operations at the arm's length basis conditions for non-related persons or operations.
		Other income includes: - Income from design, equipment procurement, construction, and natural gas pipeline testing from South Bongkot's central processing platform to PTT's third gas transmission pipeline - Income from infrastructure services to support the petroleum development such as warehouse, helicopter, and accommodation for PTT personnel at Arthit and Bongkot projects - Income from the jetty and warehouse rental at Songkhla base - Income from maintenance of natural gas meters - Income from charge to PTT for working area at Arthit Project's production platform according to the Gas Sales Agreement - Income from service charges for management's driver according to the agreement between PTT and PTTEP Services (the subsidiary of PTTEP)		The condition and price setting follows normal business operations at the arm's length basis conditions for non-related persons or operations.

Connected Company	Relationship	Transaction	Value (Unit: Million USD)	Pricing Policy and/or Reason
		- Income from meeting room rental at EnCo B building, 16th-18th Floor - Income from working area and living area provided on production platform of South Bongkot Field according to Gas Sale Agreement - Sharing cost for IPA Exhibition in Indonesia - Total income 7.74 - Accounts receivable 4.47		
		Gas transmission pipelines construction Accounts receivable 27.70		Such amount arises mostly from additional scope of work on gas-pipeline construction. The actual cost of the additional work is under negotiation with PTT. The condition and price setting for construction of gas transmission pipelines follows normal business operations at the arm's length basis conditions for non-related persons or operations.
		Purchase of petroleum product, manpower charge for PTT personnel seconded to PTTEP and other expenses - Purchasing petroleum products, equipment and services 28.65 - Personnel expense 0.96 - Other expense; OSRL membership for the year 2016, coffee bean, laboratory rental and donation for Kathin ceremony 0.49 - Accounts payables 2.44		- The condition and price setting for the purchase of petroleum product, related equipment, related services, and other expenses follows normal business operations at the arm's length basis conditions for non-related persons or operations. - Manpower rates based on the actual rates PTT pays to employees seconded to PTTEP.
		The deferred compensation which is the Company's obligation according to Arthit Project's Gas Sale Agreement	1.76	Condition and price setting follows normal business operations at the arm's length basis conditions for non-related persons or operations.

Connected Company	Relationship	Transaction	Value (Unit: Million USD)	Pricing Policy and/or Reason
Energy Complex Co., Ltd. (Energy Complex)	- PTT, the Company's major shareholder, holds 50% of Energy Complex's registered and paid-up capital. - PTTEP, Energy Complex's major shareholder, holds 50% of Energy Complex's registered and paid-up capital. - The Company's executives who serve as Energy Complex's directors are: - Mr. Thiti Mekavichai - Ms. Pannalin Mahawongtikul - Mrs. Kesara Limmeechokchai - Mr. Anusorn Wuthijaroen	The Company has signed a three-year lease contract with Energy Complex to rent the office building, storage and common areas at the Energy Complex Center (EnCo). The Company is eligible to extend its lease contract for another three years. - Total lease and service expenses 17.47 - Accounts payable 0.06		The leasing rate refers to the rate appraised by independent evaluators, based on the market rate of office building lease.
		The Company signed a loan contract with Energy Complex under the following conditions: - Contract period of 13 years and 6 months - Expiration date is October 2, 2022 - Reference interest rate follows a loan contract between Energy Complex and Krung Thai Bank Plc. dated April 2, 2009 (contract amendment is included). The interest rate as of December 31, 2016 is FDR+2% per year - Loans outstanding 16.19 - Interest receivable 0.55		The mentioned contract follows the conditions of the loan contract signed by Energy Complex and Krung Thai Bank Plc., dated April 2, 2009 (contract amendment is included) with the financial support of all Energy Complex's shareholders proportionately.
		Income from the Company's personnel seconded to Energy Complex - Total income - - Accounts receivable 0.01		Manpower rates based on the actual rates the Company pays to employees seconded to Energy Complex.

Connected Company	Relationship	Transaction	Value (Unit: Million USD)	Pricing Policy and/or Reason
PTT ICT Solutions Co., Ltd. (PTT ICT)	- PTT, the Company's major shareholder, holds 20% of PTT ICT's registered and paid-up capital. - PTTEP, PTT ICT's major shareholder, holds 20% of PTT ICT's registered and paid-up capital. - The Company's executive who serves as PTT ICT's director is Mr. Thiti Mekavichai.	The Company has signed a contract with PTT ICT for IT services and communications. - Total expenses 15.85 - Accounts payable 2.29		Condition and price setting follows normal business operations at the arm's length basis conditions for non-related persons or operations.
		Income from the Company's personnel seconded to PTT ICT - Total income - - Accounts receivable 0.41		Manpower rates based on the actual rates the Company pays to employees seconded to PTT ICT.
PTT Energy Resources Co., Ltd. (PTTER)	- PTT, the Company's major shareholder, holds 100% of PTTER's registered and paid-up capital. - Co-director is Mr. Wirat Uanarumit.	Manpower charge for PTT's personnel seconded to PTTEP - Total expenses - - Accounts payable 0.0002		Manpower rates based on the actual rates PTTER pays to employees seconded to PTTEP.
		Income from meeting room rental at EnCo B building, 16 th -18 th Floor - Total income 0.0003 - Accounts receivable -		Condition and price setting follows normal business operations at the arm's length basis conditions for non-related persons or operations.
PTT Maintenance and Engineering Co., Ltd. (PTTME)	PTT, the Company's major shareholder, holds 40% of PTTME's registered and paid-up capital.	The Company and subsidiaries signed the contracts with PTTME for the following services: - Rail tank wagons maintenance and repair for PTTEP Siam - General maintenance, equipment inspection and other services for PTTEP Siam - Total expenses 1.39 - Accounts payable 0.04		Condition and price setting follows normal business operations at the arm's length basis conditions for non-related persons or operations.

Connected Company	Relationship	Transaction	Value (Unit: Million USD)	Pricing Policy and/or Reason
Dhipaya Insurance Plc. (TIP)	PTT, the Company's major shareholder, holds 13.33% of TIP's registered and paid-up capital.	Expense for the Company's assets insurance, and our employees' health and life insurance - Total expenses 10.33 - Accounts payable 0.01		Condition and price setting follows normal business operations at the arm's length basis conditions for non-related persons or operations.
		Income recognized from the excess of insurance premium paid in 2015. - Total income 0.07 - Accounts receivable -		
PTT International Trading Pte. Ltd. (PTT International Trading)	PTT, the Company's major shareholder, holds 100% of PTT International Trading's registered and paid-up capital.	Income and expense from oil price hedging contracts - Total expenses 13.78 - Total income 13.75 - Accounts payable 0.16		Condition and price setting follows normal business operations at the arm's length basis conditions for non-related persons or operations.
Trans Thai-Malaysia (Thailand) Limited (TTM)	PTT, the Company's major shareholder, holds more than 10% of TTM's registered and paid-up capital.	Income from warehousing rental at Songkhla Province - Total income 0.01 - Accounts receivable -		Condition and price setting follows normal business operations at the arm's length basis conditions for non-related persons or operations.
PTT Global Chemical Public Company Limited (PTTGC)	PTT, the Company's major shareholder, holds 48.89% of PTTGC's registered and paid-up capital.	Fee for mercury analysis at Mercury Removal Unit - Total expenses 0.0021 - Accounts payable 0.0004		Condition and price setting follows normal business operations at the arm's length basis conditions for non-related persons or operations.
Thai Oil Public Company Limited (Thai Oil)	PTT, the Company's major shareholder, holds 49.10% of Thai Oil's registered and paid-up capital.	Income from meeting room rental at EnCo B building, 16 th -18 th Floor - Total income 0.0027 - Accounts receivable 0.0006		Condition and price setting follows normal business operations at the arm's length basis conditions for non-related persons or operations.
PTT Natural Gas Distribution Co., LTD. (PTT NGD)	PTT, the Company's major shareholder, holds more than 10% of PTT NGD's registered and paid-up capital.	Income from service charges for management's driver - Total income 0.02 - Accounts receivable 0.01		Condition and price setting follows normal business operations at the arm's length basis conditions for non-related persons or operations.

12.2 Preconditions and Reasons for Connected Transactions

PTTEP's Audit Committee reviewed the connected transactions which were recorded during the fiscal year ending December 31, 2016 as summarized above and considered them to be indispensable, fair and justifiable in terms of conditions and price, and/or within the arm's length basis. The transactions were also approved by the management or the PTTEP's Board of Directors (Board) prior to execution.

12.3 Measures and Procedure of Connected Transactions

The Board reviews the transactions potentially leading to conflicts of interest, or those which are connected or related, under proper ethical standards, however only after they are initially screened and examined by the Company's Audit Committee. The transactions are particularly of those falling within the criteria as set forth by the Stock Exchange of Thailand, the Capital Market Supervisory Board, and the Securities and Exchange Commission. The Board's responsibility also includes, when deemed appropriate, public disclosure of accurate and correct information of the transactions which might be questionable. The Company meanwhile has conducted a clear set of policies regarding conflict of interest for our directors and employees to follow and act accordingly, as well as a reporting procedure in presence of the conflict.

Shall any of the directors, employees, or related persons have a vested interest in a transaction that the Company is involved in, he or she will not be allowed to take part in making of any of the decisions or approvals related to the transaction. The transaction, in this case, also remains to be treated under an arm's length basis, fair and justifiable in terms of both price and conditions.

12.4 Policy for and Future Possibility of Connected Transactions

12.4.1 Policy for Connected Transactions

PTTEP treats connected transactions as normal business transactions without any intentions to transfer of benefits between or among the Company and related companies, or persons. The Company strictly adheres to securities and exchange laws and regulations, including those imposed by the Capital Market Supervisory Board, the Stock Exchange of Thailand, or other related supervisory agencies, regarding connected transactions to ensure that, with reasonable business terms and conditions, and use of the market reference prices for instance, the Company's shareholders and stakeholders will be treated equally and in their interests, according to the Company's good corporate governance policy.

12.4.2 Future Possibility of Connected Transactions Potentially Leading to Conflicts of Interest

PTTEP will continue to have connected transactions with related entities in the future. Most of the transactions include normal business, office building-leasing, and supporting business transactions, which can be summarized as follows:

(1) Sales of petroleum products and purchase of fuel: Since the transactions are a normal part of the Company's business and are executed under conditions and requirements as stated in the contracts, they will continue due to their necessity to the operations.

(2) Lease of office buildings: Since leasing of office buildings is reasonable and necessary for the Company's business operations, the transactions will be continued.

(3) Hiring of information and technology services: Since it remains reasonable and necessary for the Company to be supported with information and technology services to operate our business, the transactions will continue.

Section 3

Financial Position and Performance



Significant Financial Information

PTT EXPLORATION AND PRODUCTION PUBLIC COMPANY LIMITED AND SUBSIDIARIES STATEMENTS OF FINANCIAL POSITION

	As at December 31, 2014 (Restated)		As at December 31, 2015		As at December 31, 2016	
	Thousand (USD)	%	Thousand (USD)	%	Thousand (USD)	%
Assets						
Current Assets						
Cash and cash equivalents	3,930,360	16.9	2,995,403	15.2	2,039,500	10.8
Short-term investments	-	-	264,160	1.3	1,982,077	10.5
Investments in trading securities	176	0.0	118	0.0	169	0.0
Account receivable - parent company	630,911	2.7	475,827	2.4	382,762	2.0
Trade accounts receivable	151,231	0.6	84,251	0.4	75,994	0.4
Other accounts receivable	116,510	0.5	101,057	0.5	62,305	0.3
Inventories, net	31,114	0.1	47,214	0.2	37,548	0.2
Materials and supplies, net	365,073	1.6	404,269	2.1	345,871	1.8
Other current assets	338,730	1.5	328,407	1.7	264,108	1.4
Total Current Assets	5,564,105	23.9	4,700,706	23.9	5,190,334	27.5
Non-current Assets						
Investments in available-for-sales securities	900	0.0	875	0.0	685	0.0
Investments in associates	39,097	0.2	42,861	0.2	46,724	0.2
Investments in joint ventures	23,547	0.1	21,297	0.1	20,021	0.1
Long-term loans to related parties	17,595	0.1	16,072	0.1	16,187	0.1
Property, plant and equipment, net	11,485,943	49.4	9,652,406	49.1	8,534,100	45.2
Goodwill, net	1,126,774	4.8	1,014,382	5.2	1,014,382	5.4
Intangible assets, net	4,525,096	19.4	3,691,165	18.8	3,643,073	19.3
Deferred tax assets	280,581	1.2	180,092	0.9	197,011	1.0
Other non-current assets	207,049	0.9	322,470	1.6	228,860	1.2
Total Non-current Assets	17,706,582	76.1	14,941,620	76.1	13,701,043	72.5
Total Assets	23,270,687	100.0	19,642,326	100.0	18,891,377	100.0

PTT EXPLORATION AND PRODUCTION PUBLIC COMPANY LIMITED AND SUBSIDIARIES
STATEMENTS OF FINANCIAL POSITION (cont'd)

	As at December 31, 2014 (Restated)		As at December 31, 2015		As at December 31, 2016	
	Thousand (USD)	%	Thousand (USD)	%	Thousand (USD)	%
Liabilities and Shareholders' Equity						
Current Liabilities						
Trade accounts payable	129,864	0.6	118,302	0.6	83,887	0.4
Current portion of long-term debts	749,216	3.2	-	-	-	-
Working capital to co-venturers	10,621	0.0	16,889	0.1	15,333	0.1
Accrued expenses	911,084	3.9	614,915	3.1	490,788	2.6
Accrued interests payable	57,676	0.2	32,813	0.2	23,283	0.1
Income tax payable	865,714	3.7	501,511	2.6	341,121	1.8
Financial derivative liabilities	213	0.0	6,770	0.0	35,155	0.2
Short-term provision	54,914	0.2	53,196	0.3	54,842	0.3
Other current liabilities	81,220	0.3	63,374	0.3	56,408	0.3
Total Current Liabilities	2,860,522	12.3	1,407,770	7.2	1,100,817	5.8
Non-current Liabilities						
Debentures	2,504,875	10.8	2,434,698	12.4	2,264,810	12.0
Long-term loans from financial institution	974,625	4.2	570,543	2.9	566,813	3.0
Deferred tax liabilities	1,499,847	6.4	1,269,541	6.5	1,078,607	5.7
Share of loss of joint ventures	2,558	0.0	-	-	-	-
Employee benefit obligations	110,896	0.5	99,189	0.5	104,528	0.6
Provision for decommissioning costs	2,163,120	9.3	2,085,820	10.6	2,015,978	10.7
Provision for remuneration for the renewal of petroleum production	492,511	2.1	295,487	1.5	253,954	1.3
Other non-current liabilities	113,750	0.5	151,287	0.8	119,406	0.6
Total Non-current Liabilities	7,862,182	33.8	6,906,565	35.2	6,404,096	33.9
Total Liabilities	10,722,704	46.1	8,314,335	42.3	7,504,913	39.7
Shareholders' Equity						
Share capital						
Issued and paid-up share capital	150,684	0.6	150,684	0.8	150,684	0.8
Share premium	3,439,037	14.8	3,439,037	17.5	3,439,037	18.2
Subordinated capital debentures	1,152,103	5.0	1,152,103	5.9	1,152,103	6.1
Retained earnings						
Appropriated						
Legal reserve	15,048	0.1	15,048	0.1	15,048	0.1
Reserve for expansion	431,231	1.9	431,231	2.2	431,231	2.3
Unappropriated	7,462,227	32.1	6,288,214	32.0	6,295,794	33.3
Other components of Shareholders' Equity	(102,347)	(0.4)	(148,326)	(0.8)	(97,433)	(0.5)
Total Shareholders' Equity	12,547,983	53.9	11,327,991	57.7	11,386,464	60.3
Total Liabilities and Shareholders' Equity	23,270,687	100.0	19,642,326	100.0	18,891,377	100.0
Book value per share (USD)	3.16		2.85		2.87	
Issued and fully paid-up capital at the end of year (Thousand share)	3,969,985		3,969,985		3,969,985	

PTT EXPLORATION AND PRODUCTION PUBLIC COMPANY LIMITED AND SUBSIDIARIES

STATEMENTS OF INCOME

FOR THE YEARS ENDED DECEMBER 31,

	2014 (Restated)		2015		2016	
	Thousand (USD)	%	Thousand (USD)	%	Thousand (USD)	%
Revenues						
Sales	7,319,189	93.4	5,286,672	94.2	4,189,564	96.6
Revenue from pipeline transportation	137,925	1.8	118,488	2.1	66,487	1.5
Gain On Foreign Exchange	-	-	-	-	11,587	0.3
Interest income	22,932	0.3	31,916	0.6	30,065	0.7
Gain on financial derivatives	197,018	2.5	132,161	2.4	-	-
Other income	156,639	2.0	45,200	0.8	41,482	1.0
Total Revenues	7,833,703	100.0	5,614,437	100.0	4,339,185	100.0
Expenses						
	-	-	-	-	-	-
Operating expenses	856,507	10.9	685,106	12.2	582,131	13.4
Exploration expenses	332,917	4.2	182,615	3.3	73,352	1.7
Administrative expenses	370,562	4.7	274,601	4.9	218,943	5.0
Petroleum royalties and remuneration	608,803	7.8	426,045	7.6	353,108	8.1
Depreciation, depletion and amortization	2,562,087	32.7	2,707,533	48.2	2,079,382	47.9
Loss on foreign exchange	49,456	0.6	69,405	1.2	-	-
Loss on financial derivative	-	-	-	-	118,189	2.7
Management's remuneration	6,059	0.1	3,778	0.1	3,984	0.1
Impairment loss on assets	996,790	12.7	1,349,618	24.0	47,151	1.1
Other expenses	41,125	0.5	-	-	-	-
Finance costs	259,337	3.3	251,697	4.5	234,466	5.4
Total Expenses	6,083,643	77.7	5,950,398	106.0	3,710,706	85.5
Share of gain from associates and joint ventures	21,942	0.3	9,028	0.2	8,547	0.2
Profit (loss) before income taxes	1,772,002	22.6	(326,933)	(5.8)	637,027	14.7
Income tax expenses	(1,094,543)	(14.0)	(495,518)	(8.8)	(285,307)	(6.6)
Profit (loss) for the period from continuing operations	677,459	8.6	(822,451)	(14.6)	351,720	8.1
Profit (loss) for the period from discontinued operations - net of tax	-	-	(31,139)	(0.6)	20,334	0.5
Profit (loss) for the year	677,459	8.6	(853,590)	(15.2)	372,054	8.6
Basic earnings (loss) per share (USD)	0.16		(0.22)		0.08	
Continuing operations	-		(0.21)		0.07	
Discontinued operations	-		(0.01)		0.01	

PTT EXPLORATION AND PRODUCTION PUBLIC COMPANY LIMITED AND SUBSIDIARIES

STATEMENTS OF CASH FLOWS
FOR THE YEARS ENDED DECEMBER 31,

	2014 (Restated)	2015	2016
	Thousand (USD)	Thousand (USD)	Thousand (USD)
Cash flows from operating activities			
Continuing operations			
Profit (loss) before income taxes	1,772,002	(326,933)	637,027
Adjustment to reconcile profit (loss) before income taxes to net cash provided by (used in) operating activities			
Share of gain from associates and joint ventures	(21,942)	(9,028)	(8,547)
Depreciation, depletion and amortization	2,562,087	2,707,533	2,079,382
Impairment loss on assets	996,790	1,349,619	47,151
Amortization of exploration expenses	266,423	31,227	29,013
Other amortization of expenses	7,940	147,964	(19,029)
(Gain) Loss on disposal of assets	(1,724)	9,888	13,290
Income recognized from deferred income	(1,037)	(13,828)	(6,389)
(Gain) Loss on financial derivatives	(24,267)	(21,550)	82,965
(Gain) from restructuring of the ownership interest in KKD Project	(32,136)	-	-
Premium from repurchase of debentures	-	-	7,327
Employee benefit obligations	11,893	17,896	11,346
Other income	(11,384)	-	-
Loss from debt forgiveness for loan to related parties	15,301	-	-
(Gain) Loss on foreign exchange	28,903	(649)	(16,088)
Interest income less than interest expenses	229,224	211,301	199,625
	5,798,074	4,103,440	3,057,073
Change in operating assets and liabilities	(1,481,985)	(1,208,129)	(769,584)
Discontinued operations	-	(6,659)	826
Net cash provided by operating activities	4,316,089	2,888,652	2,288,315
Cash flows from investing activities			
Continuing operations			
Cash payment for short-term investments	-	(264,160)	(1,992,078)
Cash received from investing in short-term investments	-	-	274,160
Cash payment for investments in joint ventures	-	(2,650)	-
Cash received from investments in joint ventures	1,311	2,161	1,311
Cash received from restructuring of the ownership interests in KKD project	388,488	-	-
Net cash received from divestment of business	-	-	8,704
Cash payment from purchase of business	(812,832)	-	-
Dividends received from related parties	3,835	4,403	5,212
Interest received from short-term investments	-	9,293	4,671
Interest received from loans	659	581	552
Increase in property, plant and equipment	(2,051,479)	(1,733,586)	(998,015)
Increase in intangible assets	(532,003)	(142,135)	(24,757)
Discontinued operations	-	(9,941)	(6)
Net cash used in investing activities	(3,002,021)	(2,136,034)	(2,720,246)

PTT EXPLORATION AND PRODUCTION PUBLIC COMPANY LIMITED AND SUBSIDIARIES

STATEMENTS OF CASH FLOWS (cont'd)

FOR THE YEARS ENDED DECEMBER 31,

	2014 (Restated)	2015	2016
	Thousand (USD)	Thousand (USD)	Thousand (USD)
Cash flows from financing activities			
Continuing operations			
Proceeds from issuance of debentures	601,456	-	-
Payment of debentures	(360,086)	(700,000)	(183,877)
Payment of long-term loans	-	(411,469)	-
Interest paid for loans	(182,548)	(186,915)	(134,242)
Net cash payment for financial derivative contract	(29,414)	-	-
Cash payments for financial costs	(735)	-	(5,750)
Net cash received for financial derivative contract	-	-	155,597
Proceeds from issuance of subordinated capital debentures	1,000,000	-	-
Interest paid for subordinated capital debentures	(33,399)	(65,893)	(65,670)
Cash payments for financial costs from issuance of subordinated capital debentures	(4,467)	-	-
Dividends paid	(735,573)	(297,702)	(310,427)
Discontinued operations	-	-	-
Net cash provided by (used in) financing activities	255,234	(1,661,979)	(544,369)
Net increase (decrease) in cash and cash equivalents	1,569,302	(909,361)	(976,300)
Cash and cash equivalents at the beginning of the year	2,350,960	3,930,360	2,995,403
	3,920,262	3,020,999	2,019,103
Adjustment for the effect of exchange rate changes	10,098	(25,596)	20,397
Cash and cash equivalents at the end of the year	3,930,360	2,995,403	2,039,500

Summary significant financial ratio table

			2014 (Restated)	2015	2016
Liquidity ratio					
Current Ratio	Times		1.95	3.34	4.72
Quick Ratio	Times		1.65	2.71	4.07
Cash Flow from Operations to Current Liabilities Ratio	Times		1.58	1.35	1.82
Account Receivable Turnover	Times		8.23	8.05	8.35
Collection Period	Days		44	45	44
Profitability Ratio					
Net Profit Margin	%		8.65	(15.20)	8.57
Return on Equity	%		5.58	(7.15)	3.28
Efficiency Ratio					
Return on Assets	%		3.02	(3.98)	1.93
Return on Fixed Assets	%		20.28	12.63	19.21
Assets Turnover	Times		0.35	0.26	0.23
Financial Policy Ratio					
Debt to Equity Ratio	Times		0.34	0.27	0.25
Times Interest Earned	Times		20.37	15.23	12.90
Dividend Ratio	%		82	N/A	98
Data per Share					
Book Value per Share	USD		3.16	2.85	2.87
Net Profit per Share	USD		0.16	(0.22)	0.08
Dividend per Share	THB		4.50	3.00	3.25
Growth Rate					
Total Asset	%		7.93	(15.59)	(3.82)
Total Liabilities	%		8.94	(22.46)	(9.74)
Sales	%		N/A	(27.52)	(21.26)
Net Profit	%		(63.31)	(226.00)	143.59

Management Discussion and Analysis of Operating Results

14.1 Executive Summary

PTTEP's financial performance in 2016 was still largely affected by the decline in global crude oil prices which began in mid-2014. Despite signs of an oil price recovery towards the end of the year, PTTEP's average product price was relatively low. However, efforts to maintain planned production levels as well as cost optimization which exceeded the target, has resulted in the Company successfully maintaining our strong financial position, with a positive operating cash flow of 2,308 MMUSD, and earnings before interest, tax, depreciation and amortization (EBITDA) margin of 71% in this year, reflecting the Company's ability to manage financial liquidity amid the oil price crisis.

In 2016, the Company reported sales revenue of 4,190 MMUSD, a 21% decrease from 2015 mainly due to lower average selling prices which fell from 45.29 USD/BOE in 2015 to 35.91 USD/BOE in 2016. Sales volume for the year stood at 319,521 barrels of oil equivalent per day (BOED), a similar level to that of 2015. From an expenditure point of view, the Company continued to carry out cost reduction and efficiency improvement activities under the SAVE to be SAFE program since late 2014, and more recently also introduced the "SPEND SMART to Business Sustainability" campaign to strengthen our efforts on further cost optimization initiatives to support long-term competitive advantage and sustainable growth. As a result, total expenses, excluding impairment, was reduced from 4,601 MMUSD in 2015 to 3,664 MMUSD in 2016, which consequently brought down the overall unit costs from 38.88 USD/BOE in 2015 to 30.46 USD/BOE in 2016, representing a 22% reduction.

The Company reported a recurring net profit for 2016 of 466 MMUSD, and recorded a non-recurring loss of 94 MMUSD. The non-recurring loss is mainly attributed to losses on oil price hedging, which partly is the mark-to-market valuation of outstanding oil price hedging positions that were booked in accordance with internationally accepted accounting standards but have no impact to the Company's cash flow. The Company also recognized asset impairment losses of 47 MMUSD as a result of adjustments to the production profiles of the Yetagun and Natuna Sea A projects. These non-recurring losses, however, were partially offset by 71 MMUSD of non-recurring gains and tax savings arising from the appreciation of the Thai Baht relative to the US Dollar. As a result, PTTEP reported an improved net profit of 372 MMUSD for 2016, compared to the net loss of 854 MMUSD in 2015 which was driven by oil-price-slump-related asset impairment charges of 1,385 MMUSD.

PTTEP's financial position for the year ended 2016 remained strong, with total assets amounting to 18,891 MMUSD, of which 4,022 MMUSD was cash and short-term investments; total liabilities was 7,505 MMUSD while interest-bearing debt amounted to 2,832 MMUSD and total equity ended at 11,386 MMUSD.

Summary of Key Financial Results

(Unit : MMUSD)	2016	2015	% Inc. (Dec.) YTD
Total Revenue *	4,339	5,614	(23)
Sales Revenue *	4,190	5,287	(21)
EBITDA	3,027	3,844	(21)
Profit (loss) for the period	372	(854)	>100
Basic earnings per share from continuing operations (USD)	0.07	(0.21)	>100
Profit (loss) from normal operation	466	718	(35)
Profit (loss) from non-recurring items	(94)	(1,572)	94

* Revenues from continuing operations

14.2 Economic Outlook in 2016

(1) Crude Oil Prices

Crude oil prices were a key driver of PTTEP's financial performance in 2016. The year saw large volatility in the oil markets, with the Dubai crude price bottoming out at approximately 23 USD/BBL during the first quarter following the lifting of sanctions on Iran, and the easing of concerns over oversupply conditions as reports during the second quarter indicated lower oil production from the United States of America (the US). Further reduction in the supply of crude oil, due to unrests in Nigeria and Libya, as well as a wildfire in Canada, were bullish for oil prices, providing a price support in the range of 40-50 USD/BBL throughout the third quarter of the year. Following an agreement between both OPEC and non-OPEC members for a production cut, oil prices peaked at a record year-high of 54 USD/BBL. As a result, Dubai crude prices for the fourth quarter of 2016 averaged 48.32 USD/BBL, increasing from the previous quarter average of 43.17 USD/BBL; while the 2016 annual average stood at 41.27 USD/BBL, lower than the previous year average of 50.91 USD/BBL.

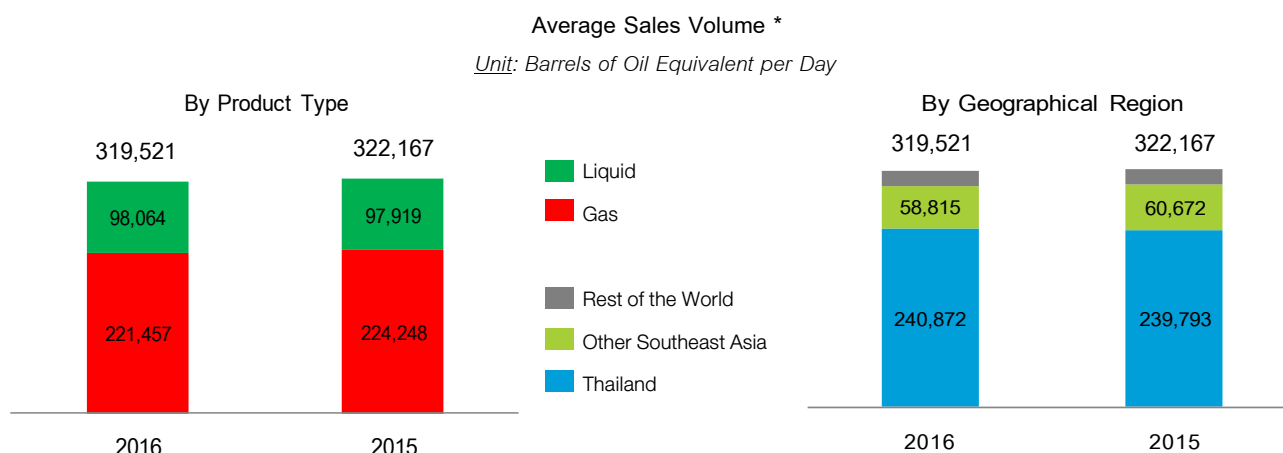
(2) Thailand's Energy Demand

Thailand's energy demand, from January to November of 2016 continued to grow at 1.3% per annum relative to the same period of the previous year, reaching to 2.1 million BOED (Source: EPPO, The Ministry of Energy). The increase in energy consumption is a reflection of lower crude oil prices as well as the country's economic growth of 3.2% in 2016 (Source: Bank of Thailand), driven by strong public sector investments, higher private domestic consumption as a result of economic stimulus, and growing tourism and exports. The growth in energy demand empowers the Company to maintain our planned sales volumes.

(3) Exchange Rates (Thai Baht against US Dollar)

The Thai Baht to US Dollar exchange rate is another factor affecting the Company's financial performance given that PTTEP's functional currency is the US Dollar, while our tax filing currency is the Thai Baht. The Thai Baht appreciated from the year ended 2015, where it stood at 36.09 THB/USD, to close at 35.83 THB/USD for the year ended 2016, resulting in gains from tax savings for PTTEP. However, the US Federal Open Market Committee (FOMC)'s interest rate hike from 0.50% to 0.75% during December, and expected rate hikes in the year ahead, may offset the gains in the Thai Baht over the US Dollar as capital flows out of emerging market economies including Thailand.

14.3 Financial Performance



Average selling price and Dubai crude oil price (Unit : USD)	2016	2015	% Inc. (Dec.) YTD
Average selling price (/BOE)	35.91	45.29	(21)
Average Dubai crude (/BBL)	41.27	50.91	(19)

For the year ended 2016 compared with the year ended 2015

In 2016, average sales volume of PTTEP and our subsidiaries (PTTEP Group) decreased to 319,521 BOED (In 2015: 322,167 BOED). This decrease was due primarily to the Oman 44 Project. However, the average selling price in 2016 decreased to 35.91 USD/BOE (In 2015: 45.29 USD/BOE) due primarily to an overall decrease in the global market of the crude oil price.

Fourth quarter of 2016 compared with Third quarter of 2016

In Q4/2016, PTTEP Group had an average sales volume of 316,307 BOED, an increase from Q3/2016 of 311,386 BOED, primarily from the Zawtika Project. The average selling price in Q4/2016 also decreased to 35.65 USD/BOE. (Q3/2016: 36.32 USD/BOE)

Fourth quarter of 2016 compared with Fourth quarter of 2015

The average sales volume in Q4/2016 decreased when compare to the same period in 2015 of 336,363 BOED, primarily from the PTTEP Australasia and Oman 44 projects. The average selling price also decreased to 35.65 USD/BOE. (Q4/2015: 39.18 USD/BOE) due primarily to an overall decrease in the global market of the crude oil price.

14.3.1 Overall Operating Results

For the year ended 2016 compared with the year ended 2015

For 2016, PTTEP Group had a net profit of 372 MMUSD, an increase in operating results of 1,226 MMUSD or more than 100% from a net loss of 2015 in the amount of 854 MMUSD. The increase in profit was primarily due to the recognition of impairment loss on assets of 1,385 MMUSD in 2015, while in 2016, PTTEP Group recognized impairment loss on assets of only 47 MMUSD.

For 2016, PTTEP Group reported a loss from non-recurring items in the amount of 94 MMUSD, which is an improvement of 1,478 MMUSD from a loss from non-recurring items in 2015 of 1,572 MMUSD. The primary reason came from the recognition of impairment loss on assets of 1,385 MMUSD in 2015, while in 2016, PTTEP Group recognized impairment loss on assets of only 47 MMUSD.

Fourth quarter of 2016 compare to Third quarter of 2016

In Q4/2016, PTTEP Group had a net loss of 16 MMUSD, a decrease of 172 MMUSD or more than 100% from a net profit in Q3/2016 of 156 MMUSD. The decrease was primarily due to an impact of changes in foreign exchange rate which resulted in an increase in income tax expenses of 143 MMUSD. In Q3/2016, PTTEP Group recognized a tax benefit from changes in foreign exchange rate because Thai Baht is appreciated against US Dollar, while in Q4/2016, PTTEP Group recognized an income tax expenses related to changes in foreign exchange rate because Thai Baht is depreciated against US Dollar. In addition, PTTEP Group recognized an impairment loss on assets of 47 MMUSD in Q4/2016, while it did not recognize any impairment loss on assets in Q3/2016.

In Q4/2016, PTTEP Group reported loss from non-recurring items of 139 MMUSD. The decrease in operating results of 220 MMUSD when compare to gain from non-recurring items in Q3/2016 of 81 MMUSD was primarily due to an impact of changes in foreign exchange rate which resulted in an increase in income tax expenses of 143 MMUSD. In Q3/2016, PTTEP Group recognized a tax benefit from changes in foreign exchange rate because Thai Baht is appreciated against US Dollar, while in Q4/2016, PTTEP Group recognized an income tax expenses related to changes in foreign exchange rate because Thai Baht is depreciated against US Dollar. In addition, PTTEP Group recognized an impairment loss on assets of 47 MMUSD in Q4/2016, while it did not recognize any impairment loss on assets in Q3/2016.

Fourth quarter of 2016 compare to Fourth quarter of 2015

When compare a net profit for Q4/2016 to the same period last year of 132 MMUSD, the Group's operating results decreased of 148 MMUSD or more than 100%, primarily due to a decrease in revenue from sales of 165 MMUSD as a result of a decrease in average selling price as well as the average sales volume. The decrease is also resulted from an impact of changes in foreign exchange rate which resulted in an increase in income tax expenses of 127 MMUSD. In Q4/2015, PTTEP Group recognized a tax benefit from changes in foreign exchange rate because Thai Baht is appreciated against US Dollar, while in Q4/2016, PTTEP Group recognized an income tax expenses related to changes in foreign exchange rate because Thai Baht is depreciated against US Dollar. In addition, PTTEP Group recognized an impairment loss on assets of 47 MMUSD in Q4/2016, while it did not recognize any impairment loss on assets in same period of last year. However, depreciation, depletion and amortization expenses decreased of 104 MMUSD due to an increase in the petroleum reserves as well as a decrease in exploration expenses of 41 MMUSD from the well write-off expenses recognized in Q4/2015, while PTTEP Group did not recognize any well write-off in Q4/2016.

In Q4/2016, PTTEP Group reported loss from non-recurring items of 139 MMUSD. The decrease in operating results of 258 MMUSD when compare to Q4/2015 which reported net gain from non-recurring items of 119 MMUSD was primarily due to an impact of changes in foreign exchange rate which resulted in an increase in income tax expenses of 127 MMUSD. In Q4/2015, PTTEP Group recognized a tax benefit from changes in foreign exchange rate because Thai Baht is appreciated against US Dollar, while in Q4/2016, PTTEP Group recognized an income tax expenses related to changes in foreign exchange rate because Thai Baht is depreciated against US Dollar. In addition, PTTEP Group recognized an impairment loss on assets of 47 MMUSD in Q4/2016, while it did not recognize any impairment loss on assets in same period of last year.

14.3.2 Operating Results by Segments

Net income (loss) (Unit : MMUSD)	2016	2015	% Inc. (Dec.) YTD
Exploration and Production	438	(1,041)	>100
Thailand	610	373	64
Overseas	(172)	(1,414)	88
- Other Southeast Asia	(11)	(102)	89
- Australia	(108)	(630)	83
- America	(10)	(654)	98
- Africa	(43)	(28)	(54)
Pipeline Transportation	203	356	(43)
Head Office and Others	(289)	(138)	>(100)
Discontinued Operations	20	(31)	>100
Total	372	(854)	>100

(1) Exploration and Production Segment

(1.1) Thailand

For 2016, the Thailand reported a net profit of 610 MMUSD, an increase of 237 MMUSD or 64% from a net profit for 2015 of 373 MMUSD. The increase was primarily due to a decrease in depreciation, depletion and amortization expenses mainly from the Contract 4 Project which had made an increase in the petroleum reserve during the year. In addition, the Thailand recognized an impairment loss on assets in 2015, while it did not recognize any impairment loss on assets in 2016. The operating expenses also decreased as a result of cost management and increase efficiency under the SPEND SMART program. However, the revenue from sales decreased even though the average sales volume increased primarily due to a decrease in average selling price effected from the decline in the global market of the crude oil price.

For Q4/2016, the Thailand reported a net profit of 105 MMUSD, a decrease in a net profit of 47 MMUSD or 31% from a net profit in Q3/2016 of 152 MMUSD. The decrease was primarily due a decrease in a recognition of tax benefit from an impact of changes in foreign exchange rate especially from the depreciation of Thai Baht against US Dollar in Q4/2016. In addition, the revenue from sales decreased from decreases in average sales volume and average selling price. However, the depreciation, depletion and amortization decreased mainly from the reduction in production volume of the MTJDA Project as the demand decreased.

When compare a net profit for Q4/2016 to the same period last year of 67 MMUSD, the Thailand reported an increase in net profit of 38 MMUSD or 57%, primarily from a decrease in depreciation, depletion and amortization expenses mainly from an increase in the petroleum reserve of the Arthit Project.

(1.2) Overseas

For 2016, the Overseas reported a net loss of 172 MMUSD, a decrease in a net loss of 1,242 MMUSD or 88% from a net loss in 2015 of 1,414 MMUSD. The decrease was primarily due to an increase in operating results of the America, Australia, and Other Southeast Asia.

- The America reported a net loss of 10 MMUSD, a decrease in net loss of 644 MMUSD or 98% from a net loss for 2015 of 654 MMUSD. The decrease in a net loss was primarily due to a recognition of impairment loss on assets from the Mariana Oil Sands Project in 2015, while there was no impairment loss on assets recognized for this Project in 2016.

- The Australia reported a net loss of 108 MMUSD, a decrease in net loss of 522 MMUSD or 83% from a net loss for 2015 of 630 MMUSD. The decrease in a net loss was primarily due to a recognition of impairment loss on assets of the PTTEP Australasia Project in 2015, while there was no impairment loss on assets recognized for this Project in 2016.

- The Other Southeast Asia reported a net loss of 11 MMUSD, a decrease in net loss of 91 MMUSD or 89% from a net loss for 2015 of 102 MMUSD. The decrease in net loss was primarily due to a recognition of lesser amount of impairment loss on assets in 2016 when compare to the amount recognized in 2015.

For Q4/2016, the Overseas reported a net loss of 74 MMUSD, an increase in net loss of 60 MMUSD or more than 100% from a net loss of Q3/2016 of 14 MMUSD primarily due to a decrease in operating result of the Other Southeast Asia.

- The Other Southeast Asia reported a net loss of 45 MMUSD, a decrease in operating result of 82 MMUSD or more than 100% from a net profit for Q3/2016 of 37 MMUSD, primarily due to a recognition of an impairment loss on assets in Q4/2016 for the Yetagun and Natuna Sea A projects, while there was no impairment loss on assets recognized in Q3/2016.

When compare a net loss for Q4/2016 to the same period last year of 50 MMUSD, the Overseas recognized an increase in a net loss of 24 MMUSD or 48%, primarily due to decreases in operating result of the Other Southeast Asia, while the Australia and America reported an increase in operating results.

- The Other Southeast Asia reported a net loss of 45 MMUSD, a decrease in operating results of 65 MMUSD or more than 100% from a net profit for Q4/2015 of 20 MMUSD, primarily due to a recognition of an impairment loss on assets in Q4/2016 for the Yetagun and Natuna Sea A projects, while there was no impairment loss on assets recognized in Q4/2015.

- The Australia reported a net loss of 17 MMUSD, a decrease in a net loss of 31 MMUSD or 65% from a net loss for Q4/2015 of 48 MMUSD, primarily due to a decrease in depreciation, depletion and amortization expenses mainly from an increase in the petroleum reserve of the PTTEP Australasia Project.

- The America reported a net loss of 2 MMUSD, a decrease in a net loss of 14 MMUSD or 88% from a net loss for Q4/2015 of 16 MMUSD. The decrease primarily due to a decrease in well write-off expenses since it did not recognize any well write-off expenses in Q4/2016, while it recognized this expenses for the Brazil BM-ES 23 Project in Q4/2015.

The operating results for the Middle East were presented in discontinued operations.

(2) Pipeline Transportation Segment

The pipeline transportation segment reported a net profit of 203 MMUSD for 2016, a decrease of 153 MMUSD or 43% from a net profit of 356 MMUSD for Q4/2015. The decrease was primarily due to a decrease in revenue from pipeline transportation projects in the Republic of the Union of Myanmar which was in line with a decrease in gas selling price.

(3) Head Office and Others Segment

For 2016, the head office and others segment reported net loss of 289 MMUSD, an increase in net loss of 151 MMUSD or more than 100% from net loss for 2015 of 138 MMUSD. The increase in net loss was primarily due to the recognition of loss on oil price hedging derivative contracts in 2016 while the segment recognized gain on oil price hedging derivative contracts in 2015.

For Q4/2016, the head office and others segment reported net loss of 109 MMUSD, an increase in net loss of 77 MMUSD or more than 100% from net loss for Q3/2016 of 32 MMUSD, primarily due to an increase in administrative expenses of the head office.

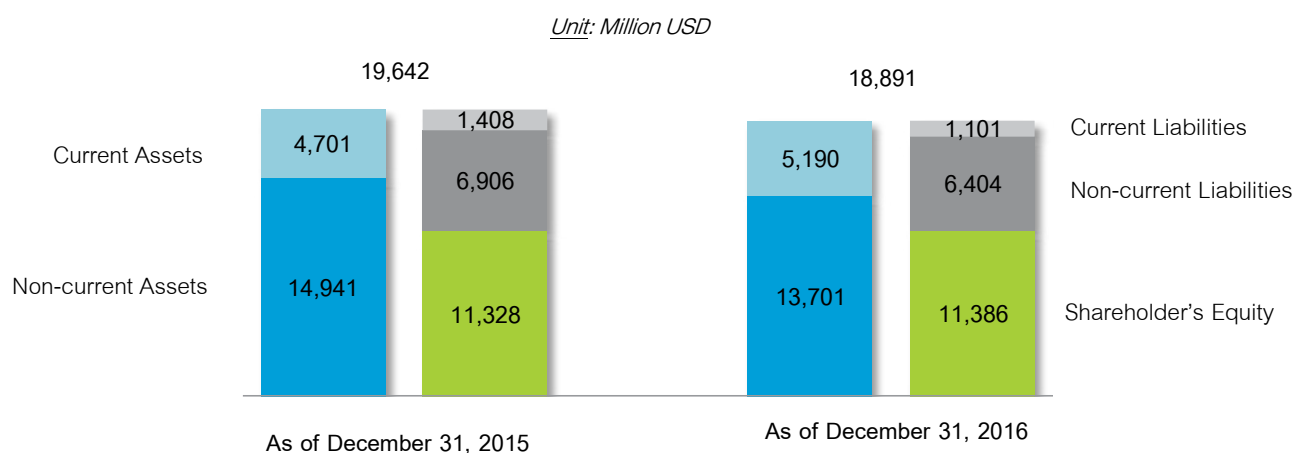
When compare a net loss for Q4/2016 to the same period last year which had a net profit of 44 MMUSD, the head office and others segment had a decrease in operating results of 153 MMUSD or more than 100%, primarily due to a decrease in a recognition of tax benefit from an impact of changes in foreign exchange rate especially from the depreciation of Thai Baht against US Dollar in Q4/2016 and a recognition of loss on oil price hedging derivative contracts in Q4/2016, while there was a gain on oil price hedging derivative contracts in Q4/2015.

(4) Discontinued Operations

Since Q3/2016, the Middle East under the exploration and production segment has been represented under discontinued operations because PTTEP Oman Company Limited (PTTEP OM), a subsidiary of the Company and holds 100% of participating interest of Oman 44 Project, was sold and it represented as a significant operation under the Middle East.

In 2016, the discontinued operations reported a net profit of 20 MMUSD, an increase of 51 MMUSD or more than 100% from a net loss of 31 MMUSD in 2015. The increase in net profit was primarily due to the recognition of an impairment loss on assets in 2015 for the Oman 44 Project, while there was no recognition of impairment loss on assets in 2016, and the recognition of gain on sales of PTTEP OM.

14.3.3 Financial Position



(1) Assets

As at December 31, 2016, PTTEP Group had total assets in the amount of 18,891 MMUSD (equivalent to 676,890 MMTHB), a decrease of 751 MMUSD from the total assets as of December 31, 2015 of 19,642 MMUSD (equivalent to 708,864 MMTHB), primarily due to;

(1.1) Current assets, which were primarily comprised of cash and cash equivalents, account receivable – parent company and materials and supplies, increased by 489 MMUSD, mainly from increases in cash and cash equivalent and short-term investment of 762 MMUSD, offset with decreases in account receivables – parent company of 93 MMUSD, materials and supplies of 58 MMUSD and other current assets of 64 MMUSD.

(1.2) Non-current assets, which were primarily comprised of exploration and production assets in joint venture projects that are recognized as part of the property, plant and equipment – net, intangible assets – net and goodwill-net, decreased by 1,240 MMUSD mainly due to a recognition of depreciation, depletion and amortization expenses even though PTTEP Group had additional investment in exploration and production assets.

(2) Liabilities

As at December 31, 2016, PTTEP Group had total liabilities of 7,505 MMUSD (equivalent to 268,906 MMTHB) which include interest bearing debt of 2,832 MMUSD, a decrease of 809 MMUSD when compared with total liabilities as at December 31, 2015 of 8,314 MMUSD (equivalent to 300,053 MMTHB), primarily due to;

(2.1) Current liabilities, which were primarily comprised of accrued expenses and income tax payable, decreased by 307 MMUSD mainly due to the decreases in income tax payable and accrued expenses, while the financial derivative liabilities were increased.

(2.2) Non-current liabilities, which were primarily comprised of debentures, provision for decommissioning costs, deferred tax liabilities and long-term loans from financial institution, decreased by 502 MMUSD mainly due to a decrease in deferred tax liabilities of 191 MMUSD and the repurchase of debentures of 170 MMUSD.

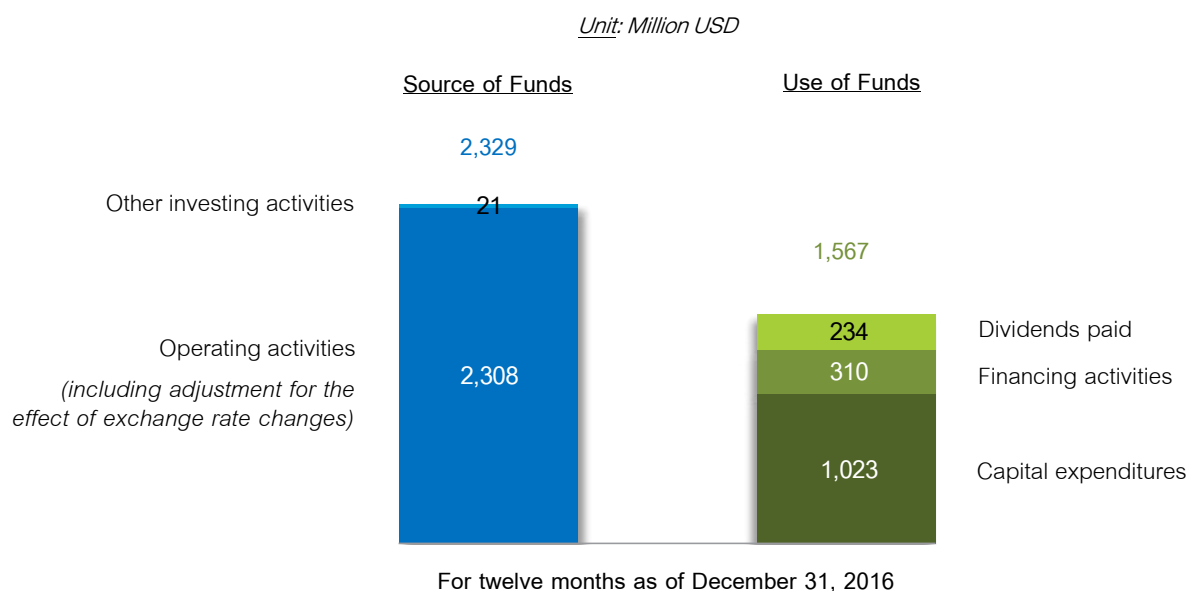
(3) Capital Structure

As at December 31, 2016, the capital structure comprised of shareholders' equity in the amount of 11,386 MMUSD and total liabilities of 7,505 MMUSD, including the interest-bearing debts of 2,832 MMUSD with a weighted average cost of debt of 4.41% and the average maturity of 8.15 years. All interest-bearing debts are denominated in US Dollar currency. The proportion of the fixed interest rates to floating interest rates is 80:20.

On June 22, 2016, PTTEP had repurchased some portion of the 500 MMUSD five-year unsecured and unsubordinated debentures with a fixed interest rate of 3.707% which was issued and sold in September 2013, for 177 MMUSD. As a result, the principal of these debentures were decreased from 500 MMUSD to 323 MMUSD.

The premium for the repurchase of this debenture of 7 MMUSD was recognized as part of administrative expenses in the statement of income for the year ended December 31, 2016.

14.3.4 Cash Flows



As at December 31, 2016, PTTEP Group had cash and cash equivalents, including short-term investment in the form of bank fixed deposit with a maturity of more than three months, but less than twelve months of 4,022 MMUSD. This represents an increase of 762 MMUSD from the cash and cash equivalents as at December 31, 2015 of 3,260 MMUSD.

Sources of funds totaling of 2,329 MMUSD primarily came from **Net cash received from operating activities** as a result of the positive net cash flows from sales revenues, offset with cash payments for expenditures and income tax expenses and **Net cash received from other investment activities**, which is mainly proceeds from PTTEP OM divestment, dividend received from related parties and cash received from interest from loans to related parties.

Uses of funds totaling of 1,567 MMUSD mainly comprise of **Net cash used in additional investment activities** for exploration and production assets and intangible assets primarily for the Zawtika, Arthit and S1 projects, **Net cash used in financing activities** which mainly for the repurchase of debentures and payment of interests, and **Dividend payment** for the result of operation for the second half of 2015 and the first half of 2016, while there was net cash received from financial derivative contracts.

14.3.5 Key Financial Ratios

	2016	2015
Profitability Ratios (%)		
EBITDA to revenue from sales	70.83	70.60
Return on equity	3.10	(6.89)
Net profit margin	8.04	(14.45)
Leverage Ratios (Times)		
Debt to equity	0.25	0.27
Debt to EBITDA	0.94	0.78

Remark:

EBITDA to revenue from sales	=	Profit before deduction of interest, tax, and depreciation to revenue from sales including revenue from pipeline transportation
Net profits margin	=	Last 12 months net profits to total revenue
Return on equity	=	Last 12 months net profits to weighted average shareholders' equity
Debt to equity	=	Interest Bearing Debt to total shareholders' equity
Debt to EBITDA	=	Interest Bearing Debt to last 12 months profit before deduction of interest, tax, and depreciation

14.4 Operational Highlights

At the end of 2016, PTTEP's domestic and international operations altogether sum to 37 projects in 10 countries with total proved reserves of 695 million barrels of oil equivalent (MMBOE), probable reserves of 404 MMBOE and contingent resources of 3,901 MMBOE, respectively. The followings are key project highlights.

14.4.1 Projects in Thailand

PTTEP currently has 16 projects in Thailand, and the majority of projects are in the producing phase. These projects are located both in the Gulf of Thailand and onshore; including the Bongkot Project, the Arthit Project, the S1 Project, and the Contract 4 Project, where operations were carried out continuously to maintain the production plateau. For the year 2016, total sales volume from projects in Thailand amounted to 240,872 BOED, accounting for 75% of PTTEP's total sales volume. Ubon Field of the Contract 4 Project is in the process of the reengineering study with expected first oil production by the end of 2021 at a planned production capacity of 25,000 - 30,000 BOED.

14.4.2 Projects in Southeast Asia

PTTEP has 14 projects in this region which are located in the Republic of the Union of Myanmar (Myanmar), the Socialist Republic of Vietnam (Vietnam), the Federation of Malaysia (Malaysia) and the Republic of Indonesia (Indonesia). Sales volume for the year 2016 from the projects in the Southeast Asia region amounted to 58,815 BOED, representing 18% of PTTEP's total sales volume.

Averaged sales volume and highlights of projects in the *producing phase* within this region can be summarized as follows. **The Zawtika Project**, located in the Gulf of Moattama, Myanmar, has maintained its production as planned, and started the production operations from the fourth producing platform in Phase 1B since April 2016. The project is currently in the construction phase for 4 production platforms in Phase 1C in order to support the production plateau of the project. Current natural gas sales volume averaged approximately at 305 MMSCFD (approximately 47,023 BOED). **The Vietnam 16-1 Project**, located offshore in the southeast of Vietnam, is in the process of drilling 2 development wells to maintain the production plateau, and expects completion and commercial production in early 2017. Current crude oil sales volume averaged 26,681 BPD, and natural gas sales volume averaged 10 MMSCFD (approximately 2,656 BOED).

For projects in the *exploration phase*, important highlights include the **Myanmar M3 Project**, which is located offshore in the Gulf of Moattama, Myanmar. The commercial feasibility and resource potential for this project are still being assessed. The **Myanmar M11 Project**, located offshore, and the **Myanmar MD-7 Project**, located in the deep water area in the Gulf of Moattama, Myanmar, are currently being assessed for the fields' resource potentials. The Myanmar MD-7 Project, is in the process of seeking a joint partner for project risk management and diversification. The **Myanmar MOGE-3 Project**, located onshore in the Central Myanmar Basin, is in the process of carrying out 2D and 3D seismic surveys which are scheduled to be complete by mid- 2017. The **Sarawak SK410B Project**, located offshore Sarawak, Malaysia, for which the Company signed the Production Sharing Contract (PSC) on July 21, 2016, is in the preparation process for 3D seismic activities scheduled for the second quarter of 2017.

14.4.3 Project in the American Continent

PTTEP has three projects in this region located in Canada and the Federal Republic of Brazil (Brazil).

All three projects are under *Exploration Phase*. Firstly, the **Mariana Oil Sands Project**, located in Alberta, Canada, submitted the development proposal for Thornbury Phase 1 to the government of Alberta in May 2015. The project is re-assessing the investment strategy going forward to reduce costs and to mitigate development risks in response to the low oil price environment.

PTTEP has two projects in Brazil. The **Barreirinhas AP1 Project** is located in the Barreirinhas Basin, offshore to the northeast of Brazil. 3D seismic acquisition for the area was completed, and petroleum potential is being evaluated. The **BM-ES-23 Project**, located offshore in Espirito Santo basin, east of Brazil, is currently studying the petroleum potential.

14.4.4 Projects in Australasia

PTTEP has one project in this region which is located in the Commonwealth of Australia (Australia), and comprises 12 permits.

Fields in the *producing phase* include the **Montara Field**, which has average sales volume for the year 2016 of 14,655 BPD in accordance with the production plan.

The **Cash Maple Field**, which is in *exploration phase*, received the approval from the Australian's government to extend "Retention Lease Period" for another 5 years (2017-2021). Discussions with neighboring operators are ongoing to create a joint-development plan.

14.4.5 Projects in Africa and the Middle East

PTTEP has three projects in this region, located in the People's Democratic Republic of Algeria (Algeria) and the Republic of Mozambique (Mozambique).

The **Algeria 433a & 416b Project**, which is in *producing phase*, and is located onshore in the eastern part of Algeria, successfully marked its first sales of crude oil in late 2015. Production for the year 2016 has averaged 15,463 BPD.

The **Algeria Hassi Bir Rekaiz Project**, which is in the *exploration phase*, and is located onshore in the eastern part of Algeria, successfully finished a drilling campaign with satisfactory crude oil and natural gas flow rates. Currently, the project's development plans are being prepared to be submitted to the Algerian government in early 2017, with total planned production capacity of 50,000 BOED. The **Mozambique Rovuma Offshore Area 1 Project**, which is also in the exploration phase, is a large gas project located at offshore Mozambique. During 2016, the project made progress by achieving several key milestones including the receipt of the onshore LNG Engineering and Construction contract as well as the receipt of government approval for Resettlement Action Plan. The project is currently in the process of finalizing the LNG off-take agreement, and negotiating for project finance with financial institutions. The Company targets to announce the Final Investment Decision (FID) for the project by the end of 2017, with the planned first phase of LNG production at 12 Million tons per annum (MTPA).

14.5 Company Strategy under Current Oil Price Environment

PTTEP has revised the 2016 strategic plan in order to enhance our competitive advantage and sustainable growth under the current oil price environment using the concept of "RESET REFOCUS RENEW".

RESET the cost structure to maintain competitiveness in the industry

- Build and instill a cost-conscious DNA in every employee
- Optimize work processes for efficient cost management to become competitive with the leading companies in the industry
- Prioritize investments in projects with competitive cost structure under the low oil price environment

REFOCUS investment plan towards areas of high expertise

- Increase investments in Thailand and Southeast Asia, especially in Myanmar, the areas which PTTEP has extensive experience in and has low cost structure and low risks
- Synergize with PTT in LNG business to meet the country's growing energy demand in the future
- Consider investment opportunities in new areas with low cost structure, such as the US shale plays and the Middle East oil fields

RENEW long-term strategy for sustainable growth

- Focus on research and development to lower costs and improve efficiencies in the E&P business
- Expand investment horizons related to the E&P business to diversify sources of revenues and return on investments
- Explore and evaluate new business opportunities with growth prospects based on the existing experiences and capabilities on human resources in the Company

14.5.1 Capital Management

PTTEP also focuses on ensuring effective financial management through maintaining a robust capital structure. The Company's current debt-to-equity ratio of 0.3x as of the year ended 2016, provides adequate liquidity to cushion for uncertainties in oil prices and the global economy. The Company also simulates various oil price and exchange rate scenarios to assess risk factors and prepare mitigation plans.

As of the end of 2016, the Company has cash on hand of approximately USD 4 billion which will be used to fund capital expenditures to maintain production, develop future projects in the pipeline, and carry out exploration activities as well as support new investment opportunities through Merger and Acquisition activities (M&A).

14.5.2 Portfolio Management

PTTEP continues to undertake portfolio management activities to achieve an optimal balance between project value-added and risk management, as well as to ensure that the Company's long term strategic objectives can be achieved. PTTEP consistently studies and analyses pertinent investment factors to keep abreast of the constant changes in the social, economic, and political landscape, and to incorporate these variables into investment considerations and decisions.

The Company places great focus on adding petroleum reserves in the future. The majority of the short term reserves addition is expected from the development projects including the Contract 4 (Ubon Field), the Mozambique Rovuma Offshore Area 1 Project, and the Algeria Hassi Bir Rekaiz Project. M&A deals will also be short term reserve contributors. The Company is awaiting results of a few submitted bid proposals, with particular focus on producing assets or those which are in the final stage of development and close to production, located mainly in the South East Asian region where the operating risk is moderately low due to market readiness, and where there is potential reserve contribution and prospects of attractive returns.

The Company carried out portfolio rationalization activities during the year 2016, including the acquisition of the Sarawak SK410B Project exploration block in Malaysia, which is situated in a high petroleum potential area, and the divestment of PTTEP OM which holds 100% interest in the Oman 44 Project, a mature field. Concurrently, the Company continues to explore for new investment opportunities in Oman as PTTEP has signed a Memorandum of Understanding (MOU) with a subsidiary of the national oil company of Oman. Other activities during the year also comprised seeking for a joint partner to manage the risk of the Myanmar MD-7 Project, and the relinquishing the L28/48 fields in Thailand, the MD-8 Field in Myanmar, the Indonesia South Mandar Field in Indonesia, two exploration blocks in PTTEP Australasia, the Mozambique Rovuma Onshore exploration field, and the Kenya L11, L11B and L12 fields.

14.5.3 Cost Management

Given the continuity in oil price volatility, the cost reduction plans and the improvement of operational efficiency remain our priorities. PTTEP has adopted the RESET strategy to reduce cost, streamline the organization structure, instill a cost-conscious culture and maintain competitiveness in the industry under the **SAVE to be SAFE program** since 2014. The Company actively pursues a number of cost reduction initiatives, such as the reduction in number of drilling days and cost, optimization of wellhead platform design, contract renegotiations on current and future equipment rental and services, and logistical optimization through reducing number of supply boats as well as optimizing inventory management. During 2016,

PTTEP introduced the **SPEND SMART to Business Sustainability** campaign with the theme “Think Smart, Work Smart for Better Efficiency” to strengthen our effort on further cost optimization initiatives to become a low cost operator with long-term competitive advantages and sustainable growth.

- **Think Smart:** Alter the frame of thoughts by focusing on cost efficiency and productivities gain (Cost Benefit Analysis) under limited budget and applying to all activities
- **Work Smart:** Remain efficiency in current working processes, while searching for new methodology to meet work objectives at the lower cost
- **For Better Efficiency:** Productivity, efficiency and long-term competitiveness

The Company’s continued efforts of cost reduction was successfully rewarded by more than 20% reduction in the unit cost to 30.46 USD/BOE for the year 2016, compared to 38.88 USD/BOE in 2015.

14.6 Sustainable Development

In 2016, PTTEP has been selected as a member of 2016 Dow Jones Sustainability Index (DJSI) in the World Oil and Gas Upstream & Integrated Industry for the third consecutive year with the highest score among our peers in the same industry. This recognition underlines our ongoing commitment to sustainability as a leading sustainable organization. This achievement demonstrates our success and reflects our commitment to the vision of becoming a leading Asian E&P company driven by competitive performance, advanced technology and green practices. In order to continuously enhance PTTEP’s sustainable development practices, the Company has outlined a sustainable development plan, both short-term and long-term, around the three areas: business, social, and environment. Key activities during the third quarter of 2016 are as follows:

14.6.1 Business

PTTEP provides support in research and development of technologies and innovations, as well as in the development of knowledge and technological framework to enhance the organization’s competitiveness and sustainable development. Key activities in 2016 are as follows:

- Research and develop technological projects towards PTTEP’s long-term technology development plan such as (1) In collaboration with Mahidol University to research and develop electromagnetic technology to monitor water and hydrocarbon flow in the reservoirs and wells in order to increase the efficiency of water-flood process which leads to increasing petroleum production, and (2) In collaboration with Chulalongkorn University to research and develop E&P techniques to increase production efficiency through chemical enhanced oil recovery (EOR) technique. The collaboration with various universities and government technology institutes is not only to strengthen PTTEP technology development but also extend students and government agencies’ capability.
- Develop new technology to ensure the effectiveness of production enhancement such as develop unmanned aerial vehicles (drones) used for equipment inspection of industrial maintenance work in remote areas and develop Autonomous Underwater Vehicle (AUV) to inspect subsea petroleum and gas pipeline to continuously improve our cost efficiency.

14.6.2 Social

PTTEP strives to carry out our business operations with responsibility to society with emphasis in four development areas: fundamental needs, education, environment, and culture and sports. The Company organized many activities with local communities to ensure that their essential needs are met. Results of the activities were reviewed, evaluated and incorporated into improvement plan for long-term benefits to the stakeholders in areas in which PTTEP operates as well as to the society as a whole. Key activities in 2016 are as follows:

- The reforestation for ecological study at the Sri Nakhon Khuean Khan Park (Bang Kachao) – developed the ecological learning exhibition room which includes (1) Exhibition commemorating in remembrance of King Rama IX (2) Campaign background and collaboration among PTTEP, Kasetsart University and The Royal Forest Department (3) Touch screen and multimedia learning of the ecological study at Bang Kachao
- The Crab Hatchery Learning Center Project at Hua Khao Community in Songkhla province – constructed the exhibition room nearby crab-breeding farm and renovated the auditorium room in order to enhance knowledge transfer capability for community. In 2016, over 190 million crabs were released to their natural habitat.
- The Waste to Energy Project – educated community members in Sinphuhorm to develop 31 biogas wells and produced biogas wells for 24 families living in Lankrabue District, Kamphaeng Phet Province.
- The PTTEP Love Sea, Love Beach Project – signed the Memorandum of Understanding (MOU) with Faculty of Engineering, Kasetsart University to research and develop beach cleaning robot prototype. This prototype is expected to be completed in the first quarter of 2017.
- The Underwater Learning Site Project – organized a marine conservation activity at Sairee beach together with 'Love Koh Tao' club and Prince of Songkla University to install mooring buoys in the diving point around HTMS Sattakut.
- The PTTEP Teenergy Project – organized the “3rd PTTEP Teenergy Camp” at Khao Yai National Park during October 20-22, 2016 to create young environmentalists. There are approximately 100 high school students participating in this campaign.

14.6.3 Safety, Security, Health and Environment

PTTEP has an environmental management system which encompasses a project's entire life cycle, and is a subset of PTTEP's Safety, Security, Health and Environment Management System (SSHE MS). In 2016, PTTEP had a Lost Time Injury Frequency (LTIF) score of 0.10 and a Total Recordable Incident Rates (TRIR) score of 0.88. The Company's performance on both safety indicators is superior to that of the average of the members in the International Association of Oil and Gas Producers (IOGP) and it is the best record of PTTEP compared to the past. Moreover, PTTEP aims to become a Low Carbon Footprint organization, and has set a goal to reduce our greenhouse gas (GHG) emissions by a minimum 20% by the year 2020 versus 2012 base year figure. In 2016, PTTEP reduced our GHG emissions by 16.0 % below the 2012 levels.

14.7 Future Business Outlook

(1) Energy Outlook

The current global energy consumption still relies heavily on fossil fuels which includes coal, oil and, natural gas. The current consumption figures are at 84% contribution (IEA data from year 2016) and are expected to continue to account for up to 77% of energy consumption in 2035 mainly driven by increasing natural gas demand due to lesser carbon dioxide emissions compared with other fossil fuels. While oil is mainly consumed in the transportation sector, demand is forecasted to decline as a result of rising numbers in electric vehicles as the advances in this technology becomes more cost effective and economical. However, it is estimated that electric vehicles will account for only 6% of the total number of cars in the world by 2035, resulting in a decrease in oil demand of merely 1-2 million BPD or only 1-2% of global oil demand (Wood Mackenzie).

In addition, technological advances in electric vehicles are being stalled by the relatively slow improvement of energy storage technology which requires a lengthy development time in order to be comparable with conventional internal combustion engines in terms of both price and performance. Therefore, the trend of increasing demand for natural gas is in line with PTTEP's current portfolio product mix of 70:30 natural gas to liquids, and the strategy to seek for more investment opportunities in natural gas fields.

As for Thailand, the 2015 Power Development Plan (PDP 2015) encourages more variety of energy sources in order to strengthen national energy security through the increasing use of Renewable energy from 7% to 15-20% and reducing the contribution of natural gas from 64% to 30-40% in 2036. The contribution of renewable energy appears to be limited given the expensive cost of production leading to more reliability on other fossil fuels, especially coals. However, there has been development delay in several coal power plant projects, as a result, the government plans to import Liquefied Natural Gas (LNG) as the substitute energy source, making the plan to reduce dependence on natural gas more difficult. This is consistent with the Company's REFOCUS strategy to expedite the development of large natural gas projects in the pipeline including Mozambique Rovuma Offshore Area 1 Project and Cash Maple Project in Australia, to support the production of LNG. This is also in line with PTTEP's strategy to jointly invest with PTT in an integrated LNG projects in several regions around the world with the key objectives to enhance competitiveness as well as to strengthen energy security by importing LNG to Thailand.

Due to the rising concerns about global warming and climate change, many countries have become more focused on greater contribution from Renewable Energy sources such as solar and wind in order to reduce greenhouse gas emissions from the use of fossil fuels. In addition to the support from the governments, technology for the production of renewable energy is likely to be more cost-effective with higher efficiency and turns out to be more worthwhile. It is expected that renewable energy will account for about 10% of total global energy sources in 2035 increasing from 3% at the current year (IEA data from year 2016). PTTEP realizes the importance and the trend of energy sources moving towards more clean energy and consequently set a RENEW strategy to focus on the development of technology to reduce emissions of greenhouse gases from operations as well as to study potential business opportunities related to renewable energy.

(2) Oil Price Outlook

PTTEP expects crude oil prices during the first half of 2017 to be range-bound between 50 and 60 USD/BOE with bullish support from the agreement on production cuts between OPEC and Non OPEC members in Q4 2016. However, the market will be closely monitoring events leading to as well as the subsequent discussion between OPEC and Non OPEC members to consider the renewal of the agreement during the second half of the year. There are a number of factors that will affect the renewal consideration including the compliance of the OPEC and Non OPEC members to the agreement, the reaction of crude oil prices and the production in the United States, which is estimated to increase at about 0.2-0.3 million BPD from 2016 levels. Without the renewal agreement, Dubai crude oil price is expected to return to the range of 40-50 USD/BOE. Nonetheless, it is important to keep an eye on the US policy under President Donald Trump's administration, particularly in area of energy sector policies, such as the approval of an oil pipeline from Canada (Keystone XL), and the policy of sanctions against Iran's nuclear proliferation, which will affect the movement of oil prices in the global market.

(3) Thai Economy and Foreign Exchange Outlook

The Bank of Thailand expects the economy to expand 3.2% in 2017, mainly driven by the growth of government spending as a result of the investment between the government and the local administration (Matching Fund), infrastructure investments and the recovery of tourism from government's stimulus plan.

For Foreign Exchange, a number of financial institutions predict the weaker outlook for the Thai Baht against US Dollar as there is a possibility that the FOMC may raise the interest rate a few more times in 2017. Additionally, the uncertainty surrounding the economic policy under the new US president, and the economic direction of major industrial countries such as China and Japan will also have an indirect impact on the foreign exchange rate. The capital markets will remain volatile and require close monitoring. The financial performance of PTTEP will be affected by a changes in exchange rates in the form of deferred taxes arising from the difference between the Company's functional currency and the currency in which the Company files taxes. The majority of the difference, however, does not impact the Company's cash flows. Furthermore, the increase in interest rate is expected to have minimal impact on the Company's financial performance as more than 80% of total debt comprises of fixed interest rate debt.

(4) PTTEP's performance outlook for 2017

PTTEP's performance depends on three major factors including sales volumes, gas price and unit cost with the guidance summary as follows:



Sales volume: Focus on maintaining the production level in Thailand with the estimated sales volume for the first quarter of 2017 to be approximately 310,000 BOED due to planned shutdown activities in Myanmar and the average annual sales volume for 2017 of approximately 312,000 BOED.

Sales price:

- Oil price will fluctuate according to the global crude oil prices
- PTTEP's gas price is linked to a formula with 6-12 months lag time adjustment to the global crude prices, as a result, it is likely to decline in 2017 compared to the average gas price in 2016. Given that global crude oil prices remain at the current level going forwards, it is estimated that average gas price for the year 2017 will be approximately 5.3 USD/MMBTU where the gas price for the first quarter of 2017 is forecasted to be at approximately 5.1 USD/MMBTU (based on Dubai price assumption of 49 USD/BBL for 2017)
- Outstanding oil hedged volume as of the end of 2016 is approximately 9 MMBOE, accounting for approximately 30% of 2017's total liquid volumes (crude oil and condensate). The Company consistently monitors the crude oil price movements with the flexibility to adjust the hedging plan as appropriate.

Unit Cost: Estimated unit cost for the first quarter of 2017 will be approximately 31 USD/BOE, while average unit cost for the year 2017 is forecasted to be in a range of approximately 30-31 USD/BOE which is in line with the Company's planned activities.

(5) **Other important factors that affect the Company's operations.**

Bongkot Concession Bidding

The government has decided to auction the Bongkot concession which is due to expire during the year 2022-2023. There is still no clarity from the government on the fiscal regime as well as the bidding process timeline and the delay of bidding process will negatively affect PTTEP's investment plan in the Bongkot Field as well as the continuity of the natural gas production in the Gulf of Thailand. However, the government recognizes the importance of energy security of the country and has consequently exerting efforts to accelerate the opening of the bidding process, with the objective to award the concession to the winners by the end of 2017. PTTEP as the operator of the Bongkot Field for more than 20 years, is well prepared to participate in the bidding process, and strongly endeavors to remain the project's operator driven by operational efficiency and competitive cost base. The Company believes that the continuity in the operatorship will most benefit the country in terms of natural gas production stabilization for national energy security.

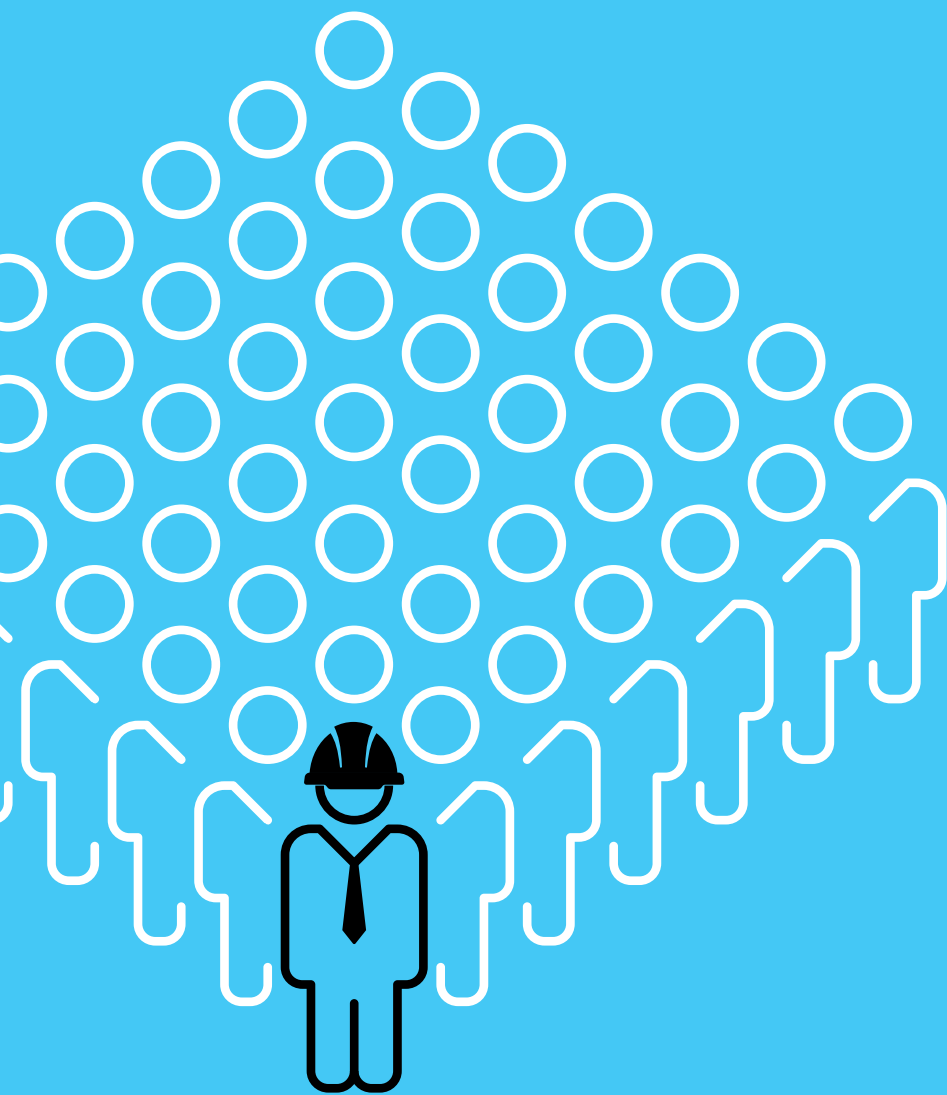
Decommissioning Cost

The Decommissioning guideline is under the drafting process by the Department of Mineral Fuels which will contain the information on the instruction and methods of decommission. In principle, the Company will propose the Best Practical Environmental Option to the government for approval. Currently, PTTEP has estimated the total decommissioning cost for all the projects and recorded it under "Provision for the decommissioning of production" in the financial statements with the outstanding amount of 2,016 MMUSD as of December 31, 2016.

Conclusion

2016 was a challenging year for the oil and gas exploration and production companies globally as a crude oil prices were relatively low and considerably volatile. Despite this backdrop, PTTEP has shown resilience through efficient cost reduction, professional management, and strong financial discipline. The oil and gas exploration and production sector in 2017 and future years will continue to cope with oil price volatility; PTTEP's performance outlook, however, remains solid with potential growth in reserves and production as a result of the following:

1. Corporate governance and transparency in financial and risk management, together with professional management as well as efficiency and cost improvements, enable the Company to maintain stable margins amid the oil price crisis;
2. In addition to our commitment to maintain production levels of existing projects, the Company also places great emphasis on increasing petroleum reserves and production volumes in the future, with the main priority to accelerate the development of pre-sanctioned projects, namely, the Contract 4 Project (Ubon Field), the Mozambique Rovuma Offshore Area 1 Project, and the Algeria Hassi Bir Rekaiz Project where the first production is expected in the next 4-5 years. Furthermore, the Company continues to exert effort on exploration activities in high potential projects such as those in Myanmar and Malaysia, as well as on seeking M&A opportunities in Thailand and Southeast Asia.
3. PTTEP's portfolio management strategy is in line with the future outlook of increasing LNG demand, especially in Asia, as PTTEP's current and future portfolio is more gas-weighted. PTTEP's key natural gas operations in Southeast Asia include the Bongkot, Arthit and Contract 4 projects which are located in the Company's areas of expertise. Future LNG production volumes are expected to come from the development of the Mozambique Rovuma Offshore Area 1 and the Cash-Maple projects, as well as from the Company's strategy to jointly invest in LNG value chain projects with PTT in different regions; we are well positioned to effectively serve the increasing gas domestic and global gas demand in the future.



Attachments

1. PTTEP's Board of Directors

As of December 31, 2016, PTTEP's Board of Directors consists of 15 directors. Details of 15 current directors are as below:

Name/Position	Age (year)	Education/Training	% of Shareholding	Family Relationship among Directors and Executives	Working Experiences in the Past 5 Years		
					Period	Position	Function/Company/Type of Business
Mr. Prajya Phinyawat	65	Education	0.00038 (15,000 shares)	None	Other Listed Companies		
- Chairman - Chairman of the Independent Directors Committee							
Begin Date							
March 28, 2012							

Name/Position	Age (year)	Education/Training	% of Shareholding	Family Relationship among Directors and Executives	Working Experiences in the Past 5 Years		
					Period	Position	Function/Company/Type of Business
		● Role of the Chairman Program (RCP) 35/2014 ● Director Certification Program (DCP) 14/2002			2006 - 2011	● Director	● IRPC Public Company Limited
		2005 - 2011			● Director	● PTT Chemical Public Company Limited	
		Other Companies					
		2011 - Jan 2016			● Chairman	● PTT Asahi Chemical Company Limited	
		2006 - 2012			● Director	● Thai Paraxylene Company Limited	
		2004 - 2012			● Chairman	● PTT Polyethylene Company Limited	
		Other Organizations					
		None					

Name/Position	Age (year)	Education/Training	% of Shareholding	Family Relationship among Directors and Executives	Working Experiences in the Past 5 Years		
					Period	Position	Function/Company/Type of Business
Mr. Tevin Vongvanich	58	Education	0.00369 (146,543 shares)	None	Other Listed Companies		
- Director		● M.Sc. (Petroleum Engineering), University of Houston, U.S.A. ● M.Sc. (Chemical Engineering), Rice University, U.S.A. ● B.E. (Chemical Engineering), Chulalongkorn University, Thailand			2015 - Present	● President and Chief Executive Officer	● PTT Public Company Limited
Begin Date					2015 - Present	● Chairman	● IRPC Public Company Limited
November 30, 2009					2014 - 2015	● Chairman and Independent Director	● MCOT Public Company Limited
		Training of Thai Institute of Directors Association			2012 - 2015	● President and Chief Executive Officer	● PTT Exploration and Production Public Company Limited
		● Anti-Corruption: Leadership Role of the Board ● Anti-Corruption for Executive Program (ACEP) 15/2015 ● Role of the Compensation Committee (RCC) 13/2011 ● Financial Statements for Directors (FSD) 6/2009 ● Director Certification Program (DCP) 21/2002			2010 - 2012	● Director	● Thai Oil Public Company Limited
					2009 - 2012	● CFO	● PTT Public Company Limited
					2009 - 2011	● Director	● PTT Chemical Public Company Limited
					2009 - 2011	● Director	● PTT Aromatics and Refining Public Company Limited
					Other Companies		
					2009 - 2011	● Chairman	● PTT ICT Solutions Company Limited
					2008 - 2011	● Director	● PTT International Company Limited

Name/Position	Age (year)	Education/Training	% of Shareholding	Family Relationship among Directors and Executives	Working Experiences in the Past 5 Years		
					Period	Position	Function/Company/Type of Business
		Other Trainings			Other Organizations		
		Senior Executive Program (S.E.P. 7), Sasin Graduate Institution of Business Administration of Chulalongkorn University			Oct 2016 - Present	Chairman	Public Sector Development on Financial and Budgetary System Enhancement Sub-committee, Office of the Public Sector Development Commission (OPDC)
		Program for Global Leadership (PGL), Harvard Business School, U.S.A.			Jul 2016 – Present	Honorary Board Member	Integrated Provincial and Provincial Clusters Administrative Policy Committee (OPDC)
		Advanced Certificate Course in Politics and Governance in Democratic System for Executives (Class 10), Political and Governance College, King Prajadhipok's Institute			Jun 2016 - Present	Honorary Board Member	Office of the Public Sector Development Commission (OPDC)
		- Capital Market Academy Leadership Program (Class 6), Capital Market Academy - The Joint State - Private Sector Course (Class 2552), National Defence College			2015 - Present	Chairman	Information and Public Communication Management Sub-committee, National Committee on Competitive Advantage (NCC)

Name/Position	Age (year)	Education/Training	% of Shareholding	Family Relationship among Directors and Executives	Working Experiences in the Past 5 Years		
					Period	Position	Function/Company/Type of Business
		Energy Literacy for a Sustainable Future (Class 3), Thailand Energy Academy			2015 - Present	Chairman	Chulalongkorn University Alumni Association under the Patronage of His Majesty the King
					2014 – Present	Honorary Board Member	National Committee on Competitive Advantage (NCC), National Economic and Social Development Board (NESDB)
					2014 - Present	Honorary Advisor	Energy Committee, National Legislative Assembly
					2014 - Present	Chairman	TMA Center for Competitiveness Thailand Management Association
					2014 - Present	Board of Trustees	Thailand Management Association (TMA)
					2013 - Present	Honorary Board Member	National Science and Technology Development Agency

Name/Position	Age (year)	Education/Training	% of Shareholding	Family Relationship among Directors and Executives	Working Experiences in the Past 5 Years		
					Period	Position	Function/Company/Type of Business
Mr. Manas Jamveha	60	Education	None	None	Other Listed Companies		
- Director - Member of the Remuneration Committee		Nov 2016 - Present			● Director	● Airports of Thailand Public Company Limited	
Begin Date		Other Companies					
January 1, 2012		2013 - 2015			● Director	● Bank for Agriculture and Agricultural Co-Operatives	
		2011 - 2013			● Director	● Islamic Bank of Thailand	
		2010 - 2011			● Director	● Dhanarak Asset Development Company Limited	
		Other Organizations					
	Mar 2016 - Present	● Director	● Metropolitan Electricity Authority				
	2015 - Sep 2016	● Chairman	● Export-Import Bank of Thailand				
	2012 - Sep 2016	● Comptroller General	● Comptroller General's Department, Ministry of Finance				
	2009 - 2015	● Director	● Metropolitan Waterworks Authority				
	2011 - 2012	● Deputy Permanent Secretary	● Ministry of Finance				
	2010 - 2011	● Inspector General	● Ministry of Finance				
	2010 - 2011	● Chairman	● Government Lottery Office, Ministry of Finance				

Name/Position	Age (year)	Education/Training	% of Shareholding	Family Relationship among Directors and Executives	Working Experiences in the Past 5 Years		
					Period	Position	Function/Company/Type of Business
		Director Certification Program (DCP) 71/2008					
		Other Trainings					
		- The National Defence Course (Class 50), National Defence College - Certificate from Public Director Institute (PDI Class 1) - The Program for Senior Executives on Justice Administration (Class 11), Office of the Judiciary - The Civil Service Executive Program for Senior Civil Servants (Class 46), Office of the Civil Service Commission - Executive Development Program, Kellogg School of Management, Northwestern University, U.S.A. - Middle Management Professional, Revenue, Canada					

Name/Position	Age (year)	Education/Training	% of Shareholding	Family Relationship among Directors and Executives	Working Experiences in the Past 5 Years		
					Period	Position	Function/Company/Type of Business
		● Energy Literacy for a Sustainable Future Program (Class 5), Thailand Energy Academy ● Good Governance for Medical Executive Certification Program, Joint Program between The Medical Council of Thailand and King Prajadhipok's Institute (Class 2) ● Top Executive Program in Commerce and Trade (TEPCoT) (Class 7), University of Thai Chamber of Commerce					

Name/Position	Age (year)	Education/Training	% of Shareholding	Family Relationship among Directors and Executives	Working Experiences in the Past 5 Years		
					Period	Position	Function/Company/Type of Business
Mr. Achporn Charuchinda	63	Education	None	None	Other Listed Companies		
- Independent Director - Chairman of the Remuneration Committee - Member of the Audit Committee		• L.L.B., Faculty of Law, Thammasat University, Thailand • Thai Barrister-at-Law, Institute of Legal Education of the Thai Bar Association			2012 - 2015	• Member	• Legal Committee, Thai Airways International Public Company Limited
		Training of Thai Institute of Directors Association			Other Companies		
Begin Date		• None			2013 - May 2016	• Director	• Thai Smile Airways Company Limited
January 1, 2013		Other Trainings			Other Organizations		
		• Law Drafting Certificate, India • The National Defense Course (Class 46), National Defense College			Apr – Oct 2016	• Director	• Thailand Tobacco Monopoly, Ministry of Finance
					2015 - Present	• Board Member	• The National Economic and Social Development Board
					2015 - Present	• Member	• Constitution Drafting Committee
					2014 - Present	• Board Member	• Highland Research and Development Institute (Public Organization)
					2014 - Present	• Board Member	• Office of Insurance Commission
					2013 - Present	• Board Member	• Bank of Thailand
					2003 - Present	• Member of the Council of State	• Office of the Council of State

Name/Position	Age (year)	Education/Training	% of Shareholding	Family Relationship among Directors and Executives	Working Experiences in the Past 5 Years		
					Period	Position	Function/Company/Type of Business
					2013 - 2015	● Chairman	● Securities and Exchange Commission Board, Securities and Exchange Commission Board
					2012 - 2014	● Member of the Board of Directors	● Metropolitan Waterworks Authority
					2011 - 2014	● Member of the Institutions Policy Committee	● Bank of Thailand
					2011 - 2014	● Member of the Office of the Teacher Civil Service and Educational Personnel Commission	● The Office of the Teacher Civil Service and Educational Personnel Commission, Ministry of Education
					2011 - 2013	● Member of the National Energy Policy Council	● Energy Policy and Planning Office, Ministry of Energy
					2011 - 2013	● Member of the National Water and Flood Management Committee	● Office of the National Water and Flood Management Policy

Name/Position	Age (year)	Education/Training	% of Shareholding	Family Relationship among Directors and Executives	Working Experiences in the Past 5 Years		
					Period	Position	Function/Company/Type of Business
					2010 - 2013	Member of the Administrative Courts Officials Commission	Office of the Administrative Courts
					2010 - 2013	Member of the Decentralization to Local Government Organization Committee	Office of the Permanent Secretary, Prime Minister's Office
					2010 - 2013	Secretary - General of the Office of the Council of state	Office of the Council of State
					2010 - 2013	Board Member	Energy Conservation Promotion Fund
					2010 - 2013	Member	Government Pension Fund (GPF)
					2007 - 2013	Chairman of the Audit Committee	Financial Institutions Development Fund, Bank of Thailand
					2007 - 2013	Director	Financial Institutions Development Fund, Bank of Thailand

Name/Position	Age (year)	Education/Training	% of Shareholding	Family Relationship among Directors and Executives	Working Experiences in the Past 5 Years		
					Period	Position	Function/Company/Type of Business
Mr. Ampon Kittiampon	61	Education	None	None	Other Listed Companies		
- Independent Director - Chairman of the Audit Committee		● Ph.D. Applied Economics Clemson University, South Carolina, U.S.A. ● M.S. Economics Northeastern University, Boston, U.S.A. ● B.A. Social Sciences, Kasetsart University, Thailand			2009 - 2014	● Chairman	● Thai Airways International Public Company Limited
					Mar - Jul 2014	● Independent Director	● Thai Airways International Public Company Limited
					2005 - 2011	● Director	● PTT Public Company Limited
					2005 - 2011	● Director	● PTT Aromatics and Refining Public Company Limited
Begin Date		Training of Thai Institute of Directors Association			Other Companies		
March 30, 2011		● Director Certification Program (DCP) 80/2006			2013 - 2014	● Chairman	● Thai Smile Airways Company Limited
		Other Trainings			Other Organizations		
		● Chief Information Officer (CIO) (Class 3), The Office of the Civil Service Commission (OCSC) and National Science and Technology Development Agency ● The National Defence Course (Class 45), National Defence College			Nov 2016 - Present	● Commission Member by Expertise (Economics)	● Office of Insurance Commission
					Oct 2016 - Present	● Advisor to the Prime Minister, Honorary Member of The Secretariat of the Cabinet	● Prime Minister's Office

Name/Position	Age (year)	Education/Training	% of Shareholding	Family Relationship among Directors and Executives	Working Experiences in the Past 5 Years		
					Period	Position	Function/Company/Type of Business
		● Innovation for Economic Development (IFED), Harvard Kennedy School, U.S.A. ● Senior Executive Program on Industrial Business Development and Investment (Class 1), Institute of Business and Industrial Development			Jun 2016 - Present	● Honorary Board Member	● Public Sector Development Commission in Economics, Office of the Public Sector Development Commission (OPDC)
					2014 - Present	● Member	● National Legislative Assembly
					2014 - Present	● Chairman	● Risk Oversight Committee, Bank of Thailand
					2013 - Present	● Chairman	● Bank of Thailand
					2013 - Present	● Board Member	● National Economic and Social Development Board
					2012 - Present	● Committee Member	● Council of Chulalongkorn University
					2012 - Present	● Committee Member	● Property Management Office, Chulalongkorn University
					2012 - Present	● Chairman of the Board of Directors	● Highland Research and Development Institute (Public Organization)
					2011 - Present	● Civil Service Commissioner	● Office of the Civil Service Commission (OCSC)
					2011 - Present	● Honorary Committee	● Council of Walailak University

Name/Position	Age (year)	Education/Training	% of Shareholding	Family Relationship among Directors and Executives	Working Experiences in the Past 5 Years		
					Period	Position	Function/Company/Type of Business
					2010 - Present	● Board Member	● His Royal Highness Crown Prince Maha Vajiralongkorn Scholarship Foundation
					2010 - Present	● President	● Research and Development Institute of Sufficiency Economy Philosophy Foundation
					2008 - Present	● Chairman	● State Resources Preparation
					2006 - Present	● Member	● Office of the Council of State
					2013 - Sep 2016	● Honorary Board Member	● National Science and Technology Development Agency
					2010 - Sep 2016	● Secretary General	● The Cabinet
					2011 - 2015	● The Expert Judicial Administration Commissioner	● Office of Judiciary
					2004 - 2013	● Board Member	● Bank of Thailand
					2004 - 2013	● Member	● Monetary Policy Committee, Bank of Thailand

Name/Position	Age (year)	Education/Training	% of Shareholding	Family Relationship among Directors and Executives	Working Experiences in the Past 5 Years		
					Period	Position	Function/Company/Type of Business
Admiral Tanarat Ubol	62	Education	None	None	Other Listed Companies		
- Vice Chairman of the Independent Directors Committee - Chairman of the Corporate Governance Committee - Member of the Remuneration Committee		● Master of Public and Private Management, National Institute of Development Administration (NIDA), Thailand ● Bachelor of Science in Electrical Engineering, The National Defense Academy of Japan, Japan			None		
					Other Companies		
					Apr - Sep 2015	● Director	● Thai Aviation Industries Company Limited
					2014 - Mar 2015	● Chairman	● Bangkok Dock Company Limited
Begin Date		Training of Thai Institute of Directors Association			Other Organizations		
September 1, 2014	● Anti-Corruption: Leadership Role of the Board ● How to Develop a Risk Management Plan (HRP) 9/2016 ● Risk Management for Corporate Leaders (RCL) 26/2016 ● Boards that Make a Difference (BMD) 1/2016 ● Ethical Leadership Program (ELP) 1/2015	2015 - Present	● Royal Thai Navy Retired	● -			
		Apr - Sep 2015	● Director	● Equipment Control and Industry Development Committee, Defence Industry Department, Ministry of Defence			
		Apr - Sep 2015	● Deputy Chief of Joint Staff	● Royal Thai Armed Forces Headquarters			
		2014 - Mar 2015	● Chief of Staff	● Royal Thai Navy			
		2014 - Mar 2015	● Chairman	● Frigate Squadron Project			
		2013 - 2014	● Chairman	● Royal Thai Navy Transport Helicopter Procurement Project			

Name/Position	Age (year)	Education/Training	% of Shareholding	Family Relationship among Directors and Executives	Working Experiences in the Past 5 Years		
					Period	Position	Function/Company/Type of Business
		Director Certification Program (DCP) 204/2015			2013 - 2014	Chairman	HTMS Naresuan Frigate Squadron Improvement Project
		Other Trainings			2012 - 2013	Deputy Chief of Staff	Royal Thai Navy
		- Maritime Joint Force Commander Course (Admiral Level), Hawaii, U.S.A. - Advanced Security for Senior Executive, Hawaii, U.S.A. - National Institute for Defense Studies (Japan) (Class 45) - National Institute for Defense College (Class 51)			2011 - 2012	Assistant Chief of Staff for Operations	Royal Thai Navy

Name/Position	Age (year)	Education/Training	% of Shareholding	Family Relationship among Directors and Executives	Working Experiences in the Past 5 Years		
					Period	Position	Function/Company/Type of Business
Mr. Sethaput Suthiwart-Narueput - Independent Director - Chairman of the Risk Management Committee - Member of the Audit Committee - Member of the Nominating Committee	51	Education	None	None	Other Listed Companies		
		- Ph.D. Economics, Yale University, U.S.A. - M.Phil. Economics, Yale University, U.S.A. - B.A. (Highest Honors) Economics, Swarthmore College, U.S.A.			2011 - 2012	Director	TMB Bank Public Company Limited
					2009 - 2011	Executive Vice President and Chief Economist	Siam Commercial Bank (SCB) Group
		Training of Thai Institute of Directors Association			Other Companies		
					Apr 2016 - Present	Director	Osotspa Company Limited
					2011 - Present	Managing Partner	The Advisor Company Limited
					Other Organizations		
Begin Date	September 1, 2014	- Advanced Audit Committee Program (AACP) 18/2015 - Risk Management Committee Program (RMP) 6/2015 - Director Accreditation Program (DAP) 94/2012			2015 - Present	Director	Puey Ungphakorn Institute for Economic Research, Bank of Thailand
					2014 - Present	Member	Monetary Policy Committee, Bank of Thailand
					2012 - Present	Executive Chairman	Thailand Future Foundation
					2000 - Present	Visiting Professor of Economics	Sasin Graduate Institute of Business Administration, Chulalongkorn University
		Other Trainings					
		None			2000 – Feb 2016	Advisor on Academic Affairs	Sasin Graduate Institute of Business Administration, Chulalongkorn University

Name/Position	Age (year)	Education/Training	% of Shareholding	Family Relationship among Directors and Executives	Working Experiences in the Past 5 Years		
					Period	Position	Function/Company/Type of Business
Colonel Nimit Suwannarat	45	Education	None	None	Other Listed Companies		
- Independent Director		None					
- Member of the Nominating Committee		Other Companies					
- Member of the Risk Management Committee		None					
Begin Date		Other Organizations					
September 1, 2014		● Master of Arts in International Relations, Chulalongkorn University, Thailand			Nov 2016 - Present	● Senior Operation Officer	● Defence Industry and Energy Center, Office of the Permanent Secretary for Defence
		● Master of Science in Electrical Engineering (Communications and Signal Processing), University of Minnesota, U.S.A.					
		● Bachelor of Science in Electrical Engineering, Virginia Military Institute, U.S.A.					
		Training of Thai Institute of Directors Association					
	● Director Certification Program (DCP) 216/2016						
Other Trainings	2015 - Oct 2016	● Commanding Officer	● The 1 st Field Artillery Regiment King's Guard, Royal Thai Army				
● Public Key Infrastructure (Certification Authority, Digital Signature) Course, Canada							
		2010 - 2015	● Executive Officer	● The 1 st Field Artillery Regiment King's Guard, Royal Thai Army			

Name/Position	Age (year)	Education/Training	% of Shareholding	Family Relationship among Directors and Executives	Working Experiences in the Past 5 Years		
					Period	Position	Function/Company/Type of Business
		● Electronic Commerce Course, Orlando, U.S.A. ● Computer Emergency Response Team, Carnegie Melon, U.S.A. ● National Crisis Management Course, APCSS, U.S.A. ● Command and General Staff College (Class 83), Royal Thai Army ● Joint Staff Course, Joint Staff College ● Intermediate Certificate Course in Political Leadership in the New Era (Class 2), King Prajadhipok's Institute					

Name/Position	Age (year)	Education/Training	% of Shareholding	Family Relationship among Directors and Executives	Working Experiences in the Past 5 Years		
					Period	Position	Function/Company/Type of Business
Mr. Piti Tantakasem	46	Education	None	None	Other Listed Companies		
- Independent Director - Chairman of the Nominating Committee - Member of the Corporate Governance Committee - Member of the Risk Management Committee		● Ph.D. in Strategic Management (Joint Program: University of Nebraska, U.S.A. and Bangkok University, Thailand) ● Master of Business Administration, University of North Carolina at Chapel Hill, U.S.A. ● Bachelor of Engineering (Industrial Engineering), Chulalongkorn University, Thailand			2008 - Present	● Chief Wholesale Banking Officer	● TMB Bank Public Company Limited
					Other Companies		
					2009 - Present 1996 - Present 2011 - 2015	● Director ● Director ● Director	● National ITMX Company Limited ● Tiyana Company Limited ● TRIS Corporation Limited and TRIS Rating Company Limited
					Other Organizations		
Begin Date							
October 1, 2014	Training of Thai Institute of Directors Association	● Anti-Corruption: Leadership Role of the Board ● Boards that Make a Difference (BMD) 2/2016 ● Director Certification Program (DCP) 202/2015	Dec 2016 - Present	● Honorary Member	● Office of the Energy Conservation Promotion Fund Management Sub-committee		
			Oct 2016 - Present	● Sub-committee Member	● Public Sector Development Commission Sub-committee on Public Finance and Budgeting Development, Office of the Public Sector Development Commission (OPDC)		

Name/Position	Age (year)	Education/Training	% of Shareholding	Family Relationship among Directors and Executives	Working Experiences in the Past 5 Years		
					Period	Position	Function/Company/Type of Business
		● Anti-Corruption for Executive Program (ACEP) 15/2015			Jun 2016 - Present	● Senior Expert Committee	● Senior Expert Committee in Organizational Psychology on the Committee of the Public Sector Development Commission, Office of the Public Sector Development Commission (OPDC)
		Other Trainings			2015 – Present	● Member of the Working Group on Supporting Digital Economy Drive	● Joint Standing Committee on Commerce, Industry, and Banking
		● Capital Market Academy Leader Program (Class 23), Capital Market Academy ● Energy Literacy for a Sustainable Future Program (Class 6), Thailand Energy Academy ● Financial Derivatives, EuroMoney Training ● Chartered Financial Analyst, CFA Institute ● Executive Education: Building Leading Customer-Centric Organization			2014 - May 2016	● Project Sub-Committee	● Thailand Board of Investment (BOI)

Name/Position	Age (year)	Education/Training	% of Shareholding	Family Relationship among Directors and Executives	Working Experiences in the Past 5 Years		
					Period	Position	Function/Company/Type of Business
Mr. Wirat Uanarumit	54	Education	None	None	Other Listed Companies		
- Director - Member of the Risk Management Committee		- Master of Business Administration (Financial Management), Pennsylvania State University, U.S.A. - Bachelor of Engineering (Electrical Engineering), Chulalongkorn University, Thailand			Oct 2016 - Present	Chief Operation Officer	Upstream Petroleum and Gas Business Group, PTT Public Company Limited
Begin Date					Jan - Sep 2016	Director	Thai Oil Public Company Limited
February 23, 2015					2014 - Sep 2016	Chief Financial Officer	PTT Public Company Limited
					2014 - 2015	Director	Bangchak Petroleum Public Company Limited
		Training of Thai Institute of Directors Association			2012 - 2014	Executive Vice President – Corporate Finance	PTT Public Company Limited
		- Anti-Corruption: Leadership Role of the Board - Director Certification Program Update (DCPU) 5/2015 - Audit Committee Program (ACP) 38/2012 - Director Certification Program (DCP) 8/2001			2005 - 2011	Deputy Managing Director – Finance	Thai Oil Public Company Limited
					Feb - Oct 2011	Senior Executive Vice President – Corporate Accounting and Finance	IRPC Public Company Limited
					Other Companies		
					Oct 2016 – Present	Chairman	PTT Energy Resources Company Limited

Name/Position	Age (year)	Education/Training	% of Shareholding	Family Relationship among Directors and Executives	Working Experiences in the Past 5 Years		
					Period	Position	Function/Company/Type of Business
		Other Trainings			Oct 2016 - Present	● Director	● Sakari Resources Limited
		● Advanced Certificate Course in Public Economics Management for Executive (Class 20), The College of Politics and Governance, King Prajadhipok’s Institute (KPI) ● Thailand CG Forum: Governance as a Driving Force for Business Sustainability, The Stock Exchange of Thailand ● Advanced Management Program, INSEAD Business School, France ● Advanced Management Program 184, Harvard Business School, U.S.A. ● Capital Market Academy Leadership Program (Class 4), Capital Market Academy ● The Program for Senior Executives on Justice Administration (Class 16), Office of the Judiciary			2014 - 2015	● Director	● PTT International Trading Private Limited
					2012 - 2015	● Director	● Star Petroleum Refining Public Company Limited (SPRC)
					Other Organizations		
					Aug 2016 - Present	● Advisor to the President	● Association of Capital Market Academy (ACMA)
					May 2016 - Present	● Advisory Committee	● Trade, Investment Promotion & Business Council, Federation of Thai Industries
					2015 - Present	● Chairman	● Thailand – Malaysia Business Council, Federation of Thai Industries
					2015 - Present	● Director	● Thai-Chinese Railway Finance and Investment Sub-Committee, Thai-Chinese Railway Development Committee
					2015 - Present	● Director	● Chulalongkorn University Alumni Association (CUAA) (2015-2017)

Name/Position	Age (year)	Education/Training	% of Shareholding	Family Relationship among Directors and Executives	Working Experiences in the Past 5 Years		
					Period	Position	Function/Company/Type of Business
		- Advanced Security Management Program (Class 2), The National Defence College Association of Thailand - TLCA Executive Development Program (Class 1), Association of Listed Companies, Stock Exchange of Thailand - The Joint State – Private Sector Course (Class 2013), National Defence College - Executive Management with Business Development and Investment (Class 2), Institute of Business and Industrial Development (IBID)			2014 - Present 2013 - Present 2015 - Apr 2016 2015 - Apr 2016	- Director and Treasurer - Director & Audit Committee - Advisory Committee - Director	- Kamnoetvidya Science Academy School (KVIS) & Vidyasirimedhi Institute of Science and Technology (VISTEC) - Thailand Management Association (TMA) - Promoting and Supporting Office of Industries, Federation of Thai Industries - The Joint Standing Committee on Commerce, Industry and Banking

Name/Position	Age (year)	Education/Training	% of Shareholding	Family Relationship among Directors and Executives	Working Experiences in the Past 5 Years				
					Period	Position	Function/Company/Type of Business		
Mr. Songsak Saicheua	58	Education	None	None	Other Listed Companies				
- Independent Director		None							
- Member of the Corporate Governance Committee		Other Companies							
		None							
		Other Organizations							
Begin Date							2013 - Present	● Director General	● Department of American and South Pacific Affairs, Ministry of Foreign Affairs
March 26, 2015							2011 - 2013	● Minister	● Royal Thai Embassy, Kuala Lumpur, Malaysia
							2010 - 2011	● Deputy Director General	● Department of American and South Pacific Affairs, Ministry of Foreign Affairs

Name/Position	Age (year)	Education/Training	% of Shareholding	Family Relationship among Directors and Executives	Working Experiences in the Past 5 Years		
					Period	Position	Function/Company/Type of Business
Mr. Twarath Sutabutr	47	Education	None	None	Other Listed Companies		
- Director		2014 - 2015 Apr - Jul 2015 Feb - Oct 2011			● Director ● Director ● Independent Director	● Thai Oil Public Company Limited ● PTT Public Company Limited ● PTT Aromatics and Refining Public Company Limited	
- Member of the Risk Management Committee							
Begin Date		Other Companies					
October 1, 2015		None					
		Other Organizations					
		2015 - Present 2014 - Present 2014 - Present 2014 - 2015 2014 - 2015 2009 - 2014			● Director-General ● Spokesperson ● Advisor to the Board of Directors ● Deputy Director General ● Chairman ● Deputy Director General	● Energy Policy and Planning Office, Ministry of Energy ● Ministry of Energy ● Thai Green Building Institute ● Ministry of Energy ● Department of Alternative Energy Development and Efficiency Co-Operative ● Department of Alternative Energy Development and Efficiency	

Name/Position	Age (year)	Education/Training	% of Shareholding	Family Relationship among Directors and Executives	Working Experiences in the Past 5 Years		
					Period	Position	Function/Company/Type of Business
		• e-Government Executive Program (e-GEP) (Class 5), Electronics Government Agency (Public Organization) • Advance Management Program (AMP) INSEAD, France (Government Officials Development Scholarship, Office of the Civil Service Commission) • Top Executive Program in Commerce and Trade (TEPCoT) (Class 6), University of Thai Chamber of Commerce • TLCA Executive Development Program (EDP) (Class 9), Capital Market Academy • The Civil Service Executive Program fo Senior Civil Servants (Class 61), Office of the Civil Service Commission					

Name/Position	Age (year)	Education/Training	% of Shareholding	Family Relationship among Directors and Executives	Working Experiences in the Past 5 Years		
					Period	Position	Function/Company/Type of Business
		● New Wave Leadership Development (Class 3), Office of the Civil Service Commission ● Energy Executive Program (Class 2), Ministry of Energy ● Infrastructure in a Market Economics, Harvard University, Cambridge, U.S.A.					

Name/Position	Age (year)	Education/Training	% of Shareholding	Family Relationship among Directors and Executives	Working Experiences in the Past 5 Years		
					Period	Position	Function/Company/Type of Business
Mr. Pitipan Tepartimargorn	60	Education	None	None	Other Listed Companies		
- Director - Member of the Risk Management Committee		2015 - Sep 2016			● Chief Operation Officer	● Upstream Petroleum and Gas Business Group, PTT Public Company Limited	
Begin Date		2015 - Jan 2016			● Acting Senior Executive Vice President, Human Resources & Organization Excellence	● PTT Public Company Limited	
November 1, 2015							
		Training of Thai Institute of Directors Association					
		● Anti-Corruption: Leadership Role of the Board ● Anti-Corruption for Executive Program (ACEP 4/2012) ● Director Certification Program (DCP 138/2010)			2010 - 2015	● Senior Executive Vice President, Human Resources & Organization Excellence	● PTT Public Company Limited
		Other Trainings			Other Companies		
	● Strategic Human Resource Management, Harvard University, U.S.A.	2014 – Nov 2016	● Director and Chairman of the Remuneration Committee	● Sakari Resources Limited			

Name/Position	Age (year)	Education/Training	% of Shareholding	Family Relationship among Directors and Executives	Working Experiences in the Past 5 Years		
					Period	Position	Function/Company/Type of Business
		● NIDA – Wharton Executive Leadership Program, The Wharton School, University of Pennsylvania, U.S.A. ● Senior Executive Program (SEP), Sasin Graduate Institute of Business Administration ● Advance Political and Electoral Development Program (Class 3), Office of The Election Commission of Thailand ● PTT Executive Leadership Program, General Electrics, Crotonville, U.S.A. ● Capital Market Academy Leadership Program (Class 19), Capital Market Academy			Apr – Oct 2016	● Chairman	● PTT Energy Resources Company Limited
					2012 - 2015	● Chairman	● PTT Polymer Logistics Company Limited
					2010 - 2015	● Chairman	● PTT ICT Solutions Company Limited
					2012 - 2014	● Chairman	● PTT Polymer Marketing Company Limited
					2010 - 2012	● Chairman	● Energy Complex Company Limited
					Other Organizations		
					2015 - Present	● Council Member, Executive Board Member, and Chairman of the Personnel Management Committee	● Vidyasirimedhi Institute (VISTEC)
					2014 - Present	● Director	● The Civil Service Sub-Commission on Development of Human Resource Management (HRM), Office of the Civil Service Commission (OCSC)

Name/Position	Age (year)	Education/Training	% of Shareholding	Family Relationship among Directors and Executives	Working Experiences in the Past 5 Years		
					Period	Position	Function/Company/Type of Business
Ms. Panada Kanokwat	67	Education	0.00076 (30,000 shares)	None	Other Listed Companies		
- Independent Director - Member of the Audit Committee		2014 - Present			● Independent Director and Member of the Audit Committee	● Global Power Synergy Public Company Limited	
Begin Date							
February 12, 2016		2014 - Present			● Member of the Corporate Governance Committee	● TISCO Financial Group Public Company Limited	
Training of Thai Institute of Directors Association							
● Anti-Corruption: Leadership Role of the Board ● Directors Certification Program Update (DCPU) 2/2014 ● Risk Management Committee Program (RMP) 4/2014 ● Anti-Corruption for Executive (ACEP) 8/2013 ● Anti-Corruption Focus Group (C-FG) 4/2013		2008 - Present			● Independent Director	● TISCO Financial Group Public Company Limited	
	2013 - 2014	● Member of the Audit Committee	● TISCO Financial Group Public Company Limited				
	2013 - 2014	● Member of the Audit Committee	● TISCO Bank Public Company Limited				
	2008 - 2014	● Independent Director	● TISCO Bank Public Company Limited				
	2011 - 2013	● Chairman of the Audit Committee	● TISCO Bank Public Company Limited				

Name/Position	Age (year)	Education/Training	% of Shareholding	Family Relationship among Directors and Executives	Working Experiences in the Past 5 Years		
					Period	Position	Function/Company/Type of Business
		● Financial Institutions Governance Program (FGP) 2/2011 ● Directors Certification Program (DCP) 113/2009 ● Directors Accreditation Program (DAP) 75/2008			2011 - 2013	● Chairman of the Audit Committee	● TISCO Financial Group Public Company Limited
		2008 - 2011			● Member of the Audit Committee	● TISCO Financial Group Public Company Limited	
		2008 - 2011			● Member of the Audit Committee	● TISCO Bank Public Company Limited	
		Other Companies					
		2015 - Present			● Independent Director and Chairman of the Audit Committee	● Asia Biomass Company Limited	
		Other Organizations					
		2014 - Present			● Member of the Risk Management Sub-committee	● Government Pension Fund (GPF)	
		● Executive Program in Capital Market Academy Leadership Program (Class 2), Capital Market Academy ● Executive Program in International Management, Stanford-National University of Singapore, Singapore ● Building, Leading & Sustaining the Innovation Organization, Sloan School of Management, Massachusetts Institute of Technology (MIT), U.S.A.					

Name/Position	Age (year)	Education/Training	% of Shareholding	Family Relationship among Directors and Executives	Working Experiences in the Past 5 Years		
					Period	Position	Function/Company/Type of Business
Mr. Somporn Vongvuthipornchai	58	Education	0.00597 (236,869 shares)	None	Other Listed Companies		
- Director		Jan - Oct 2015			● Executive Vice President	● Strategy and Business Development Group, PTT Exploration and Production Public Company Limited	
- President and Chief Executive Officer							
Begin Date		2010 - 2014			● Executive Vice President	● International Asset Group, PTT Exploration and Production Public Company Limited	
October 22, 2015							
		Other Companies					
		2014 - 2015			● Director	● PTT FLNG Limited	
		2012 - 2015			● Director	● PTTEP FLNG Holding Company Limited	
		2008 - 2015			● Director	● PTTEP Southwest Vietnam Company Limited	
		2008 - 2015			● Director	● PTTEP Hoan-Vu Company Limited	
	2007 - 2015	● Director	● PTTEP Africa Investment Limited				
	Other Organizations						
	Mar 2016 - Present	● Director	● RAIST-RASA Foundation				
	2015 - Present	● Director	● Thailand Energy Academy				

Name/Position	Age (year)	Education/Training	% of Shareholding	Family Relationship among Directors and Executives	Working Experiences in the Past 5 Years		
					Period	Position	Function/Company/Type of Business
		Other Trainings			2015 - Present	● Director	● Thai Listed Companies Association
		● Anti-Corruption Strategic Management Course for Senior Executive (Class 6), Sanya Dharmasakti Anti-Corruption Institute (SDI), Office of the National Anti-Corruption Commission (NACC)			2014 - 2015	● Director	● Thai-Myanmar Association for Friendship
		● Energy Literacy for a Sustainable Future (Class 2), Thailand Energy Academy					
		● Leadership Development Program III (2013), PTT Leading and Learning Institute (PLLI)					
		● GE Energy Customer Executive Leadership Program (2012), GE Global Learning, Crotonville, U.S.A.					
		● Advanced Management Program 2006 (Executive Education Program), Harvard Business School, U.S.A.					

Director who Retired during Year 2016

Name/Position	Age (year)	Education/Training	% of Shareholding	Family Relationship among Directors and Executives	Working Experiences in the Past 5 Years		
					Period	Position	Function/Company/Type of Business
Mr.Chakkrit Parapuntakul	57	Education	None	None	Other Listed Companies		
		● M.B.A., Angelo State University, U.S.A. ● Bachelor of Accounting, Thammasat University, Thailand			2015 – Present	● Director	● Siam Commercial Bank Public Company Limited
		Training of Thai Institute of Directors Association			2012 - 2015	● Chairman of the Board of Directors	● ASEAN Potash Mining Public Company Limited
		● Audit Committee Program (ACP) 5/2005 ● Director Accreditation Program (DAP) 8/2004			2014 - 2015	● Director and Member of the Board of Executive Directors, and Chairman of the Risk Management Committee	● Krungthai Bank Public Company Limited
		Other Trainings			2008 - 2014	● Advisor to the Audit Committee	● Eastern Water Resource Development and Management Public Company Limited
		● The Program for Senior Executives on Justice Administration (Class 19), Office of the Judiciary ● Capital Market Academy Leadership Program (Class 11), Capital Market Academy					
		Other Companies					
		2013 - 2014			● Director	● Thai Smile Airways Company Limited	

Name/Position	Age (year)	Education/Training	% of Shareholding	Family Relationship among Directors and Executives	Working Experiences in the Past 5 Years		
					Period	Position	Function/Company/Type of Business
		● The Joint State - Private Sector Course (Class 52), National Defense College ● Program for Chief Information Officer (Class 46), Office of the Civil Service Commission ● Executive Development Program (EDP) (Class 66), Kellogg School of Management, U.S.A. ● Training Course on Administrative Justice for Executives (Class 5), Institute for Administrative Justice, The Administrative Court			2010 - 2011	● Chairman	● Thailand Post Company Limited
					Other Organizations		
					2015 - Present	● Director General	● Treasury Department, Ministry of Finance
					2012 - 2015	● Deputy Permanent Secretary	● Ministry of Finance
					2009 - 2012	● Director General	● Public Debt Management Office

Criminal offense record during the past 10 years

- | | |
|---|----|
| a) Being adjudged of convicting a crime or being on trial for convicting a crime | No |
| b) Being adjudged bankrupt or a receiver is appointed | No |
| c) Being a management in the company or partnership which is adjudged bankrupt or a receiver is appointed | No |

Remarks: The name and number(s) of the authorized directors who may sign to bind the Company from December 21, 2016 are Mr. Manas Jamveha, Mr. Wirat Uanarumit, Mr. Twarath Sutabutr, and Mr. Pitipan Teparatimargorn. Two of the above four directors can sign jointly and affix the Company's seal, or Mr. Somporn Vongvuthipornchai, the President, can sign singly.

2. Management

As of January 1, 2017, PTTEP management team had 20 personnel as defined by the Capital Market Supervisory Board. Details are shown below.

Name/Position	Age (year)	Education/Training	% of Shareholding	Family Relationship among Directors and Management	Working Experiences in the Past 5 Years		
					Period	Position	Function/ Company/ Type of Business
Mr. Somporn Vongvuthipornchai President and Chief Executive Officer	Please see part 1 for details						
Mr. Phongsthorn Thavisin Chief Operating Officer ¹ , Production Asset and Operations Support Group and acting Executive Vice President, Operations Support Group	57	B.Sc. (Petroleum and Natural Gas Engineering), The Pennsylvania State University, U.S.A. IOD: DCP 223 (2016)	0.00125 (49,715 shares)	None	Jan 2016 – Present Sep 2016 – Present 2015 Jun 2012 – 2014 2010 – Jun 2012	● Chief Operating Officer, Production Asset and Operations Support Group ● Acting Executive Vice President, Operations Support Group ● Executive Vice President, Technology and Sustainability Development Group ● Executive Vice President, Engineering and Development Group ● Senior Vice President, Engineering and Construction Division	PTTEP PTTEP
Mr. Thiti Mekavichai Executive Vice President, Human Resources and Business Services Group	55	B.Sc. (Geography), Srinakharinwirot (Prasarnmitr) University	0.00183 (72,661 shares)	None	Sep 2012 – Present 2011 – Aug 2012	● Executive Vice President, Human Resources and Business Services Group ● Senior Vice President, Human Resources Division	PTTEP PTTEP

¹ This position is equivalent to Executive Vice President.

Name/Position	Age (year)	Education/Training	% of Shareholding	Family Relationship among Directors and Management	Working Experiences in the Past 5 Years		
					Period	Position	Function/ Company/ Type of Business
Mr. Kanit Sangwongwanich Executive Vice President, Engineering and Development Group	59	B.Sc. (Petroleum Engineering), University of Wyoming, U.S.A.	0.00300 (118,943 shares)	None	2015 – Present	● Executive Vice President, Engineering and Development Group	PTTEP
					Mar – Dec 2014	● Executive Vice President, Operations Support Group	PTTEP
					2013 – Feb 2014	● Senior Vice President, Well Technology Division	PTTEP
					2009 – 2012	● Senior Vice President, seconded as General Manager, Carigali-PTTEPI Operating Company SDN. BHD. (CPOC), Malaysia	PTTEP
Mr. Prapat Soponpongpiat Executive Vice President, Geosciences and Exploration Group	58	M.Sc. (Geology), New Mexico, Institute of Mining and Technology, U.S.A.	0.00128 (50,685 shares)	None	2016 – Present	● Executive Vice President, Geosciences and Exploration Group	PTTEP
					2015	● Senior Vice President, Geosciences and Technology Division	PTTEP
					2011 – 2014	● Senior Vice President, International Asset	PTTEP
Mrs. Suchitra Suwansinpan Executive Vice President, attached to President and Chief Executive Officer	56	M.E. (Energy Technology), Asian Institute of Technology	0.00221 (87,794 shares)	None	Oct 2016 – Present	● Executive Vice President, attached to President and Chief Executive Officer	PTTEP
					Dec 2015 – Oct 2016	● Executive Vice President, Strategy and Business Development Group	PTTEP
					2011 – Nov 2015	● Senior Vice President, Corporate Strategy Division	PTTEP

Name/Position	Age (year)	Education/Training	% of Shareholding	Family Relationship among Directors and Management	Working Experiences in the Past 5 Years		
					Period	Position	Function/ Company/ Type of Business
Ms. Pannalin Mahawongtikul Executive Vice President, Finance and Accounting Group	52	M.Sc. (Business Administration), Thammasat University	0.00050 (19,979 shares)	None	2016 – Present	● Executive Vice President, Finance and Accounting Group	PTTEP
					2014 – 2015	● Executive Vice President, Corporate Finance	PTT
					2012 – 2014	● Vice President, Strategy and Financial Policy	PTT
Mrs. Pranot Tirasai Executive Vice President, Corporate Affairs and Assurance Group and Acting Senior Vice President, Corporate Secretary Division, assigned as Company Secretary	58	LL.B (Laws), Thammasat University IOD: DCPU 5 (2015) CSP (2014) DCP 185 (2014)	0.00386 (153,128 shares)	None	2017 – Present	● Executive Vice President, Corporate Affairs and Assurance Group and Acting Senior Vice President, Corporate Secretary Division	PTTEP
					Oct 2013 – 2016	● Senior Vice President, Corporate Secretary Division	PTTEP
					2010– Sep 2013	● Senior Vice President, Legal Division	PTTEP
Mr. Montri Rawanchaikul Acting Executive Vice President, Strategy and Business Development Group	52	M.Sc. (Exploration Geophysics), University of New South Wales, Australia	0.00092 (36,608 shares)	None	Oct 2016 – Present	● Acting Executive Vice President, Strategy and Business Development Group	PTTEP
					Sep – Oct 2016	● Senior Vice President, International Asset	PTTEP
					Jul – Aug 2016	● Senior Vice President, attached to Production Asset and Operations Support Group	PTTEP

Name/Position	Age (year)	Education/Training	% of Shareholding	Family Relationship among Directors and Management	Working Experiences in the Past 5 Years		
					Period	Position	Function/ Company/ Type of Business
					Jul 2013 – Jul 2016	Senior Vice President, Australia Asset, seconded as General Manager, Australia Asset, PTTEP Australasia, Australia	PTTEP
					2009 – Jun 2013	Vice President, Oman Asset, seconded as General Manager, Oman Asset, PTTEP Oman, Oman	PTTEP
Mr. Chatchawal Eimsiri Executive Vice President, seconded to PTT Natural Gas Distribution Company Limited	57	M.Sc. (Operation Research), London School of Economics and Political Science, University of London, United Kingdom IOD: DCP 91 (2007)	0.00123 (48,876 shares)	None	Feb 2015 – Present	Executive Vice President, seconded as President, PTT Natural Gas Distribution Company Limited	PTT NGD
					Aug 2014 – Jan 2015	Executive Vice President, attached to President and Chief Executive Officer	PTTEP
					2011 – Jul 2014	Executive Vice President, seconded to PTT Public Company Limited	PTT
Mr. Yongyos Krongphanich Senior Vice President, Finance Division	56	M.Sc. (Accounting), Thammasat University	0.00250 (99,328 shares)	None	Jul 2014 – Present	Senior Vice President, Finance Division	PTTEP
					Feb 2014 – Sep 2015	Acting Senior Vice President, Accounting Division	PTTEP
					2013 – Jun 2014	Senior Vice President, Finance and Strategic Information Technology Division	PTTEP
					2011 – 2012	Senior Vice President, Accounting Division	PTTEP

Name/Position	Age (year)	Education/Training	% of Shareholding	Family Relationship among Directors and Management	Working Experiences in the Past 5 Years		
					Period	Position	Function/ Company/ Type of Business
Ms. Jaroonsri Wankertphon Senior Vice President, Accounting Division	51	M.Sc. (Financial Accounting), Thammasat University IOD: DCP 220 (2016)	0.00165 (65,604 shares)	None	Jul 2016 – Present	• Senior Vice President, Accounting Division	PTTEP
					2015 – Jun 2016	• Acting Senior Vice President, Accounting Division	PTTEP
					Jul 2014 – Jun 2016	• Vice President, Accounting Policy and Solutions Department	PTTEP
					Jul 2013 – Jun 2014	• Vice President, Managerial Accounting Department	PTTEP
					2010 – Jun 2013	• Vice President, Corporate Accounting Department	PTTEP
Mrs. Chanamas Sasnanand Vice President, Capital and Investor Relations Department	47	M.Sc. (Business Administration), University of South Carolina, U.S.A.	0.00090 (35,691 shares)	None	Apr 2014 – Present	• Vice President, Capital and Investor Relations Department	PTTEP
					Apr 2010 – Mar 2014	• Vice President, Finance Department	PTTEP
					Mar 2010	• Acting Manager, Finance Department	PTTEP
Mr. Anutra Bunnag Vice President, Treasury Department	53	M.Sc. (Finance), University of Massachusetts, U.S.A.	None	None	Oct 2016 – Present	• Vice President, Treasury Department	PTTEP
					2011 – Sep 2016	• Vice President, seconded as Vice President, Corporate Administration and Finance Department, Energy Complex (EnCo)	Energy Complex (EnCo)

Name/Position	Age (year)	Education/Training	% of Shareholding	Family Relationship among Directors and Management	Working Experiences in the Past 5 Years		
					Period	Position	Function/ Company/ Type of Business
Ms. Porntip Jansuksri Vice President, seconded as Corporate Administration and Finance Department, Energy Complex (EnCo)	54	M.Sc. (Business Administration), Kasetsart University	0.00072 (28,588 shares)	None	Oct 2016 – Present	● Vice President, seconded as Vice President, Corporate Administration and Finance Department, Energy Complex (EnCo)	Energy Complex (EnCo)
					2014 – Sep 2016	● Vice President, Treasury Department	PTTEP
					Jul – Dec 2013	● Vice President, Financial Accounting Department	PTTEP
					2011 – Jun 2013	● Vice President, Project Accounting Department	PTTEP
Mrs. Sirirat Sararattanakul Vice President, Financial Accounting Department	55	M.Sc. (Accounting), Thammasat University	0.00534 (211,874 shares)	None	2014 – Present	● Vice President, Financial Accounting Department	PTTEP
					2008 – 2013	● Vice President, Office Facility Management Department	PTTEP
Ms. Kanchanan Panananda Vice President, Managerial Accounting Department	46	M.Sc. (Business Administration), Thammasat University	0.00130 (51,486 shares)	None	Apr 2015 – Present	● Vice President, Managerial Accounting Department	PTTEP
					2014 – Mar 2015	● Manager, Accounting Policy	PTTEP
					2010 – 2013	● Manager, seconded as Finance Manager, Indonesia Asset, Indonesia	PTTEP

Name/Position	Age (year)	Education/Training	% of Shareholding	Family Relationship among Directors and Management	Working Experiences in the Past 5 Years		
					Period	Position	Function/ Company/ Type of Business
Mr. Sakchai Sarawek Vice President, Accounting Policy and Solutions Department	47	M.Sc. (Accounting Information System), Chulalongkorn University	0.00059 (23,522 shares)	None	Jul 2016 – Present	● Vice President, Accounting Policy and Solutions Department	PTTEP
					2009 – Jun 2016	● Vice President, attached to Australia Asset, seconded as Finance and Accounting Manager, PTTEP Australasia, Australia	PTTEP
Mrs. Maneeya Srisukhumbowornchai Vice President, Tax Department	42	M.Sc. (Business Administration), Thammasat University	None	None	May 2015 – Present 2014 – Apr 2015	● Vice President, Tax Department ● Manager, Tax Compliance	PTTEP PTTEP
Mrs. Thanyaporn Vangvasu Specialist	58	B.BA (Accounting), Assumption University	0.00367 (145,511 shares)	None	May 2015 – Present 2009 – Apr 2015	● Specialist ● Vice President, Tax Department	PTTEP PTTEP

Name/Position	Age (year)	Education/Training	% of Shareholding	Family Relationship among Directors and Management	Working Experiences in the Past 5 Years		
					Period	Position	Function/ Company/ Type of Business
Management Who Retired or Ended Secondment during the Year 2016							
Mr. Kitisak Nualchanchai	60	M.PA (Public Administration), National Institute of Development Administration	0.00195 (77,546 shares)	None	Sep – Dec 2016	● Executive Vice President, Technology and Sustainability Development Group	PTTEP
					Jan – Aug 2016	● Executive Vice President, Technology and Sustainability Group and Acting Executive Vice President, Operations Support Group	PTTEP
					2015	● Executive Vice President, Operations Support Group	PTTEP
					Nov 2013 – 2014	● Senior Vice President, Bongkot Asset	PTTEP
					2011 – Oct 2013	● Senior Vice President, Safety, Security, Health and Environment Division	PTTEP

Director of Subsidiaries and Associated Companies

1. **Subsidiary:** As of December 31, 2016, there were 59 subsidiaries.

Name (Only director designated by PTTEP Group)	Subsidiaries														
	PTTEP AU	PTTEP AP	PTTEP AO	PTTEP AIF	PTTEP AB	PTTEP AA	PTTEP AT	PTTEP AAF	PTTEP AAP	PTTEP AAT	PTTEP AAO	PTTEP AAA	PTTEP AAS	PTTEP BL	PTTEP CA
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Mrs. Pranot Tirasai	/	/	/	/	/	/	/	/	/	/	/	/	/		
Mr. Nirandom Rojanasomsith	/	/	/	/	/	/	/	/	/	/	/	/	/		
Ms. Pratamaporn Deesrinthum	/	/	/		/		/				/	/	/		
Mr. Montri Rawanchaikul				/		/		/	/	/					
Mr. Sakchai Sarawek				/		/		/	/	/					
Ms. Pannalin Mahawongtikul				X											
Mr. Somkiat Thaepunkulngam														/	
Mr. Chaiwat Sorntirux															/
Mr. Don Greenfield															/

Remarks: / = Director X = Chairman

Name (Only director designated by PTTEP Group)	Subsidiaries														
	PTTEP CIF	CEEAL	CEMROL	PTTEP MZA1	PTTEP FH	PTTEP HK	PTTEP HKO	CEKL	PTTEPO	PTTEP MEA	PTTEP AG	PTTEPH	ATL	PTTEP KV	PTTEP SV
	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ms. Pannalin Mahawongtikul	/														
Mr. Chaiwat Sorntirux	/														
Mr. Chaiyaphon Chirakorn	/														
Mr. Direk Wangudomsuk		/	/	/				/							
Ms. Stella Kattashi		/	/	/											
Mr. Kanok Intharawijitr					/										
Mr. Preecha Peomwattanachai					/					/					
Mrs. Chanamas Sasnanand						/			/			/			
Ms. Jaroonsri Wankertphon						/									
Mr. Chalongrut Ya-anan							/								
Mr. Terapol Phoonsiri							/								
Mr. Suppakarn Thanatit							/								
Mr. Kanit Sangwongwanich								/							
Mr. Montri Rawanchaikul									/			/			
Mr. Peerapong Chailapo											/				
Mr. Piya Sukhumpanumet													/		
Mr. Kittisak Hiranyaprathip													/	/	
Mr. Sorasan Milindasuta														/	
Mr. Komson Tachapanich															/
Mr. Monton Santivongskul															/

Remarks: / = Director X = Chairman

Name (Only director designated by PTTEP Group)	Subsidiaries														
	PTTEP HV	PTTEP HL	PTTEP SA	PTTEP IH	PTTEP ID	PTTEP AI	PTTEP SVPC	JV Marine	PTTEP NL	PTTEPR	PTTEP SMD	PTTEP SS	PTTEP SD	PTTEP ML	PTTEP SM
	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Mr. Monton Santivongskul	/	/													
Mr. Sorasan Milindasuta		/													
Mr. Piya Sukhumpanumet			/												
Mr. Nopasit Chaiwanakupt			/								/			/	
Mr. Montri Rawanchaikul				/											
Mr. Noppadol Pinpipat				/		/			/						
Mr. Titi Thongjen					/						/	/	/	/	/
Mr. Piya Oungpasuk					/		/								
Mr. Anun Chonchawalit						/				/					
Mr. Kanit Sangwongwanich						/			/						
Mr. Phongsthorn Thavisin							/								
Mr. Vuthiphon Thuampoomngam								/							
Mr. Denkey Thatchaichawalit								/							
Mrs. Chanamas Sasnanand										/					
Mr. Prapat Soponpongpiat												/			
Ms. Jaroonsri Wankertphon													/		
Mr. Wanchai Mahasuwannachai															/

Remarks: / = Director X = Chairman

Name (Only director designated by PTTEP Group)	Subsidiaries													
	PTTEP IR	SHL	PTTEP NC	PTTEP NH	PTTEP BI	PTTEPI	PTTEPS	PTTEP SERVICES	ORANGE	PTTEP G7	PTTEP TC	PTTEP BC	COVE	PTTEP SP
	46	47	48	49	50	51	52	53	54	55	56	57	58	59
Mr. Piya Oungpasuk	/													
Mr. Terapol Phoonsiri	/											/		
Mr. Waranon Laprabang		/					/							
Mr. Dittapon Soothi-O-Soth		/					/							
Vistra Management Services (Netherlands) B.V.			/	/	/									
Mrs. T.S.M. Van Dijk			/	/	/									
Mr. Chaiwat Sorntirux			/											
Mr. Yongyos Krongphanich				/					/					
Mr. Yongsith Kosawititkul				/										
Mr. Noppadol Pinpipat					/							/		
Mr. Chalongrut Ya-anan					/									
Mr. Vuthiphon Thuampoomngam						/			/	/				
Mr. Sorasan Milindasuta						/								
Mr. Putikarn Aurat								/						
Mrs. Sujinda Phloi-Montri								/						
Mr. Denkey Thatchaichawalit									/	/				
Mr. Direk Wangudomsuk													/	
Mr. Mana Rojpibulstit													/	
Ms. Jaroonsri Wankertphon											/			
Mrs. Sirirat Sararattanakul											/			
Mr. Anutra Bunnag											/			
Mr. Kittisak Hiranyaprathip														/
Mr. Supakorn Krisadasima														/

Remarks: / = Director X = Chairman

2. **Associated Company:** As of December 31, 2016, there were 16 associated companies.

Name (Only director designated by PTTEP Group)	Associated Companies										
	EnCo	PTT ICT	B 8/32 Partner	CPOC	MGTC	Mangalalu	Troughton Island	Erawan FSO 2 Bahamas	PTT FLNG	LAL	Natuna 2 B.V.
	1	2	3	4	5	6	7	8	9	10	11
Mr. Thiti Mekavichai	/	/									
Ms. Pannalin Mahawongtikul	/										
Mrs. Kesara Limmeechokchai	/										
Mr. Anusorn Wuthijaroen	/										
Mr. Yongyos Krongphanich			/								
Mr. Denkey Thatchaichawalit			/					/			
Mr. Andy Jacob						/	/				
Mr. Gavin Ryan						/	/				
Mr. Phongsthorn Thavisin				/					/		
Mr. Yongsith Kosawititkul									/		
Mr. Preecha Peomwattanachai									/		
Mr. Chaiwat Sorntirux										/	
Mrs. T.S.M. Van Dijk											/
Mr. Titi Thongjen											/
Mr. Piya Sukhumpanumet					/						
Mr. Nopasit Chaiwanakupt*				/	/						

* Alternate Director

Remarks: 1. / = Director X = Chairman

2. Five associated companies which do not have any directors from PTTEP are:

- (1) TPC and Asia Pacific Marine Service are governed by shareholders' meetings.
- (2) HV JOC, HL JOC and GBRS are governed by the Management Committee.

1. Details of Head of the Internal Audit Division are shown in the table below.

Name/Position	Education	Trainings	Work Experience in the Past 5 Years	
			Period	Position/Unit
Ms. Chaveeporn Chamsang Acting Senior Vice President, Internal Audit Division	B.B.A. (Banking and Finance), Chulalongkorn University	2016 IIA Conference by Asia Confederation of Institute of Internal Auditors, Singapore 2015 IIA Conference by Asia Confederation of Institute of Internal Auditors - Continuous Auditing P2P Process 5th National Conference on Collective Action Against Corruption - IIA International Conference, The Institute of Internal Auditors, London - Auditing Mergers and Acquisitions, MIS Training Institute, Hong Kong - Internal Audit Asia Conference, Asia Business Forum - Strategizing Approaches for Operational Risk, Marcus Evans (Thailand) Ltd. - Risk Management in Drilling Activities, Asia Business Forum - Construction Project Risk Management, Asia Business Forum - Construction Project Cost Management and Control, Asia Business Forum 2007 Asian Conference on Internal Audit, The Institute of Internal Auditors, China - The IIA Internal Audit Conference, The Institute of Internal Auditors, U.S.A. - Due Diligence for M&A Master Class, Asia Business Forum - Internal Audit Conference, The Institute of Internal Auditors, Australia - Forensic Accounting, Accounting Alumni, Chulalongkorn University - Anti-corruption: the Practical Guide, Thai Institute of Directors Association (IOD) - Risk Management and Fraud Investigation Master Class, UNI Strategic - Basic Compliance and Ethics Academies, Society of Corporate Compliance and Ethics	Jan. 2017 – Present Oct. 2013 – 2016 Jun. 2012 – Sep. 2013 2005 – Jun. 2012	- Acting Senior Vice President, Internal Audit Division, PTTEP - Vice President, Internal Audit Department, PTTEP - Vice President, Compliance Department, PTTEP - Senior Internal Auditor, PTTEP

2. Details of Head of the Compliance Department are shown in the table below.

Name/Position	Education	Trainings	Work Experience in the Past 5 Years	
			Period	Position/Unit
Mr. Verasak Manchuwong Vice President, Compliance Department	B.B.A. (Accounting), Thammasat University	- Thailand's 7th National Conference on Collective Action Against Corruption "Ethical Leadership: Combating Corruption Together" 2016 2nd and 3rd CG Forum by The Stock Exchange of Thailand - Public Procurement and Supplies Management Bill - FCPA Investigations: Combating Corruption in International Business - SCCE's 12th Annual Compliance & Ethics Institute, Society of Corporate Compliance and Ethics 2014 ACFE Asia-Pacific Fraud Conference 2014 European Compliance & Ethics Institute Conference - Fraud and Corruption - Super Strategies The Audit Best Practices - Chief Audit Executive Summit	Oct. 2013 – Present 2003 – Sep. 2013	- Vice President, Compliance Department, PTTEP - Vice President, Internal Audit Department, PTTEP

- None -

Abbreviations

BBL	Barrel
BOE	Barrel of Oil Equivalent
BOED	Barrel of Oil Equivalent per Day
BPD	Barrel per Day
BSCF*	Billion Standard Cubic Feet
BTU	British Thermal Unit
CNG ¹	Compressed Natural Gas
DCQ	Daily Contract Quantity
GSA	Gas Sale Agreement
HOA	Heads of Agreement
KBD	Thousand Barrels per Day
LNG ²	Liquefied Natural Gas
LPG	Liquefied Petroleum Gas
MMBBL	Million Barrels
MMBOE	Million Barrels of Oil Equivalent
MMBPD	Million Barrels per Day
MMSCF*	Million Standard Cubic Feet
MMSCFD*	Million Standard Cubic Feet per Day
MMSTB*	Million Stock-Tank Barrels
MMSTBD*	Million Stock-Tank Barrels per Day
NGV	Natural Gas for Vehicles
STB*	Stock-Tank Barrel
STBD*	Stock-Tank Barrel per Day
TCF	Trillion Cubic Feet
TPD	Ton per Day
USD	US Dollar

* Referring to gas and oil at standard condition, 60° F and 1 atmosphere (ATM)

¹ Natural gas liquefied by increasing pressure

² Natural gas liquefied by decreasing temperature



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