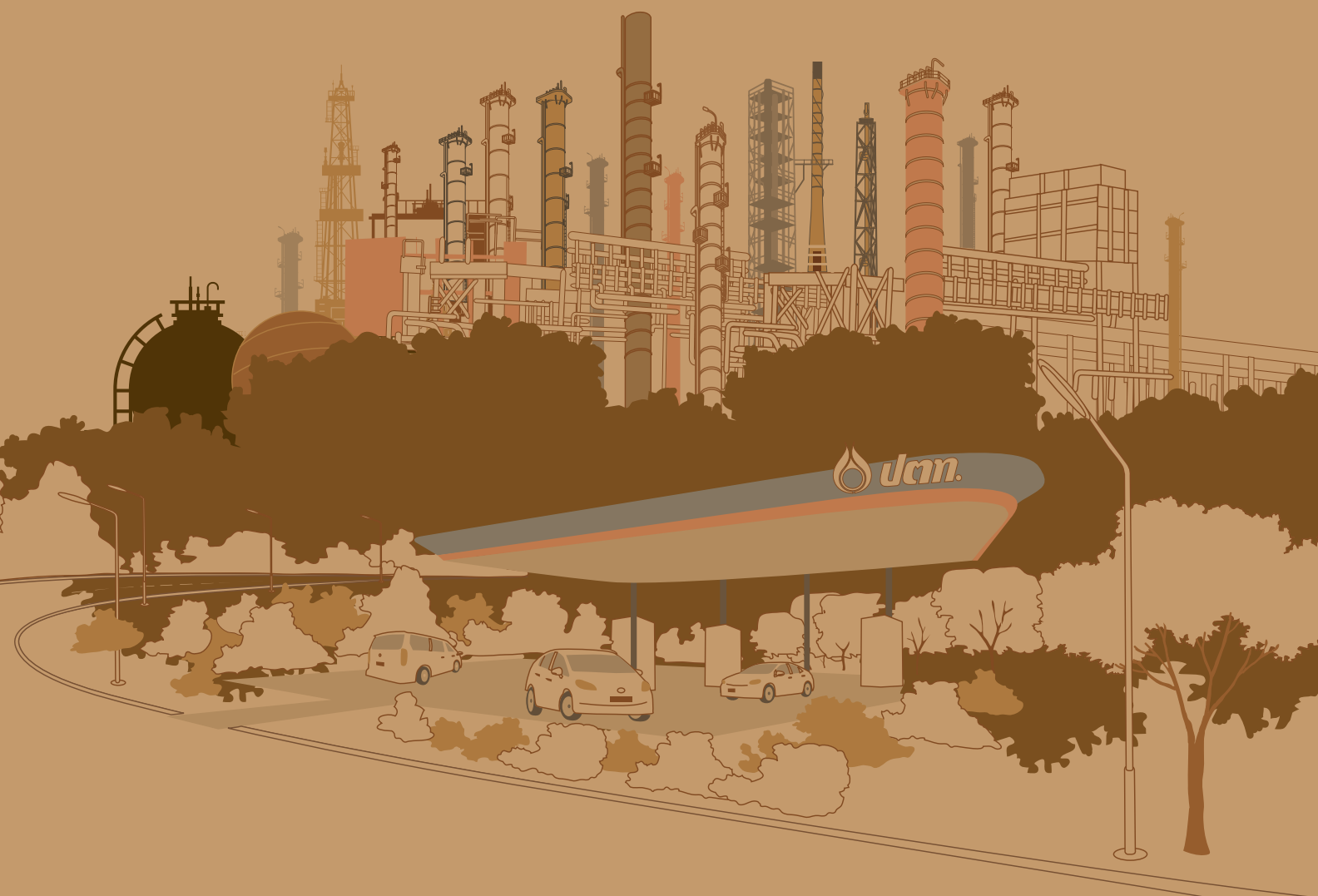


Carrying on
Noble Quest
for Thailand's Energy Sustainability

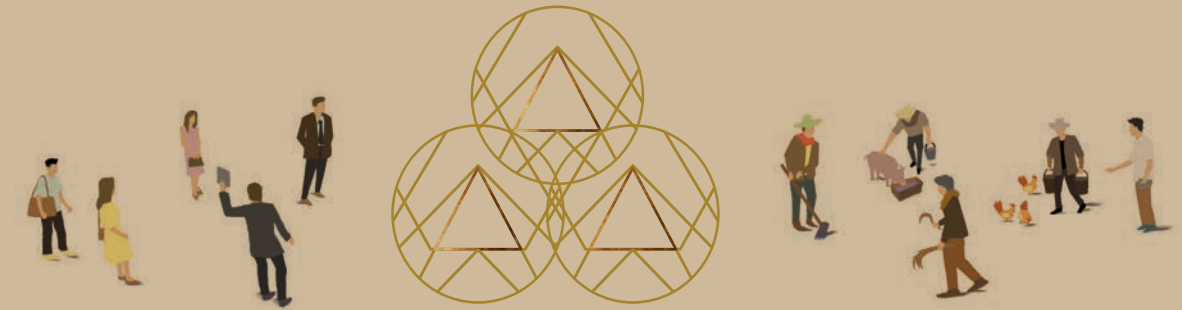


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Carrying on the Noble Quest

{ Sufficiency }



H.M. the late King provided guidelines on sufficient way of life, which is simple and gracefully adequate.

PTT has humbly applied the Sufficiency Economy Philosophy to advocate Thais in the “84 Tambons on a Sufficiency Path Project”.

{ Vetiver }



As vetiver roots hold firmly to soil, so have his ingenuity and royal duties captured our hearts.

Humbly applying H.M. the late King's initiative on vetiver grass to implementation, PTT has built on the success and advocated the usage of vetiver in soil and water conservation since 1993.

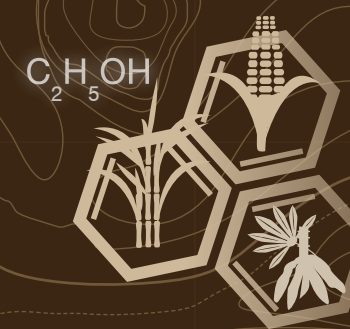
{ Royal Rainmaking }



His gracious generosity touched our hearts, as the royal rain has been cooling all over the kingdom.

PTT has supported over 9,060 tons of dry ice to the Royal Rainmaking Project.

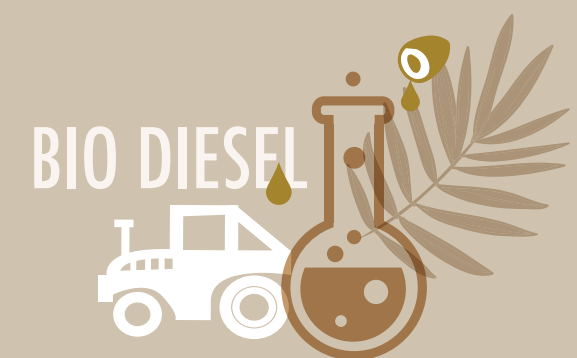
{ Gasohol }



Fueled by knowledge and innovation, H.M. the late King has invented renewable energy for Thais.

PTT has participated in R&D on gasohol formulation with the Royal Chitralada Projects and have been promoting gasohol among Thais today.

{ Biodiesel }



With his vision, H.M. the late King guided Thailand to pursue on energy self-reliance.

Researching and developing biodiesel to create security for the nation in terms of energy, agri-industry and environment.

{ Planting Trees in People's Hearts }



His determination in instilling love for trees in people's hearts has fostered sustainability for forests.

For over 20 years since the One-Million-Rai of Reforestation Project in honor of H.M. The King, PTT has continued its mission to actively nurture the forest.

{ Royal Projects }



His gracious generosity strengthened local communities and enhanced their quality of life.

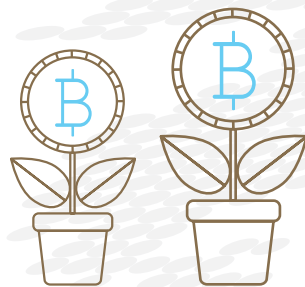
PTT has partnered with the Royal Project in researching and developing coffee as well as strengthening local communities in order to be self-reliance.

His Majesty the late King Bhumibol Adulyadej was the remarkable force and inspiration for PTT Group's way of conducting businesses. We are adhered to his noble quest to carry on the mission in ensuring energy security for sustainability of Thailand.

Energy for Sustainability

As global businesses face increasingly daunting circumstances, PTT Group has humbly applied H.M. the late King Bhumibol Adulyadej's Sufficiency Economy Philosophy to all its tasks. Our focus is on suitable investment, relentless pursuit of emerging business opportunities, development of immunity for security filled with good governance, transparency, and fairness while creating value for communities and society and showing earnest responsibility. Everything we do is meant to drive Thailand toward robust, balanced, and sustainable growth.

THB 94.609 billion in net profit,
375% higher than last year



Adjusted investment plans
for optimal budget efficiency

PRODUCTIVITY IMPROVEMENT

In support of
the Pracharath Sookjai Project,
148 service station shops sold local goods
while easing farmers' plight through
the "Joining Forces to Buy Rice
from Farmers" Project,
selling

3,076 tons
and generating THB 108 million

GOOD Governance

Worldwide acclaim evident in
17 international and domestic CG awards



**DJSI
Membership**
for the 5th
consecutive year,
attested by
RobecoSAM Corporate
Sustainability Assessment

Applied engineering know-how
by developing Hydraulic ram pumps
to help reduce community problem;

lowered electricity
charges by
THB
**7,000 –
12,000** /month



lowering
GHG emissions by
47,000
kg CO₂ equivalent/year



Successfully passed morality
and transparency NACC
assessment of performance
by public agencies.



Rated "very high"
3 successive
years

Three key public service
approaches through
over

40

conservation of
natural resources,
social development,
and human resource
development projects

Offered NGV discounts to buses
worth THB
2.231 billion

and supported
to needy households
worth THB **367 million**

**NGV
LPG**

Successfully
negotiated long-term
LNG supply agreements
with BP Shell and Petronas
worth 3 million tons/year,
lowering import bills by

THB
110
billion
over the project life

Extended the forest stewardship mission
under the One-Million-Rai Reforestation
in Honor of H.M. the King Project, with a total of

1,207,800 rai
covered to date



Expand businesses to overseas

Managed 183 service stations abroad
and 50 Café Amazon outlets together
with lubricant export to 37 countries

183



37



50



Successfully Promoted

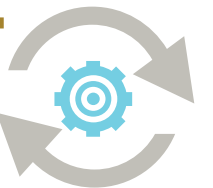
56,547
hours



the volunteer spirit of executives
and employees through the year.

Revenue from cooperation
among PTT, business partners,
and PTT Group totaled

THB
1.72
trillion



PTT GROUP VISION

Thai Premier Multinational Energy Company

PTT GROUP MISSION

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

To the country

Ensuring long-term energy security by providing sufficient high-quality energy supply at fair prices to support economic growth

To community and society

Maintaining a good standing corporate status in Thai society by exercising environmental stewardship of internationally accepted standards and helping to improve the quality of life for community and society

To shareholders

Operating profitable business that leads to sustainable growth while generating optimum returns

To customers

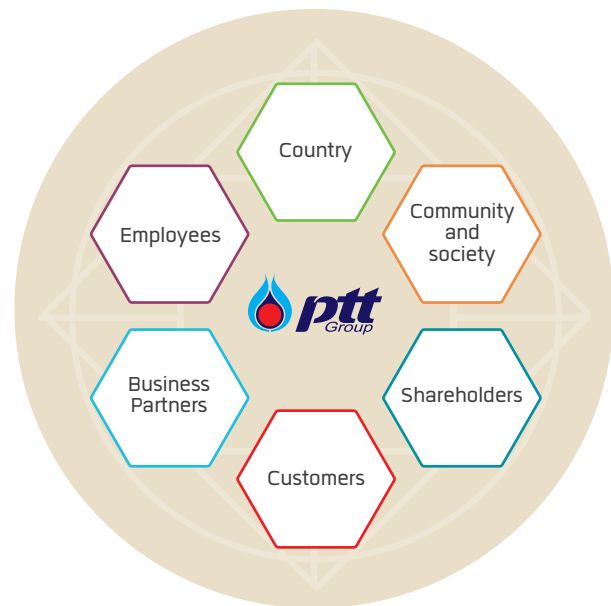
Ensuring customer satisfaction and loyalty by delivering world-class quality products and services at fair prices

To business partners

Conducting fair business practice with all partners while promoting trust, relationship, and cooperation to expand business capability and increase efficiency in long-term business partnership

To employees

Promoting capability building professionally and ensuring employees' well-being is on the level with other leading companies



PTT STRATEGIC FRAMEWORK





Financial Highlights

| | | 2014 | 2015 | 2016 |
|--|------------------|-----------|-----------|--------------------|
| Statement of income (THB million) | | | | |
| Sales and Service Income | | 2,605,062 | 2,025,552 | 1,718,846 |
| Earnings before Finance Costs, Income Taxes, Depreciation, and Amortization including Other Non-operating Income and Expenses (EBITDA) | | 275,450 | 286,214 | 312,526 |
| Net Income (Loss) | | 58,678 | 19,936 | 94,609 |
| Statement of Financial Position (THB million) | | | | |
| Total Assets | | 2,250,351 | 2,173,996 | 2,232,331 |
| Total Liabilities | | 1,195,657 | 1,086,309 | 1,060,734 |
| Total Equity | | 371,408 | 390,540 | 408,649 |
| Total Equity Attributable to Equity Holders of the Company | | 683,287 | 697,147 | 762,948 |
| Shares or Information about Common Shares | | | | |
| Shares and Fully Paid-up Share Capital | (Million Shares) | 2,856 | 2,856 | 2,856 |
| Book Value per Share ^{1/} | (THB) | 239.22 | 244.07 | 267.14 |
| Earnings per Share ^{1/} | (THB) | 20.34 | 6.73 | 32.68 |
| Dividend per Share | (THB) | 11.00 | 10.00 | 6.00 ^{2/} |
| Dividend Payout Ratio to Net Income | (%) | 54.1 | 148.6 | 35.8 ^{2/} |
| Share Price at the End of Financial Period | (THB) | 324 | 244 | 372 |
| Financial Ratios | | | | |
| Net Profit to Total Sales Revenue | (%) | 2.60 | 1.52 | 7.54 |
| Return on Equity | (%) | 8.69 | 2.89 | 12.96 |
| Return on Total Assets | (%) | 3.02 | 1.39 | 5.88 |
| Debt to Equity | (Times) | 0.69 | 0.61 | 0.52 |
| Net Debt to Equity | (Times) | 0.39 | 0.29 | 0.19 |
| Net Debt to EBITDA | (Times) | 1.50 | 1.09 | 0.71 |
| Interest Coverage | (Times) | 10.99 | 9.50 | 9.23 |

Remarks:

1/ Based on the weighted common shares of 2,856.30 million (as of December 31, 2015) and 2,856.30 million (as of December 31, 2016).

2/ Dividend payout ratio for interim dividend as of September 16, 2016 approved by the Board of Directors as of August 19, 2016.

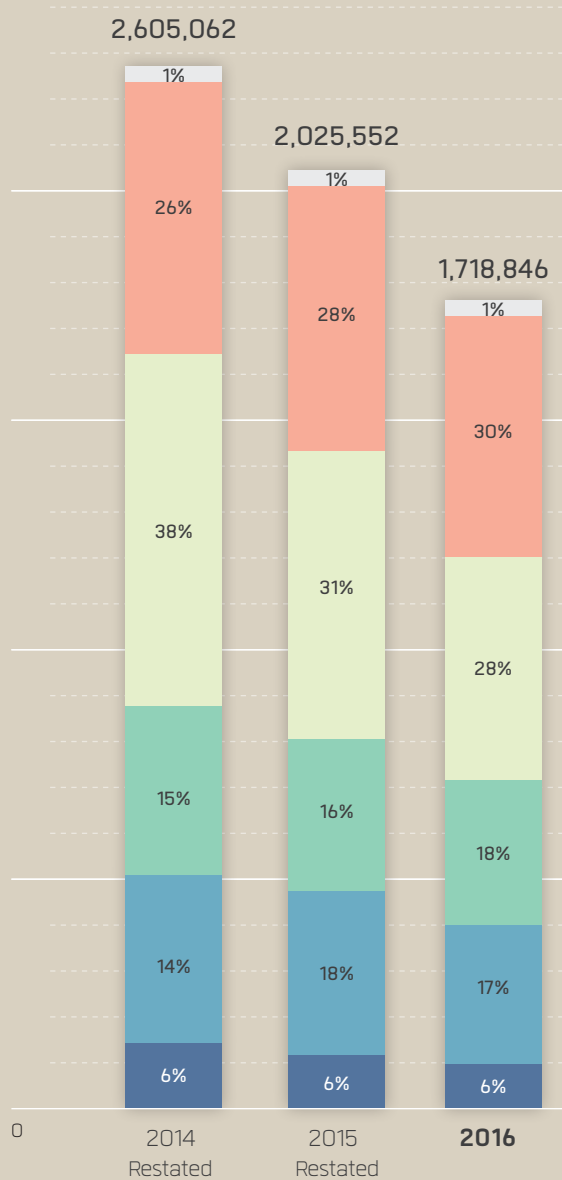
Sales and Service Income

Unit: THB million

-22%

-15%

3,000,000



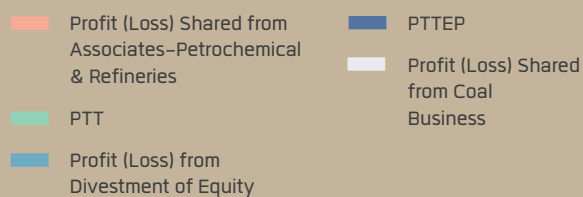
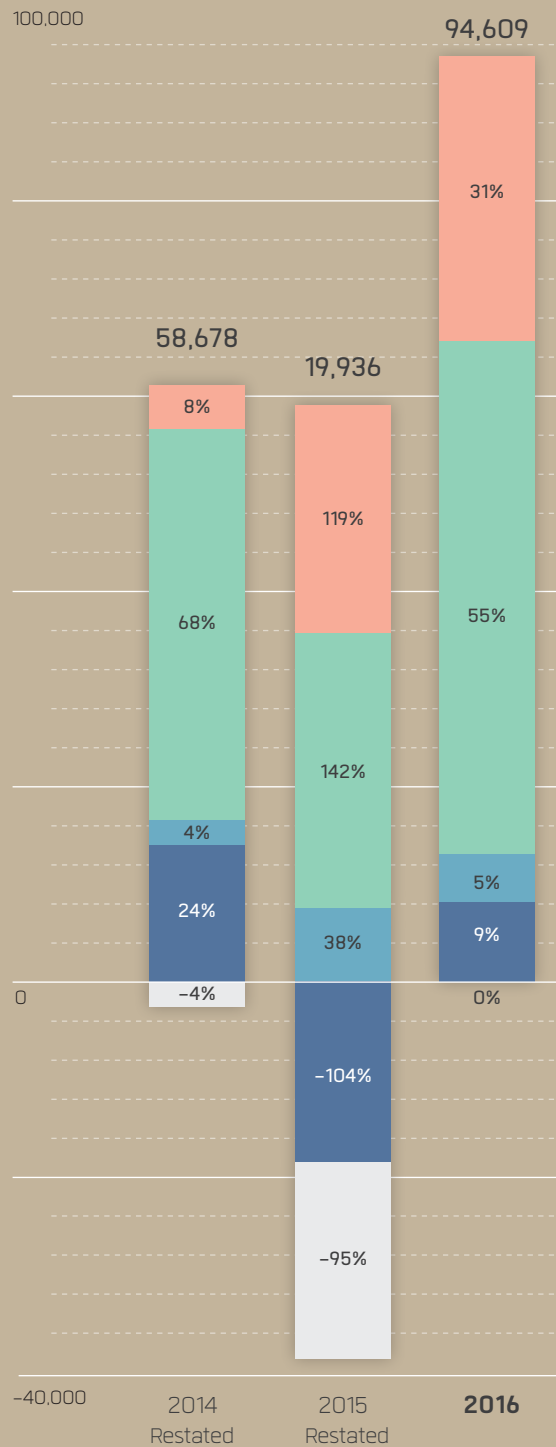
Net Income

Unit: THB million

-66%

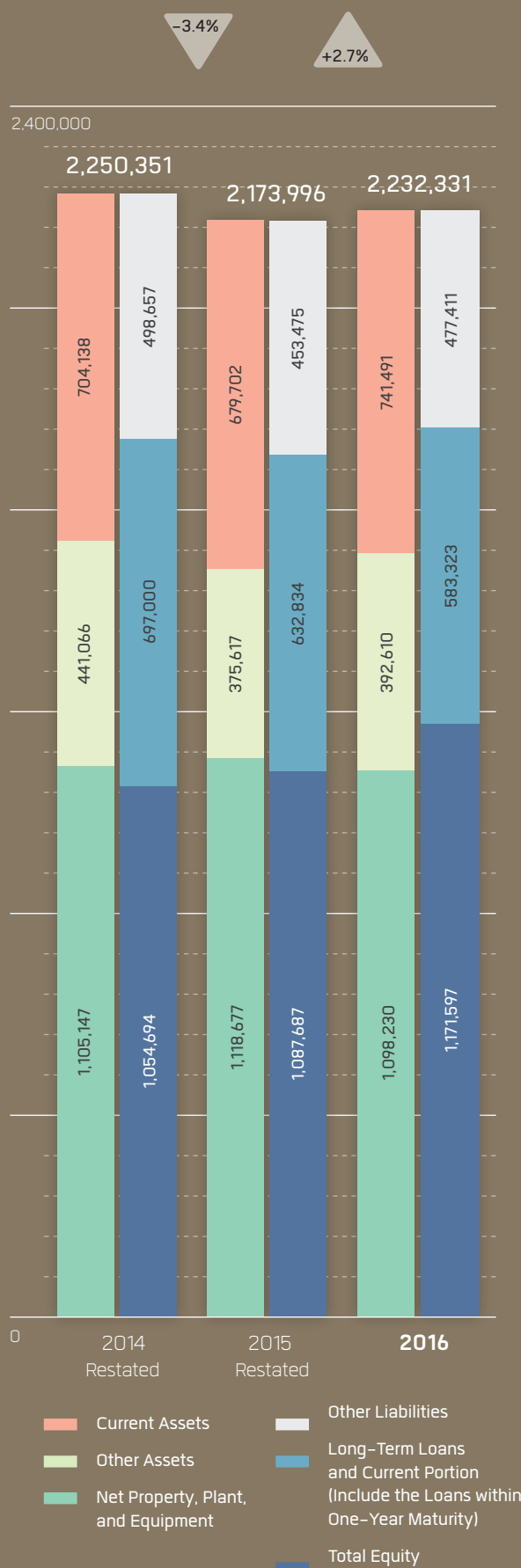
+>100%

100,000



Statement of Financial Position

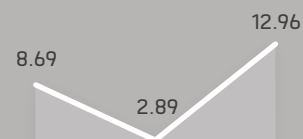
Unit: THB million



Financial Ratios

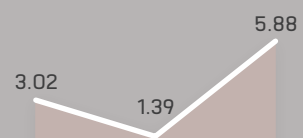
Return on Equity

(%)



Return on Total Assets

(%)



Debt to Equity

(Times)



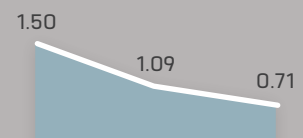
Net Debt to Equity

(Times)



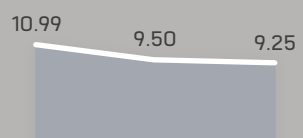
Net Debt to EBITDA

(Times)



Interest Coverage

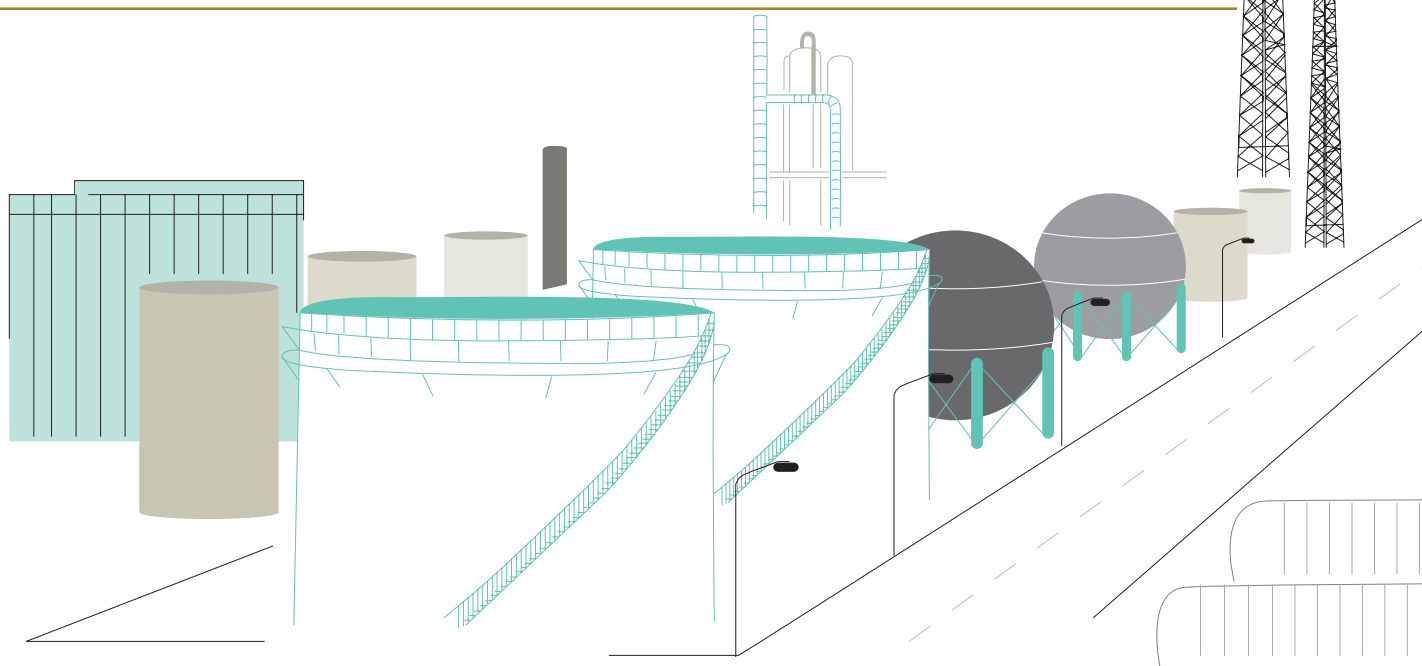
(Times)





PTT Information

| | |
|--|---|
| Name | PTT Public Company Limited |
| Initial | PTT |
| Registered Number | 0107544000108 |
| Type of Business | The Company operates petroleum business through investments in subsidiaries, joint ventures, and associates (PTT Group), which are engaged in upstream and downstream petroleum, coal, power and infrastructure businesses. |
| Registered Capital | THB 28,572,457,250, including 2,857,245,725 common shares at THB 10 per share (as of December 31, 2016) |
| Issued and Fully Paid-up Capital | THB 28,562,996,250, consisting of 2,856,299,625 common shares at THB 10 per share (as of December 31, 2016) |
| <hr/> | |
| Head Office | 555 Vibhavadi Rangsit Road, Chatuchak, Bangkok 10900, Thailand Telephone: 66 (0) 2537-2000 Fax: 66 (0) 2537-3498-9 Website: www.pttplc.com |
| Corporate Communications Department | Telephone: 66 (0) 2537-2150-1 Fax: 66 (0) 2537-2572, 66 (0) 2537-2171 E-mail: corporate@pttplc.com |
| Investor Relations Department | Telephone: 66 (0) 2537-3518-9 Fax: 66 (0) 2537-3948 E-mail: ptt-ir@pttplc.com |
| Office of the President and Corporate Secretary | Telephone: 66 (0) 2537-3885-6, 66 (0) 2537-3855 Fax: 66 (0) 2537-3883, 66 (0) 2537-3887 E-mail: corporatesecretary@pttplc.com |



References

- Securities Registrar

Thailand Securities Depository Company Limited

1st Floor, The Stock Exchange of Thailand Building,
93 Ratchadapisek Road, Dindaeng, Bangkok 10400, Thailand

Telephone: 66 (0) 2009-9999

Fax: 66 (0) 2009-9991

- Auditor

Office of the Auditor General

Rama VI Road, Phayathai, Bangkok 10400, Thailand

Telephone: 66 (0) 2271-8000

Fax: 66 (0) 2618-5769

- Registrar

Siam Commercial Bank Public Company Limited

Registrar 1, Markets Operations Division, Corporate Trust Sale, Corporate Trust

15th Floor, North Wing,

G Tower Grand Rama 9,

Huai Khwang,

Bangkok 10310, Thailand

Telephone: 66 (0) 2128-2394-9

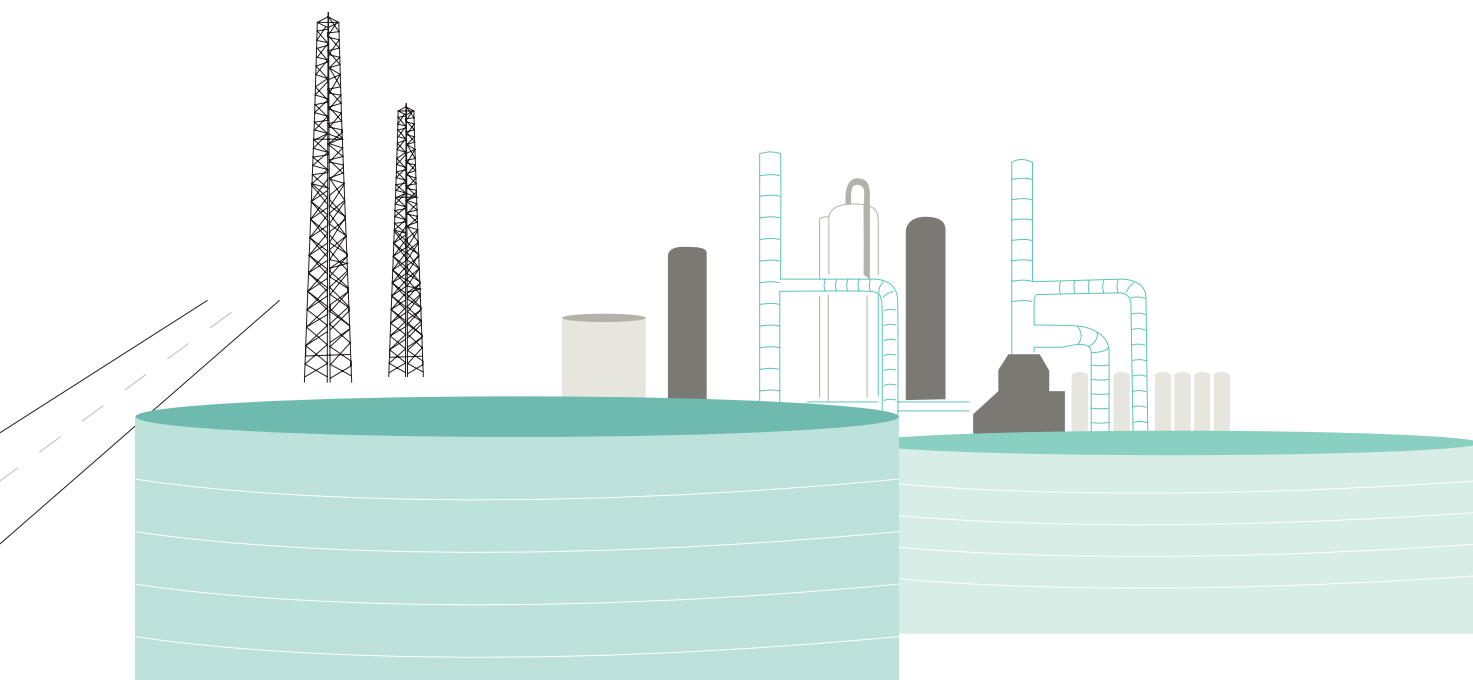
Fax: 66 (0) 2128-4625

9 Ratchadapisek Road,

Chatuchak, Bangkok 10900

Telephone: 66 (0) 2544-3937, 66 (0) 2544-2923

Fax: 66 (0) 2544-7475





Message from the Board of Directors

Pride and Treasure
of Thailand



Mr. Piyasvasti Amranand
Chairman, Board of Directors

Mr. Tevin Vongvanich
President & CEO



Dear Shareholders

From H.M. the late King Bhumibol Adulyadej's royal grace and legacy, the Sufficiency Economy philosophy was bestowed upon Thai people. To become a Pride and Treasure of Thailand, all along PTT has humbly adopted such philosophy as guidance for its businesses. To elaborate, PTT emphasizes the importance of engaging all stakeholders and executes its core mission by supplying adequate thorough fair and sustainable national energy in parallel with its sustainable stewardship of society, communities, and the environment. Our overall business has pursued suitable returns, constant growth covering the upstream, midstream, and downstream businesses to strengthen immunity for the corporation with strict regard for corporate governance, risk management, and QSHE management on a par with international standards. Finally, our employees are required to be smart, conscientious, and responsible.

In 2016, we continued to face a slowly recovering global economy with lower GDP growth than anticipated, mainly due to slumping commodity prices, weak trade and investment, and volatile money markets due to China's economic slow down, the UK's decision to quit the EU (Brexit), and the outcome of the US presidential election, including oil price volatility. The Dubai oil price dropped to USD 22.80 per barrel in January this year, albeit ending the year slightly higher, whereas the year's price average dipped below that of last year. PTT Group therefore defined its business strategies in "3D":

- Do Now-productivity improvement to be implemented immediately to strengthen the business amid energy price volatility
- Decide Now-sustainable growth to be achieved through 3-5-year investment decisions for organic growth with a focus on leveraging competitiveness and business advantages of PTT Group
- Design Now-priming for leapfrogging growth by leveraging innovation and new technologies for new S-Curve growth characterized by customer centricity and opportunities derived from megatrends together with the addressing of the public sector's industrial drive to "Thailand 4.0".

Pride and Treasure of Thailand

In forging national energy security, in 2016 we successfully negotiated a long-term LNG supply agreement with business partners, which lowered LNG import costs by roughly THB 110 billion for the entire agreement period. Construction work has been accelerated on the first LNG-receiving terminal, expanding from 5 to 10 million tons per year, to be inaugurated early in this coming year. Besides, we have secured Cabinet approval to heighten the terminal's capacity to 11.5 million tons per year, due for completion by 2019. Finally, construction of the second terminal to accommodate 7.5 million tons per year is set for completion by 2022.

As far as our oil business is concerned, PTT has launched 18 “PTT Compact Model” service stations to multiply its service to communities on secondary roads, a number set to soon rise along with the development of “Mini-Community Malls” to accommodate burgeoning urban growth. Employing its nationwide service station network, PTT engaged in public service by setting up “Pracharath Sookjai Shops” on 148 service station compounds that served as outlets for agricultural products, community enterprise goods, and outstanding OTOP (One Tambon One Product) community products; local tourism information centers; a project for rice purchase from suffering rice farmers, which generated THB 108 million in income for them; housing of assistance for flood victims in the South; and the “Yak-Lak-Yim” (sorting for smile) Project to cultivate the habit of waste sorting while using the income derived from selling sorted waste for social and community development. Partly as a result of these projects, our domestic retail oil market share this year maintained leadership (at 40.8%) while PTT remained the most popular brand for the 13th consecutive year by BrandAge Magazine and the “No.1 Brand Thailand” by Marketeer Magazine for the fifth consecutive year.

Committed to improving lives everywhere it operates, PTT constantly leverages business know-how in coordination with community participation in solving community problems. This year the Natural Gas Transmission group applied engineering know-how by using natural energy to solve the water shortage of the Ban Khanun Khli and Ban Phu Toei communities in Kanchanaburi by developing hydraulic ram pumps to take water from a lower elevation to a higher elevation. At the same time, hydraulic power generates electricity for needy communities. This project is being extended in collaboration with the Royal Forest Department in order to build on the “Sufficiency Agriculture Project” under H.M. the late King’s initiative to divert water from water sources to arid agricultural plots and forests. Meanwhile, PTT remains determined to play its part in the conservation and stewardship of natural resources, an effort of which is based on reforestation and forest rehabilitation. In 2016, PTT handed over 54,600 rai of reforested acreage to public agencies, adding to the total since 2013. To date, 208,081 rai has been covered out of the 2022 goal of 500,000 rai. Other natural conservation projects include a project on water, forest and Khung Bang Kachao conservation and another on five pilot livable towns. Our pride this year is a project on urban forest, “PTT Metro-Forest project”, graciously inaugurated on May 18 by H.R.H. Princess Maha Chakri Sirindhorn, named the outstanding landscape architecture award of the year by the American Society of Landscape Architects.

In summary, our performance this year netted a profit of THB 94.609 billion, a substantial THB 74.673-billion rise from last year. Whereas a part of this gain came from a lower recorded accounting impairment and a stock gain from early in the year (totaling approximately THB 70 billion), the lower average sales revenue of petroleum and petrochemical products contributed to a substantial drop as well to THB 1.72 trillion from THB 2.03 trillion last year while the margins of the petrochemical and refining business plummeted by some THB 20 billion. Nonetheless, thanks to the serious productivity efforts made by all dedicated PTT Group personnel, we have supplemented THB 24 billion in value. One must not forget that our businesses span the entire value chain (from upstream to downstream), which explains why PTT Group’s performance recovered faster than several other leading oil companies that primarily invested in the upstream business.

Our success is prominently seen in the assorted acclaim we earned this year, including the Outstanding State Enterprise Award, DJSI (Dow Jones Sustainability Indices) membership for a fifth consecutive year, The Asset CEO of the Year (oil and gas business), and Asia’s Outstanding Corporate Governance Award, and Excellent CG Scoring, presented by Thai Institute of Directors Association (IOD). All these awards resulted from the total dedication of PTT Group’s executives and employees together with the caliber of the Board and wonderful support from the shareholders and all stakeholders.

On behalf of the Board of Directors, we are sincerely grateful to the shareholders and all stakeholders for their trust in and support to PTT’s operations. Please rest assured that the Board, the management, and all employees will remain as committed as ever to carrying out their missions so that PTT will always remain the Pride and Treasure of Thailand.



Report of the Audit Committee



K. Kittayarak

Mr. Kittipong Kittayarak
Chairman of the Audit Committee

Dear Shareholders

PTT's current Audit Committee consists of three knowledgeable independent directors, chaired by Mr. Kittipong Kittayarak and with Ms. Nuntawan Sakuntanaga and Mr. Vichai Assarasakorn as members. Serving as secretary to this committee is Ms. Nitaya Direksathapon, Senior Executive Vice President and Acting a Position of Executive Vice President, Office of Corporate Audit.

The committee executed its Board-assigned duties in line with its own charter, which agrees with SEC's best practices. It reviewed and drove PTT's compliance with corporate good governance, sufficient risk management and internal control systems, and efficient and effective internal audit process. It ensured PTT's emphasis on being a transparent organization while upgrading the quality of PTT Group's internal audit in an attempt to evolve the Office of Corporate Audit into a "Trustworthy Partner" to create long-term value added for PTT. Below are the highlights.

- Forging a corporate culture of governance and compliance, driving the Three Lines of Defense concept. To this end, it advocated proactive audit, in which the internal auditor communicates and educates both PTT's senior management and employees on corporate good governance, implementation of the anti-corruption policy, internal audit process, and adoption of the Internal Control Mindset - a key tool for senior management to supervise and control business for transparency. That way, PTT can accomplish business objectives under business ethics.

- Driving development of personnel, regarded as a vital resource for business, through the likes of the Internal Audit Academy continuous development and review of the internal audit competency framework so that internal auditors may perform professionally and efficiently. In addition, the committee advocated to PTT and PTT Group employees mastery of governance, risk management, internal control, and compliance through communication by senior management and running workshops.

- Advocating the extension of IT to audits and prevention of fraud together with more extensive application of IT by business units. This aligns with PTT's policy and business directions, which promotes the deployment of IT systems to bolster international advantages. The committee also ensured that PTT commanded a systematic, efficient, and timely process for monitoring and managing risks, particularly commodity price volatility, cybersecurity, databases security, and succession plans. Finally, it also advocated a circumspect investment decision-making and a stress test based on sensible assumption to assess business impacts and have a forward action plan.

- Jointly driving and advocating PTT's tangible anti-corruption guidelines in pursuit of a transparent organization by joining public and private entities such as applying for anti-corruption program with the Private Sector Collective Action Coalition Against Corruption (notably CAC), developing a whistleblowing system, and participating in the Integrity Pact (IP).

This year the committee held 15 meetings, where consultations were held with the senior management, the internal auditor, and the external auditor, as highlighted below:

1. Review of financial reports: The committee reviewed PTT's quarterly and annual financial statements and consolidated financial statements this year, including inter-company transactions and items with potential conflicts of interest with the senior management, the Office of Corporate Audit, and the external auditor. The committee asked the external auditor about the accuracy and completeness of the financial statements, adjustment of key journal entries and account estimations affecting the statements, adequacy and suitability of account recording, audit scope, information disclosure that was accurate, complete, and adequate, as well as the external auditor's independence. All these ensured that the preparation of the financial statements followed legal requirements and accounting standards under generally accepted accounting principles that are credible and timely, and that adequate information was disclosed in such statements for the benefit of financial statement users.

The committee discussed exclusively with the external auditor on one occasion in the absence of the senior management to discuss about the external auditor's audit plans, independence to fulfill its responsibilities, and its opinion, with a focus on an additional in its report of KAMs (Key Audit Matters) under the new accounting standard.

2. Review of risk management process: Each quarter, in conjunction with the senior management, the committee reviewed the efficiency and suitability of risk management processes resulting from inside and outside PTT, including the risk management policy, plans and management approach that affect PTT Group's operations and investment plans, as well as the sourcing of energy supply and other event risks. It provided recommendations for improvement of these, particularly the need for a circumspect decision-making process for investment in PTT Group's megaprojects, risks arising from oil price and PTT Group others product price volatility. It encouraged the senior management to apply stress test with suitable assumptions and develop forward plans to ensure preparedness to cope with unexpected events.

3. Review of the effectiveness of internal control: The committee valued compliance with the law and relevant regulations, together with management under the Three Lines of Defense concept, with a focus on professionalism and systematic work. Every quarter it reviewed PTT's internal control system together with the external auditor and the Office of Corporate Audit by reviewing operation; resource consumption; stewardship of properties; prevention or reduction of errors or damage, losses, waste, or corrupt practices; credibility of financial reports; compliance with laws, regulations, and Cabinet resolutions. The external auditor agreed that no significant problems or material shortcomings had been detected.

This year's assessment outcomes of internal control under the Audit Commission Regulations concerning the Definition of Internal Audit Standard, B.E. 2544 (2001), found that PTT's internal control was adequate and effective to its businesses. Finally, all senior management cooperated by responding to the internal control assessment questionnaires.

4. Review of corporate good governance: This year the committee focused on the management policy in support of systematic corporate good governance and supported the development of a compliance framework to prevent law-breaking or violation of PTT's regulations. It drove the Internal Control Mindset to forge awareness of the prevention and resistance to corrupt practices among senior management and employees through ongoing seminars and trainings. The committee also reviewed compliance with relevant laws and regulations, as well as defined business processes, and connected and – inter-company transactions among PTT Group to ensure sensible conformance to normal business conditions. Finally, the committee not only reviewed the process of whistleblowing handling, but also provided recommendations on process improvement to ensure alignment with PTT's corporate good governance and business philosophy.

The committee held one meeting with PTT's Management Committee, discussion and advising them on the actions needed to ensure PTT's "Pride and Treasure of Thailand" achievement, anti-corruption actions, social responsibility activities, and Pracharath Projects. It also accelerated corrective actions in response to recommendations made by the internal audit team.

5. Review of internal audit system: The committee provided recommendations on the structural development of the Office of Corporate Audit. This year, PTT set up an Information Technology Audit Department and Special Audit Division for proactive audit, embracing key risks, particularly cybersecurity risks, databases security, and other risks beyond the annual audit plans and defined PTT Group internal audit units set up criteria with more explicit, efficiency and effectiveness. It oversaw the internal audit quality assurance and improvement

program and supported constant, systematic personnel development and an Internal Audit Academy to equip internal-audit personnel with professional knowledge and skills. In place are assessment and amendment of the internal audit competency framework. It also supported the internal audit to embed IT in audit process and extend CCMS (Continuous Control Monitoring and Auditing Systems) to screen and monitor errors (Red Flags) and frauds potential in PTT Group companies as well as processes other than Procure to Pay. Meanwhile, the existing systems are to be constantly improved for modernity and efficiency.

The committee reviewed the Office of Corporate Audit's strategy, and also annual and long-term internal audit plans, including its performance and audit engagement reports. To this end, it provided recommendations and monitored corrective actions for significant issues for good governance and adequate internal control. It considered reviewing the internal audit charter and reviewed the Office of Corporate Audit's annual budget, personnel development, recruitment, rotation, and training plans. Also reviewed were the office's adequacy and suitability of resources, KPIs, and the annual merit consideration for the Senior Executive Vice President, Office of Corporate Audit.

6. Quality assurance of the Audit Committee:

The committee not only reviewed and amended its own charter, but also assessed its own performance as a group and individual (performance self-assessment and cross-assessment) in line with the best practices of the State Enterprise Policy Office to ensure that its efficient and fruitful performance. Assessment findings were regarded as excellent. Finally, the committee reported its performance outcomes to the Board every quarter, with remarks and opinions provided for the process improvement of governance, risk management, internal control, and compliance with company regulations.

7. Appointment of the external auditor for 2017:

The committee endorsed the Office of the Auditor General of Thailand (OAG) as PTT's external auditor for 2017 for the Board's concurrence and the shareholders' approval at the AGM 2017, together with its audit fees. Incidentally, in the absence of PTT's management, the committee reviewed with the external auditor the scope, approach, and audit plans of the external auditor.

In summary, the Audit Committee carried out its duties and responsibilities stated in its charter with competence, care, prudence, and adequate independence while providing creative views and recommendations for the equitable benefit of all stakeholders. Its opinion is that PTT's financial reports were accurate, credible, and in alignment with generally accepted accounting standards. In addition, PTT commanded practices that complied with relevant laws and business obligations, together with corporate good governance, adequate risk management and a suitable, effective internal control and internal audit systems.



Report of the Nominating Committee



Air Marshal Boonsuib Prasit

Chairman of the Nominating Committee

Dear Shareholders

This year the Board of Directors appointed the Nominating Committee, which consisted of three independent directors, chaired by Air Marshal Boonsuib Prasit, together with Mr. Chanvit Amatamatucharti and Mr. Thon Thamrongnawasawat as members. The Vice President of the Office of the President and Corporate Secretary serves as secretary to the committee. The committee performed Board-assigned duties with prudence, care, and sensibility. In addition, the committee amended its authority embracing current duties to be more comprehensive and up to date. This year, the committee held a total of three meeting, which can be summarized as follows:

- Nomination of directors to replace those who are due to retire by rotation from various professions, with a suitable qualifications as required by related laws and regulations; including the Standard Qualifications of the State Enterprise Directors and Employees Act, Public Company Limited Act, Securities and Exchange Act, and the Regulations of the Office of the Prime Minister on Policy and Supervision of State Enterprises, together with PTT's Article of Association and corporate governance principles. Nominated candidates must be competent and suitable for PTT's businesses, based on the analysis of the Board Skill Matrix, the Director's Pool of the State Enterprise Policy Office, and Thai Institute of Directors (IOD). Additionally, the nominated candidates must possess free of the tarnished background and conflicts of interest with PTT. Then, the names of the selected candidates were proposed to the Board for approval and subsequent endorsed by the shareholders at the AGM. Notwithstanding, those selected candidates must also get approval from the State Enterprise Policy Committee according to the Regulations of the Office of the Prime Minister on Policy and Supervision of State Enterprises 2014.

- Nomination of directors to replace those who are resigning during the year and proposed to the Board for appointment. Similar to the aforementioned, the name of nominated directors must get approval from the State Enterprise Policy Committee according to the Regulations of the Office of the Prime Minister on Policy and Supervision of State Enterprises.

- Selection of directors to perform duty as Sub-Committees, based on the composition of each committee, qualifications, expertise, competences, related skills, and suitability; then proposed to Board for approval, except for the Nominating Committee itself which directly appointed by the Board.

- Amendment of the Board Skill Matrix, conforming to PTT's corporate governance principles as well as adding the additional skills and expertise in order to achieve PTT's vision and business strategies; then proposed to the Board for consideration.

- Modification of its own authority to proceed the duties more smoothly and in line with PTT's current business strategies.

In 2016, the Board allowed the minority shareholders with the opportunity to nominate directors, but none of the shareholders put forward at the 2017 AGM. For transparency, other details are mentioned in this annual report.



Report of the Remuneration Committee



Mr. Prasert Bunsumpun

Chairman of the Remuneration Committee

Office of the President and Corporate Secretary serves as secretary to the committee. The committee performed all Board-assigned duties, with prudence and care, considered and provided comments before proposed matters to the Board. This year, the committee held one meeting which can be summarized as follows:

- Decided the 2016 compensation for the Board and committees, based on PTT's performance outcomes and business size, practices of peer-industry, listed companies, and leading companies worldwide, along with Board responsibilities in conjunction with the Board assessment outcomes by topic as defined in the annual assessment forms. The compensation, then, proposed to the Board for endorsement before forward to the 2016 AGM, respectively.
- Reviewed assessment guidelines for the CEO & President's performance in order to decide his new compensation, which base on factors linked to the annual performance assessment agreement for state enterprises made between the State Enterprise Policy Office and PTT, together with his managerial ability, leadership, his own assessment, and the assessment from all directors. All these served as a basis for the committee's consideration before proposing its views to the Board.

In 2016, for transparency, the Remuneration Committee has disclosed the compensation of all directors and committee members, together with executives' compensation in this annual report.

Dear Shareholders

PTT Board of Directors appointed the Remuneration Committee, consisted of a majority of independent directors, chaired by Mr. Prasert Bunsumpan, together with Mr. Somsak Chotrattanasiri and Mr. Somchai Sujjapongse as members. The Vice President of the



Report of the Corporate Governance Committee



Gen. Chatchalerm Chalermsook

Chairman of the Corporate
Governance Committee

Dear Shareholders

The Corporate Governance Committee is made up of three independent directors, namely Gen. Chatchalerm Chalermsook (chairman), Mr. Don Wasantapruet (member), and Mr. Thon Thamrongnawasawat (member). The Vice President, Office of the President and Corporate Secretary serves as its secretary.

The Board of Director has always valued and stood for business conduct with integrity, transparency and accountability, and thus stress PTT's firm commitment to corporate governance (CG), high ethical standards, the code of business conduct, and PTT Group's scope of sustainability management in order to develop and enhance PTT's CG system for continual efficiency, which will bolster confidence among all its stakeholders and lead to PTT's sustainable growth. To this end, the Board has assigned the committee to propose CG guidelines and oversee the conduct of directors as well as the management to ensure conformance to CG principles, SET's CG principles, and the international principle of The Organisation for Economic Cooperation and Development (OECD), together with the ASEAN CG Scorecard. The committee's mandate also encompasses the management of sustainability and framework formulation for the oversight of PTT's anti-corruption tasks.

This year the committee held four quarterly meetings as planned to track CG and anti-corruption tasks together with those under social, community, and environmental responsibility and sustainable development plans, as highlighted below:

Information disclosure and transparency

- Completed the annual information disclosure form (Form 56-1), the annual report, and regularly disclosed quarterly performances and key information for shareholders, investors, and the public. The disclosed information shall be adequate, credible, essential, and timely details through assorted channels, including SET's publicity channels and www.pttplc.com. The core units for information distribution were Investor Relations and Corporate Communications.

- Developed the corporate sustainability report for 2016 to disclose economic, social, and environmental data under the applied Sustainability Reporting Guidelines version 4.0 (G4) and Oil and Gas Sector Disclosure (OGSD) of Global Reporting Initiative (GRI). It presented updates on compliance with 10 elements of the United Nations Global Compact (UNGC), Integrated Reporting (IR), and preliminary agreement of operation with the UN's Sustainable Development Goals (SDGs). Also, the third party was commissioned to review the report, with distribution of this and previous years' reports on PTT's website and GRI's website. In addition, PTT advocated preparation of this report to PTT Group companies, namely PTTEP, PTTGC, TOP, IRPC, and GPSC on compliance with SET's direction of convincing listed companies to use GRI in their information disclosure.

- Developed the quarterly PTT Bizway newsletter for shareholders to keep them informed and maintain good understanding.

- Developed the quarterly Happiness newsletter for debenture holders to keep them informed and trustworthy relations.

Rights of the shareholders

- Furnish the Annual General Meeting of Shareholders (AGM) and provide in advance adequate and timely information on the date, time, venue, and agenda, as well as all other relevant information which necessary for shareholders to make decisions at the meeting.

- Informed the shareholders about meeting protocols and distributed such information on PTT's website before sending out meeting notices, so that they will have adequate time to study details. Facilitated their full exercising of their meeting and voting rights. As a result, PTT scored "outstanding" on the AGM Checklist assessment.

Equitable treatment of shareholders

- Allowed all shareholders to propose additional agenda items and nominated directors for election in advance from September 1 to November 30, 2016, as required by PTT.

- Required all directors and executives to disclose vested interests about themselves and related parties for the year so that the Board can review PTT's transactions that might have potential of conflicts of interest and decide in PTT's best interests.

- Required all directors, executives, and employees to report their conflicts of interest for the year by using the electronic report version on the PTT intranet. No significant conflict was reported this year.

- Required all directors and executives to report their stock portfolios as required by law and assigned the Corporate Secretary to collect and report these to the Board every quarter.

- Developed Insider Trading Guidelines by making the approach to the directors and the management of PTT Group to refrain from PTT Group securities trading. If this is necessary; for transparency, they must notify the Corporate Secretary ahead of time.

Responsibilities of the Board

- Assessed Board performance (overall, self-assessment, cross-assessment, and subcommittee assessment), with excellent outcomes for the year.

- Attended key training courses hosted by the Thai Institute of Directors (IOD), including the Director Accreditation Program, Financial Statements for Directors, Directors Certification Program. Also, attended a Chairman Forum: "Corporate Governance vs. Corporate Performance: Duty or Choice?"

- Attended PTT Group visiting as well as business activities relating to the energy sectors, in and outside of Thailand.

- Held one meeting among the independent directors.

- Held one meeting in the absence of the management.

Recognition of stakeholders

- Endorsed an action plan on PTT's CG and anti-corruption for the year together with the annual goals for cascading the plan to all for implementation. Constantly monitored performance and provided recommendations to upgrade PTT's CG on a par with international standards to promote confidence among all shareholders and stakeholders.

- Provided oversight of the amendment of the "Corporate Governance, Ethical Standards and Code of Business Ethics Handbook (Revision 4)" to be up-to-date and conform to criteria on CG and practical guidelines of leading companies and international standards, including recommendations of the Corporate Governance Assessment Report of IOD and DJSI Corporate Sustainability Assessment.

- Provided oversight of the preparation of practical Guidelines for Receiving and Offering Gifts, Hospitality, or Other Benefits Under PTT Group's Anti-Corruption Policy to forge a higher standard for the purpose that all personnel will give their best to their jobs without expecting anything in return while avoiding potential conflicts of interest.

- Advocated to PTT's business allies declaration of their intention to join Private Sector Collective Action Coalition Against Corruption (CAC) to drive their operation with transparency and anti-corruption of all forms, which illustrates their determination to cooperate and make full strides with PTT.

- Played role in activities on transparency and anti-corruption with external agencies (public and private), including the National Anti-corruption Day and the Merit Assembly Day, to show PTT Group's capability for transparent business while publicizing PTT's CG.

Social responsibility and sustainable development

- Defined a social responsibility approach in support of the sustainability management scope for PTT Group with Corporate Citizenship, which is responsible for society as required by international practices; valuing participation by all sectors for the stewardship of the environment and ecology; and improving lives in communities and society wherever PTT operates in a sustainable way through conservation of natural resources and the environment, social and community development, and human resource development. PTT currently undertakes some 40 social projects.

- Passed assessment by RobecoSAM Corporate Sustainability Assessment and was ranked as a member for a fifth consecutive year-one of the 10 companies and a Thai company on DJSI World (Dow Jones Sustainability Indices) out of 68 companies, and one of the two companies and the first Thai company on DJSI Emerging Markets in the Oil and Gas Industry (OIX) category out of 19 applicants. PTT achieved an "Industry Best" score on Materiality, Supply Chain Management, Tax Strategy, Environmental Reporting, Occupational Health and Safety, Social Impacts on Communities, Social Reporting, and Talent Attraction and Retention.

Awards of pride

Thanks to its firm commitment to operating businesses with CG and social responsibility practices, coupled with relentless sustainability management, this year PTT earned extensive acclaims from domestic and international entities alike. Awards included:

- The National Anti-Corruption Commission's Integrity & Transparency Assessment (ITA) at the "very high" level for three years in a row

- An "Excellent" ranking of its CG report based on a survey of listed companies (Corporate Governance Report of Thai Listed Companies 2016)

- CG Award 2016, a distinct honor of acceptance from various sectors for its transparency and integrity-the crux of its business

- Ranking as a top-three Thai company in the top 25 companies of the 100 fastest-growing group in the Emerging Market, presented by Transparency International

- The Asset Corporate Award 2016 (Platinum level) in its eight consecutive years of assessment

- The Strongest Adherence to Corporate Governance Award, presented by the Alpha Southeast Asia magazine, among others.

The Corporate Governance Committee remains committed to improving its efficiency in steering PTT's CG, social responsibility, and sustainable development practices to align with PTT's business strategies in pursuit of a Pride & Treasure of Thailand organization that forges and nurtures a corporate culture based on the values of integrity, transparency, and anti-corruption of all forms for the best interests of all stakeholders and greater international acceptance.



Report of the Enterprise Risk Management Committee



Chanvit Amatamatucharti

Mr. Chanvit Amatamatucharti

Chairman of the Enterprise
Risk Management Committee

Dear Shareholders

PTT Enterprise Risk Management Committee consists of three directors, chaired by Mr. Chanvit Amatamatucharti, with Mr. Prasert Bunsumpun and Mr. Thammayot Srichuai as members. The Senior Executive Vice President, Corporate Strategy, in the capacity of Chief Risk Officer (CRO) is serving as secretary to the committee.

This year, PTT still confront with a series of challenges to its businesses, including sliding prices of world oil since late 2015, coupled with year-long volatility due to market gluts, lower refining margins, and a slowdown in the world economy. To survive, PTT needs complete and explicit data, especially those on risk management.

To date, the committee has fully supported the Board's performance by steering and managing corporate risks to keep them manageable under corporate governance. This has kept PTT's risk management efficient and effective for goal achievement while aligning with the corporate vision and strategy, as well as mitigating impacts of business uncertainty. The key is to ensure shareholders that PTT's risk management can indeed handle all risks. The highlights of the committee's performance are captured as follows:

1. Steered and managed risks to mitigate impacts on business: Defined proactive measures with a focus on lowering the probability of risk events while commanding passive measures should risk events actually happen so as to mitigate impacts on corporate goals. Defined management plans for all risk situations, including management to ease the impacts of oil price fluctuation by deploying risk management tools in parallel with operating efficiency improvement and cost-saving measures for non-essential expenses.

2. Closely monitored risk management every quarter: Instituted KRIs (key risk indicators) to stay alert, provide warnings, and measure the effectiveness of risk management to keep risks manageable. Mentored the management on the improvement of its management by revising risk management plans to align with changing business strategies and circumstances, systematically reported its performance to the Board.

3. Deliberated and commented on agenda items with long-term obligation, business complication, and significant impacts on PTT: Such actions provided supporting data for the Board's deliberation, including procurement of LNG to meet Thailand's rising needs for LNG.

4. Pushed forward the integration of risk items and enterprise risk management plans in parallel with the formulation of the enterprise plan for 2017 and proposed to the Board endorsement: Clarified risk management plans in line with business goals and strategies, which were cascaded from the committee to the management and workers for corporate-wide implementation to promptly address risks and prepare for business risks at all times.

Thanks to all personnel's value given to excellence in risk management and strategies, dedication, and cooperation, the year was regarded as a successful one for risk management. In short, risk management that was not only suitable, but also fully supported PTT's growth.



World Economic, Petroleum, and Petrochemical Review

PTT has an initial registered capital of THB 28,572,457,250.

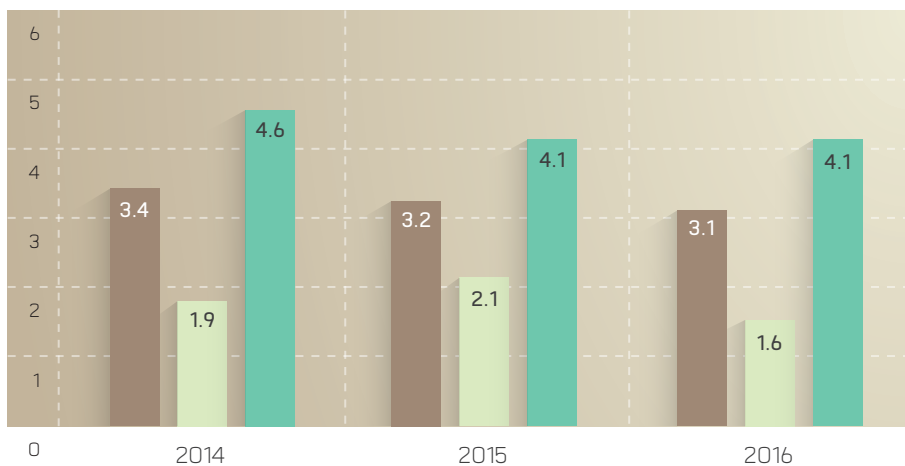
World Economy Overview

The world economic recovery slowed down from last year due to the sluggish recovery of the advanced economies, especially in the US economy which sharply slowed down in the first half of the year from weak business investment. However, its strong labor market made the US Federal Reserve (Fed) deciding in December 2016 to raise the policy interest rate for the second time in 10 years. Meanwhile, Euro economies slowly pick up in the wake of the Brexit uncertainty. As for the emerging markets and developing economies, they collectively expanded comparably to what they had done last year. January 2017, IMF estimated 3.1% growth in the world economy for 2016 (Figure 1).

Figure 1:
Global Economic Growth
2014 – 2016

Unit: % yoy
Source: IMF as of January 2017

■ World
■ Advanced Economies
■ Emerging Market and Developing Economies



World petroleum and petrochemical overview

A demand hike for oil in 2016 was 1.4 million barrels per day though it was outpaced last year due to the sluggish world economy. In December 2016, IEA estimated global oil demand of 2016 at 96.3 million barrels per day (Figure 2).

In 2016, an oil glut continued due to the rising of OPEC in total oil output to over 33 million barrels per day which depressed an average Dubai crude price this year to USD 41.3 per barrel as opposed to USD 51 per barrel. Meanwhile, petroleum product prices tracked Dubai price. The margin between Dubai crude price and petroleum products then

swung wildly because of the imbalance between petroleum product demand and refining plans of Asian refineries. The margin between ULG 95 prices against Dubai crude price in 2016 fell with the rising supply with refineries' modified output plans. To elaborate, diesel cost USD 52.1 per barrel on average with the margin against Dubai crude price which had weaker demand in line with feeble economies. Fuel oil cost USD 36.3 per barrel on average, with the fairly-stable margin in line with the rising demand for marine vessels, as supply from the West fell. Finally, LPG CP on average stood at USD 336 per ton (Figure 3).

This year's refining margins for Singapore's cracker refineries averaged at USD 6.1 per barrel, lower down for USD 7.9 per barrel comparing to last year.

Figure 2:
World Oil Demand
2014 – 2016

Unit: Million barrels/day
Source: IEA as of December 2016

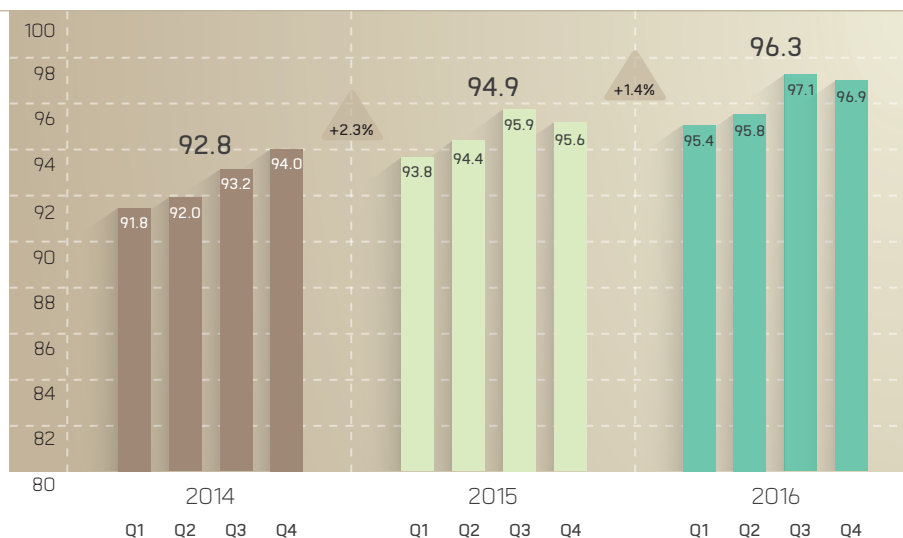
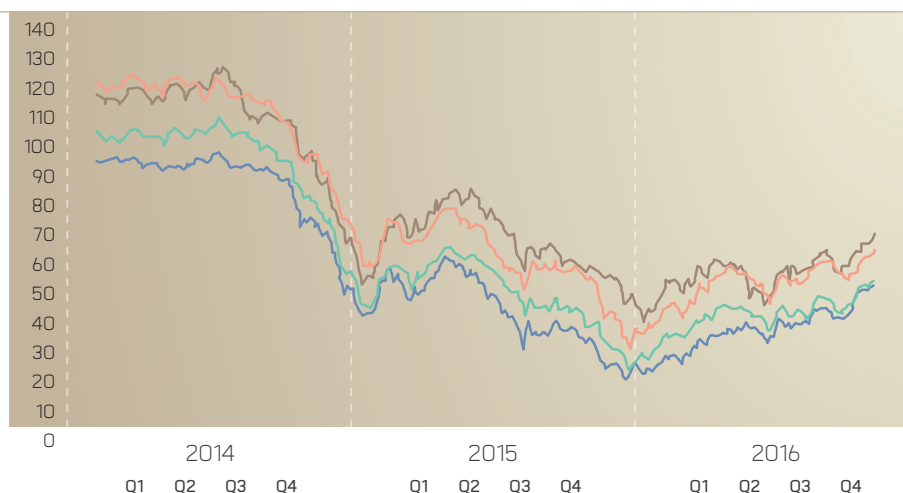


Figure 3:
Dubai and Petroleum
Products Prices
2014 – 2016

Unit: USD/barrel

| | 2014 | 2015 | 2016 |
|-------------|-------|------|------|
| Dubai Crude | 96.7 | 51.0 | 41.3 |
| Gasoline | 111.0 | 69.3 | 56.2 |
| Octane 95 | | | |
| Diesel | 112.7 | 64.6 | 52.1 |
| Fuel Oil | 88.4 | 46.0 | 36.3 |

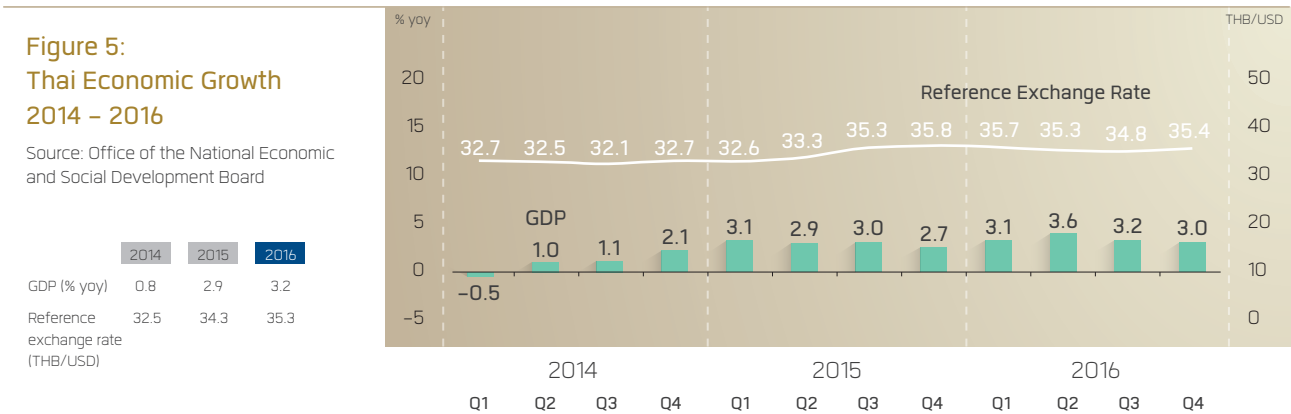


As for the overall petrochemical situation in 2016, prices dropped upon crude and naphtha prices. Product demand stabilized with the economy while surplus supply from new capacities from Mexico, the US, India, Iran, and China, resulting in this year’s average HDPE price of USD 1,132 per ton. On the other hand, PX still faced a glut due to new capacities in China and resumption of Singapore’s aromatics plants. Meanwhile, due to China’s rise in its PX import from the US, an average price was at USD 794 per ton in 2016 (Figure 4).



Domestic Economic Overview

In 2016, the domestic economy expanded better, supported by public spending and government investment on megaprojects and economic stimulus measures, along with the booming tourism sector that offset weakening export and private investment. In February 2017, NESDB estimated an annual GDP growth of Thailand at 3.2% in 2016. The Baht, meanwhile, posted a weaker exchange rate of THB 35.3 per USD due to the interest rate rise announced by Fed, causing foreign capital to migrate from emerging markets and developing economies (Figure 5).



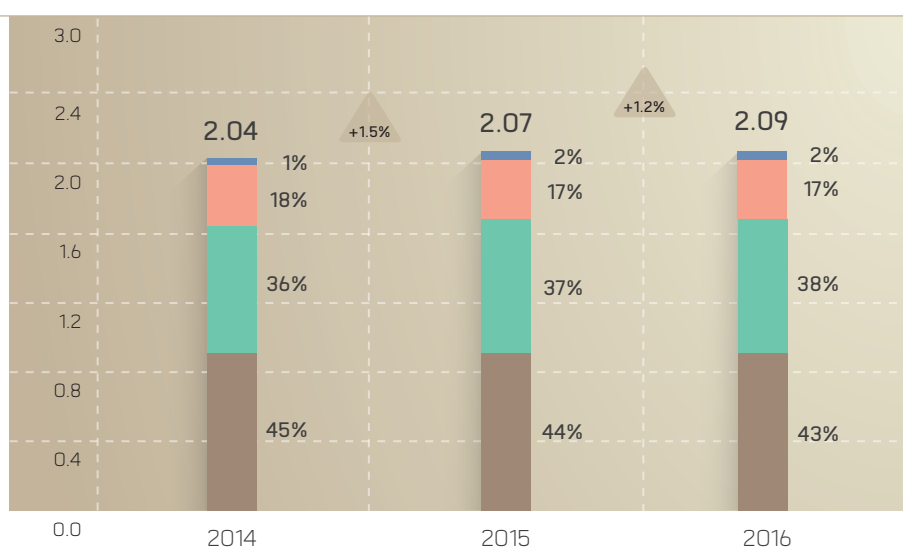
Domestic petroleum overview

This year's primary commercial energy consumption (excluding renewables) stood at 2.09 million barrels per day equivalent, 1.2% up from last year. Consumption of oil rose by 4.0% due to depressed prices, which hiked demand, whereas consumption of natural gas fell by 1.9% due to lower demand of power generation, gas separation plants, and NGV, running against the gas-consuming industrial sector. Meanwhile, consumption of coal and lignite climbed up by 0.7% as well as hydropower and power import rose by 28.2% (Figure 6).

Figure 6:
Thailand's
Commercial Primary
Energy Consumption
2014 – 2016

Unit: MBOED
Note: Excluding renewables
Source: EPPO (Jan. – Nov. 2016)
and PTT (Estimate Dec. 2016)

■ Hydro/ Import
■ Coal/ Lignite
■ Oil
■ Natural gas

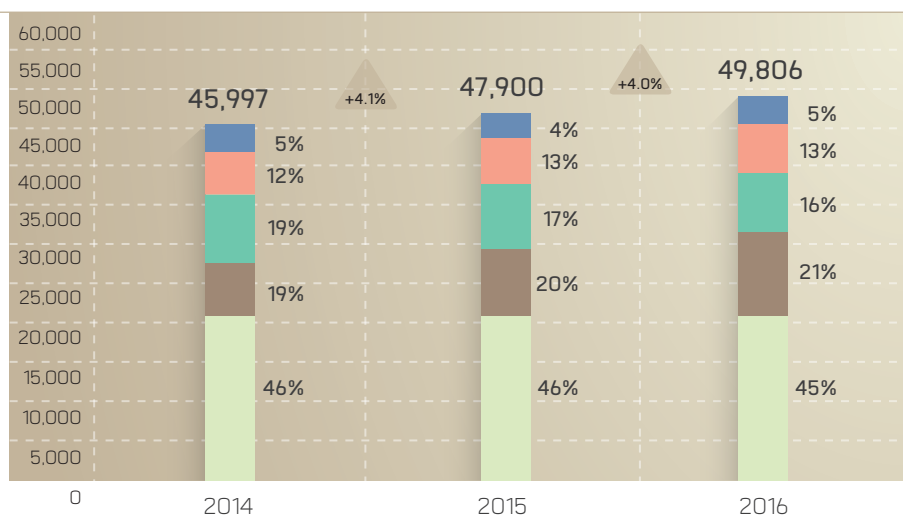


In 2016, Thailand's petroleum product consumption went up 4.0% from last year. Diesel still held the biggest share in the petroleum product group with 3.3% growth in consumption by the industrial sector. Consumption of gasoline rose by 9.9% whereas LPG dropped 5.3% due to continuously lower fuel prices since late 2014, making NGV and LPG motorists shifting to liquid fuels. Jet fuel rose by 7.2% due to the higher numbers of tourists and flights. Consumption of fuel oil climbed 10.5% due to soaring industrial consumption (Figure 7).

Figure 7:
Petroleum Product
Consumption
2014 – 2016

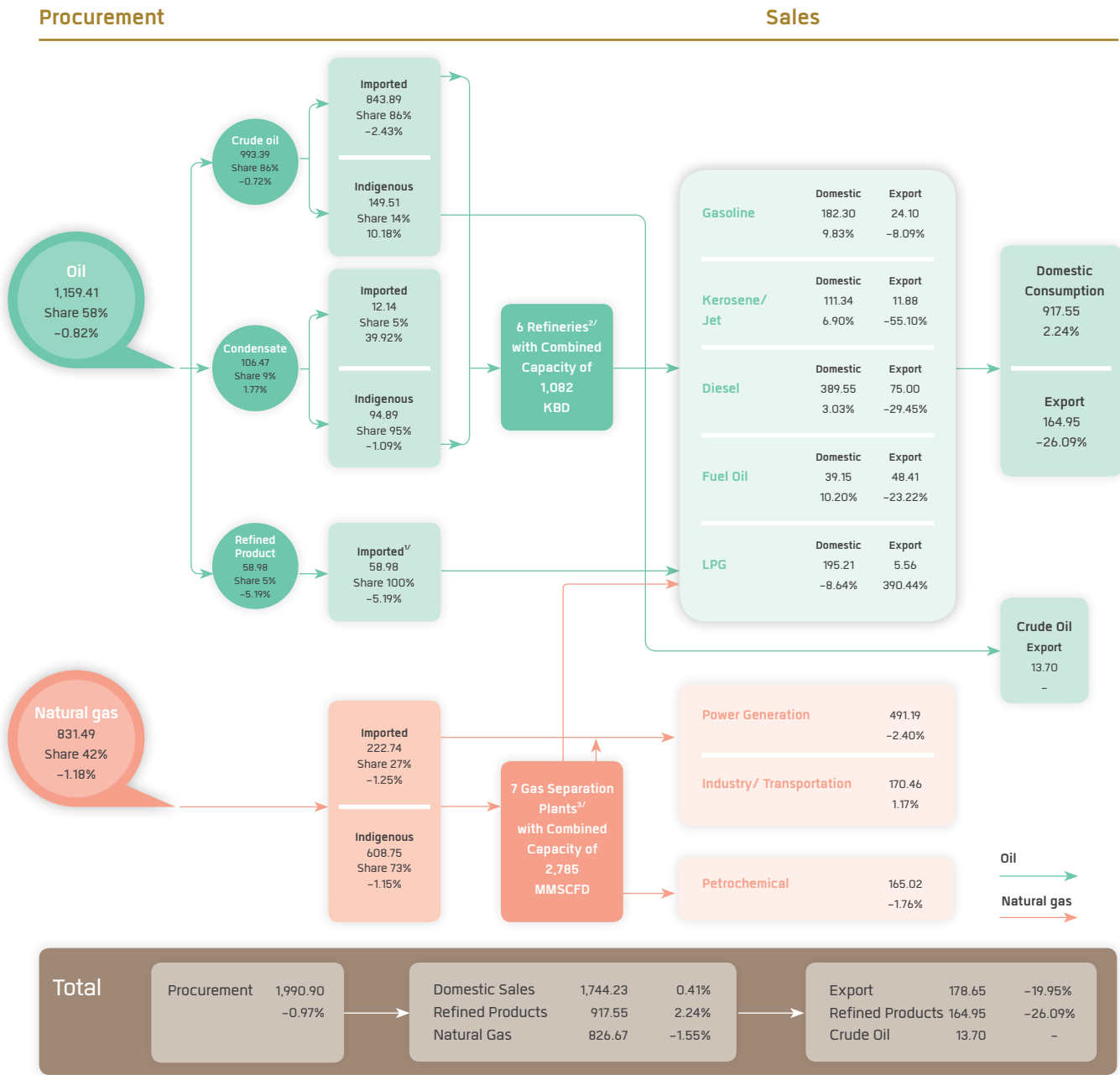
Unit: ML
Note: * Excluding LPG used as
Feedstock in Petrochemical Industries
Source: DOEB (Jan. – Nov. 2016)
and PTT (Estimate Dec. 2016)

■ Fuel Oil
■ Jet/ IK
■ LPG*
■ Gasoline
■ Diesel



As seen on the national petroleum balance this year, total supply procurement stood at 1,990.90 KBD equivalent to crude, lower down at 0.97% from last year. Oil and natural gas accounted for 58% and 42% accordingly. Imported crude oil accounted for 86% whereas imported natural gas accounted for 27%. Domestic sales of petroleum amounted to 1,744.23 KBD equivalent to crude, risen for 0.41% from last year. A rise in sales of petroleum products accompanied a fall in sales of natural gas. Petroleum exports amounted to 178.65 KBD equivalent to crude which was 19.95% lower (Figure 8).

Figure 8: Thailand Petroleum Balance of 2016
Unit: KBD



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

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

Outlook for 2017

World economic outlook

Global economy in 2017 is expected to accelerate in growth from 2016. The economies of emerging markets and developing economies are seen to improved, offsetting the slowdown of China's economy, which should be in the process of structural balancing. Meanwhile, the developed economies tend to grow, driven by domestic demands. Still, the global economy stands risks of worsening trade protectionism, tightening in global financial conditions, geopolitical conflicts, and terrorism. In January 2017, IMF projected 3.4% of expansion in global economic growth on this coming year.

Petroleum and petrochemical outlook

The global demand for oil is expected to rise from 1.3 million barrels per day to 97.6 million barrels per day, as projected by IEA in December 2016. This hike is to be led by emerging markets and developing economies such as China and India whereas demand by developed countries should stabilize as last year's levels. For oil outputs, the current glut should be lower while the market approaches equilibrium in the end of 2017 and the compliance of the accord for reduction of outputs by OPEC and 11 non-OPEC countries will be monitored. Also, shale oil production in the US is expected to rise amid projected higher prices. Dubai is forecasted to hover at USD 50 - 55 per barrel while Singapore's refining margin should beaverage at USD 7 - 8 per barrel.

The average petrochemical price for 2017 is expected to be higher as the market approaches equilibrium. HDPE tend to rise to USD 1,149 per ton with the rising demand approaching the new capacities, most of which are from the US and Iran. The same story with PX prices is expected to be about USD 877 per ton as new capacities from Saudi Arabia and Vietnam are expected to be delayed, while the new PX plant in India should accommodate the rising demand. The polyester market is projected to continue soaring.

Thai economic outlook

Economic growth for 2017 should be about the same as in 2016 with supporting factors from public spending and investment together with the government's economic stimulus measures. Exports and private investment should be better but may not reach to the point of full recovery. The Baht looks likely to weaken to THB 35.5 - 36.5 per USD. The risk factors to be focused on during this coming year are the uncertainty of economic recoveries of trade partner countries, the severity of impacts of flooding and the suppression of the "zero dollar" tour operators. In February 2017, NESDB is projected 3.0 - 4.0% GDP growth in 2017.

Primary commercial energy demand outlook

In 2017, primary commercial energy demand should be risen by 3.1% in line with economic growth projection. Still, there are some risk factors for domestic energy consumption which are the liberalization of LPG imports, the adjustment of the transport fuel excise taxes and the policy to abolish sale of gasohol 91.



Nature of Business & Performance Summary

Nature of Business

PTT is a fully integrated national petroleum and petrochemical company with a vision to become Thai premier multinational energy company with a mission to look after all of its stakeholders which are country, community and society, shareholders, customers, business partners, and employees, in a balanced way. PTT's aspiration is to be the "Pride and Treasure of Thailand," achieved through the SPIRIT corporate culture where the employees are cultivated to have high moral conscience as well as to be brilliantly clever

PTT's operations cover the business value chain from upstream to downstream with a focus on incremental value addition in tandem with innovation. As an operating and holding company, PTT conducts business directly and through PTT Group companies, as summarized below.





PTT-operated Businesses



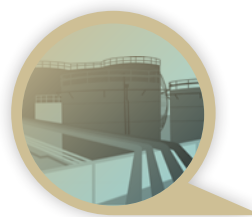
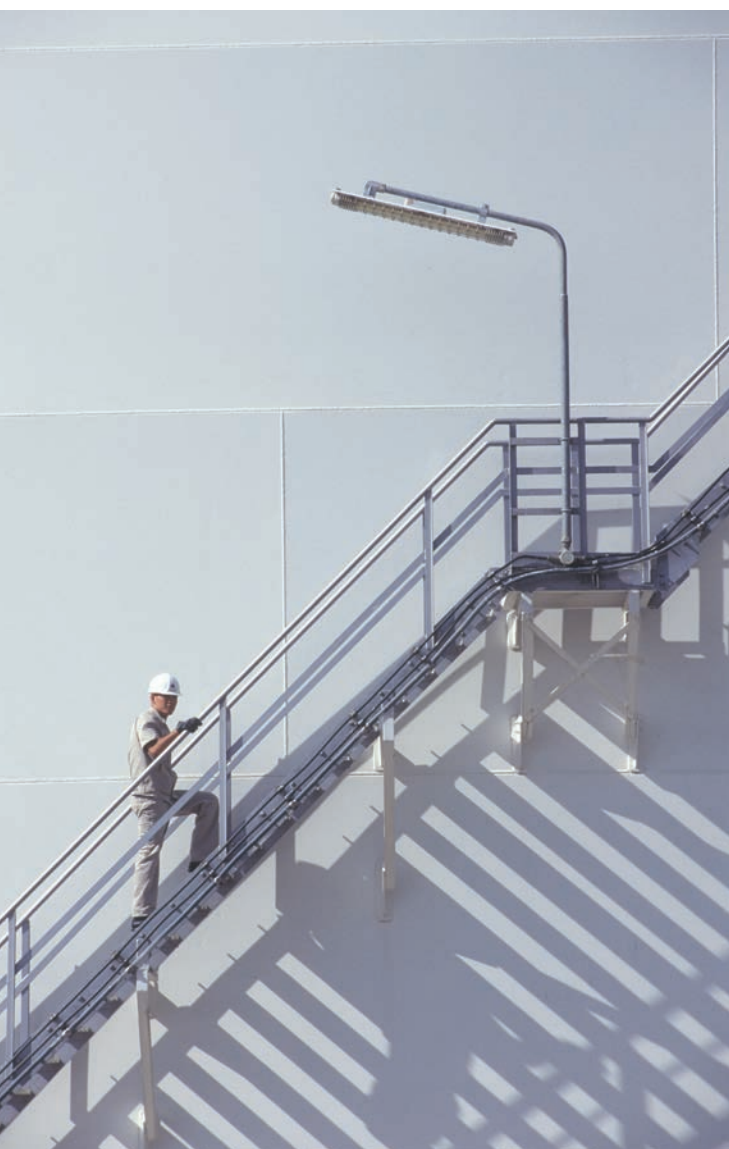
Upstream Business

Gas Business Unit: The business unit conducts natural gas supply procurement, transmission, retail gas sale, distribution, processing, and gas-related value-added businesses through Group companies. Supply includes indigenous gas, imports, and liquefied natural gas (LNG) from neighboring countries, to ensure that they are sufficient to meet the steadily growing demand. The distribution network includes major power producers through PTT's transmission pipelines, industrial users through PTT-invested distribution pipelines, and the transport sector through NGV service stations. PTT sells products derived from gas separation plants (GSP) to supplement business value by extracting a variety of valuable chemical components from natural gas into petrochemical feedstock, and sells LPG for households, industry, and transport.

The Gas Business Unit invested in LNG-receiving terminals through PTT LNG Co., Ltd., a wholly-owned subsidiary of PTT, to provide service for LNG storage vessels and LNG re-gasification in order to accommodate PTT's LNG imports.

About 73% of natural gas supply comes from indigenous sources while the rest of the piped gas comes from Myanmar and LNG imports.

The gas supply and wholesale business comes under the Energy Industry Act, B.E. 2550 (2007), whereas for GSPs, products are sold as petrochemical feedstock, in turn based on petrochemical and petroleum prices according to world markets. As for LPG, which sold domestically as a fuel, the public sector sets price based on actual production costs. To this end, on December 2, 2016, the Energy Policy Administration Committee (EPAC) endorsed the approach for liberalizing the LPG business, embracing the move to abolish domestic LPG price-setting, ex-GSP prices, and ex-refinery prices. During the transitional period to liberalization, prices at GSP and refineries will still be controlled while imports are to be liberalized. In 2016, the public sector asked for collaboration from PTT to temporarily help LPG users in the household group, who are low-income users and grassroots vendors, so that they can buy LPG at the same price and ease the impacts of LPG price adjustment until the enforcement of the Fuel Fund Act.



Oil Business Unit

The business unit is in charge of distribution of quality petroleum products at fair and suitable prices, which break down into three core products. First, liquid fuels and LPG. Second, lubricating oil and other lubricating products. Third, retail non-oil business products. All these are sold through three major distribution channels.

1. Retail business, providing products and services to consumers, through service stations and outside, marked by relentless quality development of products and services under the PTT Life Station concept to satisfy modern consumers' lifestyles that favor one-stop service. In 2016, PTT unveiled the "PTT Compact Model", designed for secondary roads linking provinces and amphoe (districts) to raise the standard of services for consumers in every corner of the country and allow local investors to invest in PTT service stations at suitable outlays in local areas that are not on a par with main roads. Moreover, this represents promotion of local SMEs by putting locally produced products on sale at service stations. Last year, 18 PTT Compact Model stations were launched. In addition, new retail businesses are conceived and operated by PTT and business allies. SMEs are sought to join PTT in order to develop products and services and create jobs in parallel with helping Thais grow sustainability together with PTT. Also, PTT conclude a master franchise deal with Hua Seng Hong Dim Sum. Five branches have been launched as a collaboration in integrated services of PTT service stations in order to move toward a "Mini-Community Mall." PTT also relentlessly engaged its consumers through the PTT Blue Card, which has risen its membership more than 1,900,000 members. It has developed customized relationship for each group of members with basic characteristics and different needs. Also, PTT Blue Card Mobile Application is launched for both Android and iOS systems, for members to earn privileges from leading stores through their smartphones.

2. The commercial market, distributing products to civil servant groups, state enterprise workers, industries, aircraft, ocean liners, and fishing vessels for their businesses and exports.

3. Sale of products to customers under Article 7 and Article 10 of the Fuel Trade Act.

Moreover, the business unit manages investments in businesses and services that are related to domestic and overseas businesses through PTT Group companies, most of which are wholly owned by PTT, such as retail sales and service stations, lubricating oil blending and bottling, and the business of receiving, storing and dispensing fuel products and petrochemicals.

The oil business has become more liberalized and highly competitive under regulations by several laws, including the Commercial Competition Act B.E. 2542 (1999), the Fuel Control Act B.E. 2542 (1999), and the Fuel Trade Act B.E. 2543 (2000). As of December, 2016, PTT is one of the 42 Article 7 traders registered with the Department of Energy Business. Its performance outcomes are subjected to the fluctuating world oil price, the state of economy affecting consumers' purchasing power, and the success of rapid growth in retail business.



International Trading Business Unit

The international trading business unit operates fully integrated businesses to enhance national energy security in tandem with the expansion of trading bases to all regions of the world, covering procurement, import and export of crude oil, condensate, LPG, petroleum and petrochemical products, solvents and chemicals, and palm products like crude palm oil, refined palm oil, and palm kernel shells. The business unit is also in charge of price risk management and international shipment to support businesses in order to become a leading multinational trading company, enhance energy security for the Kingdom, and strive for Thai pride in the international trade arena.

Performance of the business unit hinges on the pursuit of opportunities for growing commercial trading beyond borders. It has therefore appointed subsidiaries and representative offices in commercial hubs around the world, including Singapore; Dubai, United Arab Emirates; Shanghai, China; Jakarta, Indonesia; and London. As a result, today the business unit is managing business transactions in more than 50 countries around the world.

Since international trading transactions are considerable in value, it needs a risk control system under the best practices adopted by leading international trading houses. To elaborate, several panels set policies, steer assorted risk management, and clearly divide work structure and roles (Front-Mid-Back) for checks and balances, and information technology for transactions to enable quick, transparent, and efficient control.



Infrastructural Business

The Infrastructure and Sustainability Management Business Group engages in natural gas delivery system (natural gas transmission and NGV delivery system), power and cogeneration business, land development business, standards and operating systems for sustainability business, engineering and construction project management services, engineering and maintenance services, and office building service to maximize the efficiency of infrastructural asset management and promote professional project management excellence to accommodate PTT's domestic and overseas business growth. The business unit runs R&D work by PTT Research and Technology Institute (PTT RTI). Performance in this area hinges mostly on the natural gas pipeline tariffs, throughput volumes, and other fees.

Businesses Invested through PTT Group Companies



Upstream Business

Petroleum exploration and production (E&P) business is conducted by PTT Exploration and Production Plc. (PTTEP). E&P activities and domestic petroleum pricing structures are governed by the Petroleum Act, B.E. 2514 (1971), under the supervision of the Petroleum Committee.

PTTEP operates domestic and international petroleum E&P and invests in associated businesses to explore petroleum deposits of crude oil and natural gas in competitive price to ensure Thailand's energy security. It sells petroleum outputs from domestic and regional projects, most of which in the form of natural gas, to the domestic market.

PTTEP's performance is primarily dependent on the world oil price, petroleum exploration and field development success, efficient cost management of E&P projects, investment opportunities, and corporate competency development.



Power Business

PTT engages in the power business through Global Power Synergy Plc. (GPSC), its power flagship. Today the company produces public utilities (electricity, steam, and demineralized water) for industrial users and EGAT. Also, it is an investment leader in promoting cogeneration

and district cooling system for projects along gas pipeline routes in pursuit of energy efficiency. Investments are in the form of IPP, SPP, cogeneration power producers, joint ventures, and business partners domestically and internationally.

GPSC's performance is subjected to natural gas prices, supply and demand of power and steam, base power tariffs and variable power tariffs in each operated country, power stability, availability payment, efficient cost and operating expense management, investment opportunities, and corporate capability development.



Coal Business

PTT Energy Resources Co., Ltd. (PTTER) invests in coal business and coal mining business in Indonesia through Sakari Resources Limited (SAR), which produces and sells primarily to Asian countries, including Hong Kong, Taiwan, Korea, Japan, China, Malaysia, Indonesia, and Thailand.

PTTER's performance is subjected to coal prices of the global market, including coal's production expense control in Indonesia.



Petrochemical and Refining Business

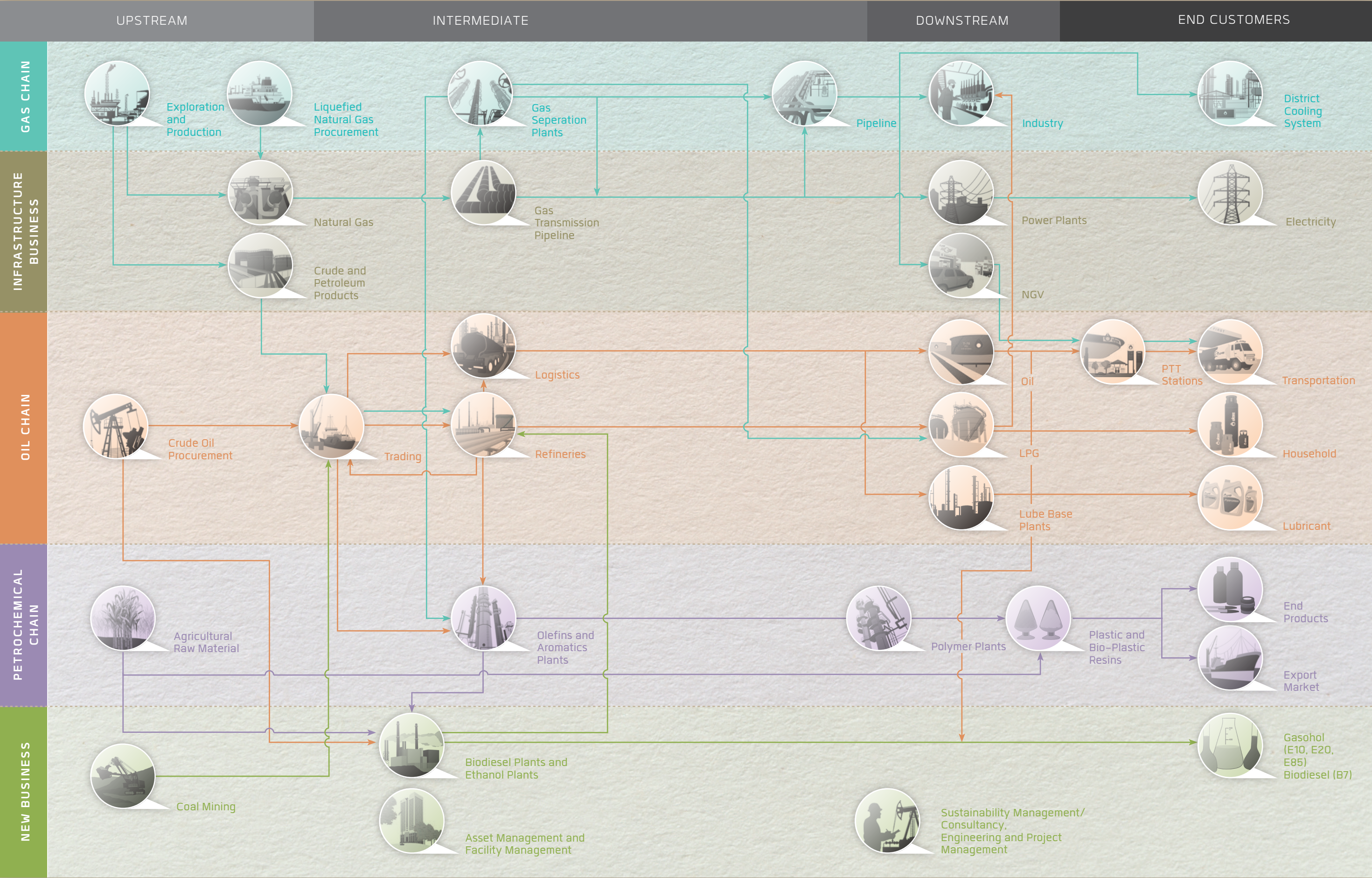
PTT invests in Petrochemical and Refining business through 9 PTT Group companies, namely Thailoil Plc. (TOP), IRPC Plc. (IRPC), Star Petroleum Refining Co., Ltd. (SPRC), Bangchak Plc. (BCP) (until April 2015), PTT Global Chemical Plc. (PTTGC), HMC Polymers Co., Ltd. (HMC), PTT Asahi Chemical Co., Ltd. (PTTAC), PTT MCC Biochem Co., Ltd. (PMBC), PTT PMMA Co., Ltd., PTT Polymer Marketing Co., Ltd. (PTTPM), and PTT Polymer Logistics Co., Ltd. (PTTPL). The scope of business is from fuel processing, production and sale of upstream, intermediate, and downstream such as

petrochemicals together with various polymers, worldwide marketing business, and integrated logistics services. The petrochemical and refining business evolved new capacities and services to add trade and service channels while pursuing new investment opportunities to ultimately enhance PTT Group's competitiveness.

Performance is primarily subjected to feedstock prices and product prices in the world market, which are a function of world supply and demand, year-end inventory (stocks), and world economy.



Creates Value through Business Chain



Performance Outcomes in 2016

In 2016, crude oil prices on a virtual free fall due to supply gluts in the world market, causing PTT to focus on productivity improvement to cut costs and strengthen financial discipline. Strict price risk management prevailed along with presentation of innovative products to boost income. Toward the year-end, the world oil price edged up, so PTT did not record realized loss from impairment of assets as in 2015, whereas profit from rising oil stocks was recorded from rising oil prices in late 2016. As a whole, PTT Group posted THB 94.609 billion in net profits and THB 1.718846 trillion in sales revenue.

Below are detailed performance outcomes for each business unit.

PTT-operated Businesses



Upstream Business Group

In 2016, operation success of the business unit resulted from its relentless process efficiency improvement with a greater focus on serving third parties and modifying equipment procurement strategies which enabled the business unit to gain more revenues and save more operating expenses. Note that this benefit also resulted from lower gas costs in line with the 6 - 8 months' retroactive prices of fuel oil when world oil prices slid. Below are the highlights of the Gas Business Unit.

• Natural gas procurement

Supply procurement totaled 4,762 MMcf/d, 1.3% fall from last year at 4,828 MMcf/d, consisting of 3,492 MMcf/d from indigenous sources and 1,269 MMcf/d from import or an equivalent indigenous/import ratio of 73 : 27.

• Gas sales in the power sector

Sales of this sector totaled 2,816 MMcf/d, about 59% of total sales, representing a 2.4% drop from last year (at 2,886 MMcf/d) due to the declining demand on power and more import of power from neighboring countries. Sales were completed to EGAT at 975 MMcf/d, or 35% of the total; to 10 independent power producers (IPPs) at a total of 972 MMcf/d, or 34% of the total; and to 49 small power producers (SPPs) at 869 MMcf/d, or 31% of total sales.

• Gas sales in the industrial sector

Sales of this sector totaled 715 MMcf/d, equivalent to 15% of the total sales, an increase of 7% from 2015 (at 669 MMcf/d). A total of 360 entities used industrial gas include: 328 in the industrial group, 31 in the self-power-generating group, and one in the commercial group. Accounting for the sales rise was investment in expanded gas distribution pipelines (extension portion) in the Nong Khae Industrial Estate and the gas distribution system for Superb Power Co., Ltd., in Samut Prakan.

• Gas sales in the transport sector

Sales in the transport sector or NGV averaged 285 MMcf/d (6%) of the total sales, recording a 9% decline from 2015 (312 MMcf/d) due to the plunge in world crude oil prices and in turn domestic gasoline and diesel prices. Consumers therefore hesitated to consume gaseous fuels.

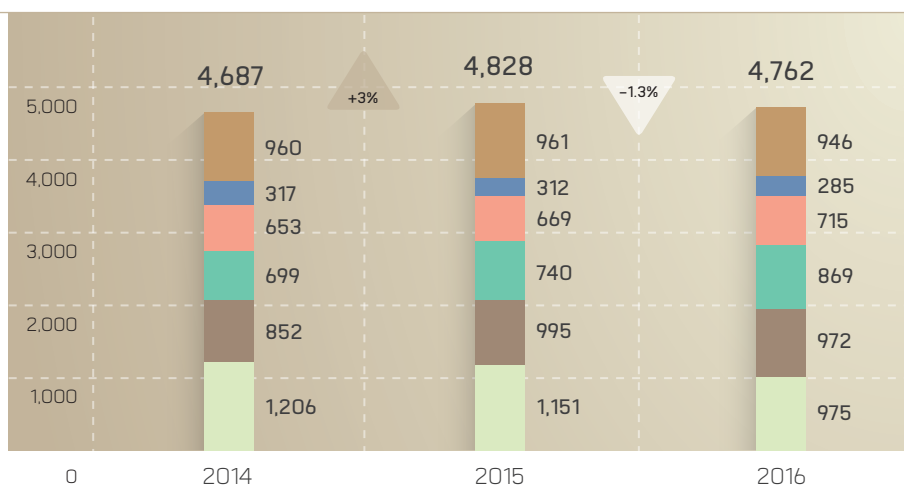
• Sales of products from GSPs

GSPs processed 946 MMcf/d of natural gas in 2016, or 20% of total sales, a 2% fall from 2015 (961 MMcf/d). There was a major turnaround of the Ethane Plant and GSP Unit 6 whereas PTTGC cut its olefins capacity at Complex 3 (1 million tons/year capacity) due to process problems—ultimately causing the GSP to run at partial capacity.

Natural Gas Sales

Unit: MMcf/d at 1,000 BTU/cu.ft.

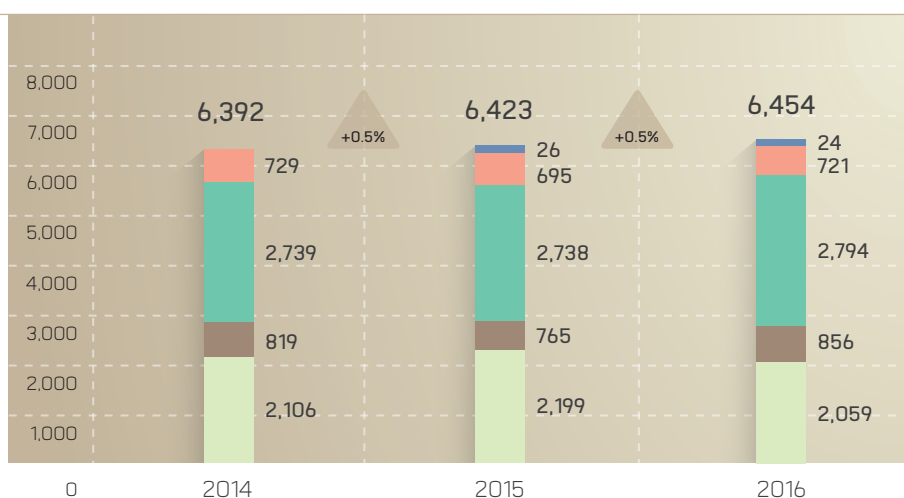
- GSPs
- NGV
- Industries
- SPPs
- IPPs
- EGAT



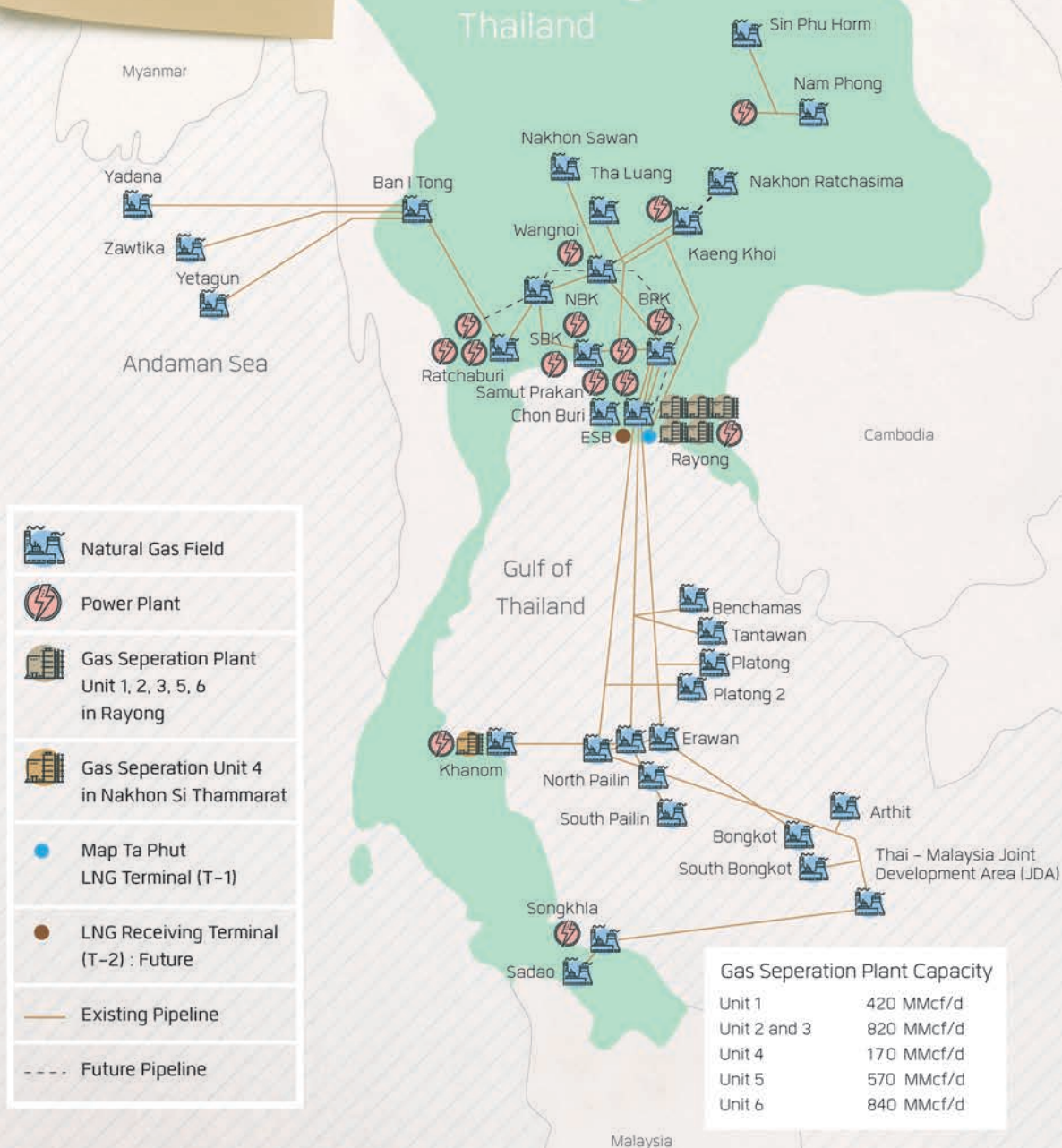
Products from Gas Separation Plants

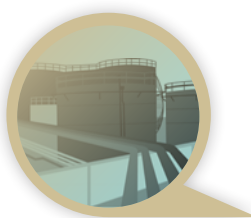
Unit: thousand tons

- Pentane
- NGLs
- LPG
- Propane
- Ethane



Natural Gas Transmission Pipeline System and Gas Separation Plants





Oil Business Unit

The business unit's success in 2016 resulted from marketing excellence strategies to satisfy the diverse needs of consumers. PTT continued to occupy the pole position in the domestic fuel retail market for 24 consecutive years, with 40.4% market share, some 0.5% higher than previous year. For the lubricant oil market, PTT also succeeded in maintaining its top position for eight straight years, with a market share of 37.9%. Business performance highlights appear as below:

• Fuel sales

In 2016, PTT sold 20,103 million liters of fuel, an increase of 1,024 million liters. Sales consisted of 4,422 million liters of gasoline, 8,179 million liters of diesel, 3,042 million liters of jet fuel and kerosene, 1,478 million liters of fuel oil, and 2,982 million liters of LPG.

An average marketing margin (gross profit for Article 7 traders and service station owners) was THB 1.64 per liter,

against the suitable margin of THB 1.8-2.2 per liter, based on the coverage of operating expenses and appropriate financial returns for Article 7 traders and service station owners.

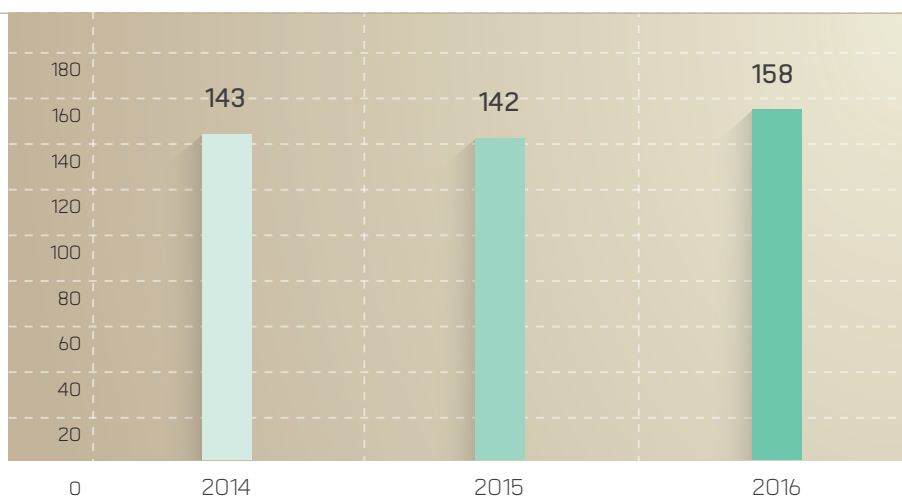
As of December 2016, PTT operated 1,530 service stations across the country or 6.4% of the total. It managed 11 jet (aviation) fuel stations, 20 oil terminals (PTT owned 9 and the others were joint/rented ones), 4 LPG terminals (of which PTT owned 3), 6 petroleum terminals, and 4 LPG-bottling plants.

• Lubricating oil sales

PTT is determined to globalize PTT Lubricants, Thai brand by seeking to maintain its domestic lubricant oil market leadership and expand to international markets, particularly Southeast Asia, South Asia, and China. It has exported its lubricant products to 36 countries. In 2016, it developed nine new products to address customers' needs and step up to technological and environmental leadership.

Domestic Lubricant Sales

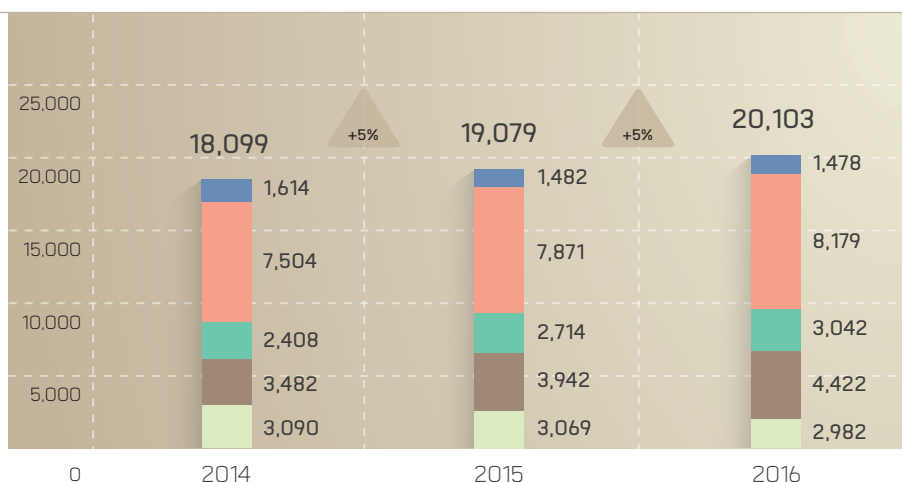
Unit: million liters
Source: Department of Energy Business,
Ministry of Energy



Domestic Petroleum Product Sales

Unit: million liters
Note: Excluding LPG for
Petrochemical Feedstock

■ Fuel oil
■ Diesel
■ Jet fuel/ kerosene
■ Gasoline
■ LPG



• Retail business sale

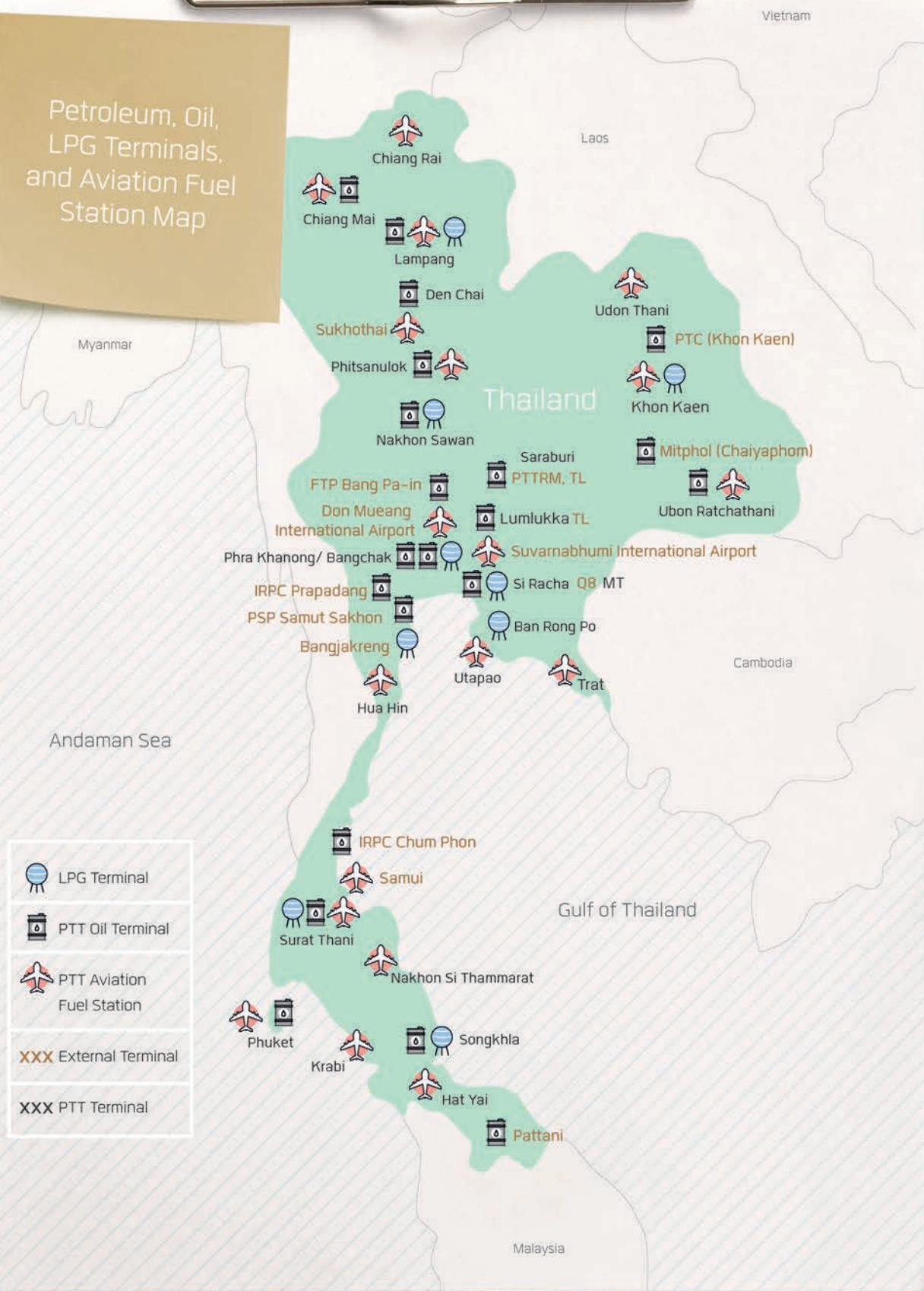
PTT has selected non-oil retail businesses to satisfy diverse needs of customers and fulfill PTT Life Station concept for each area. Non-oil business, which its margins higher than fuels, was a key success that kept PTT ahead in competitive markets. As of the year-end, PTT commanded 1,350 7-Eleven convenience stores (up by 105), 1,717 Café Amazon outlets (up by 280), and 124 automotive businesses (up by 3). In December 2016, PTT reached an agreement with Hua Seng Hong Dim Sum, under which PTT would serve as a master franchise. Five outlets have been launched at service stations; PTT Taling Chan, Bangkok - Chon Buri Motorway (outbound), Bang Pa-in, Rama II, and PTT Wang Noi.

PTT takes into account the safety and equality of all patrons in service stations. For their convenience and comfort, PTT has adopted a “Friendly Design,” including design of ramps to ease access for wheelchair users, toilets for children, and parking spaces for ladies and the handicapped.

PTT is highly concerned about sustainability for Thai society and commits to remaining Thai brand for all Thais. Therefore, PTT launched the “Sorting for Smiles” Project to engage consumers and service station operators in the stewardship of the environment and society by taking an income from selling sorted waste and garbage to bring smiles to communities under the “Pracharath Smile Shop” Project, located at service stations. The aims are to decentralize income to communities and promote sale and public relations of rudimentary goods along with local tourism. There were a project of buying coffee seeds from the Royal Project and a R&D project on planting and production of coffee dedicated to the conservation of natural resources for sustainable development under the Sufficiency Economy approach of HM the late King.

PTT Life Stations received excellent responses from consumers. The format of domestic PTT service stations then has turned into a prototype of service stations that are being constructed in neighboring countries in order to drive Thai brand

Petroleum, Oil, LPG Terminals, and Aviation Fuel Station Map



as a quality brand for regional acceptance, to boost Thai pride. In 2016, 34 PTT service stations were added in neighboring countries including Myawaddy of Myanmar and Seam Reap (Apsara branch) of Cambodia.

To enable knowledge management and sharing to become sustainable and efficient, PTT founded the Oil Business Academy (OBA) as the main mechanism for transferring core business knowledge that is essential to the personnel of PTT, business partners, and customers. The aim is to improve their competencies and groom them for domestic and overseas business growth.

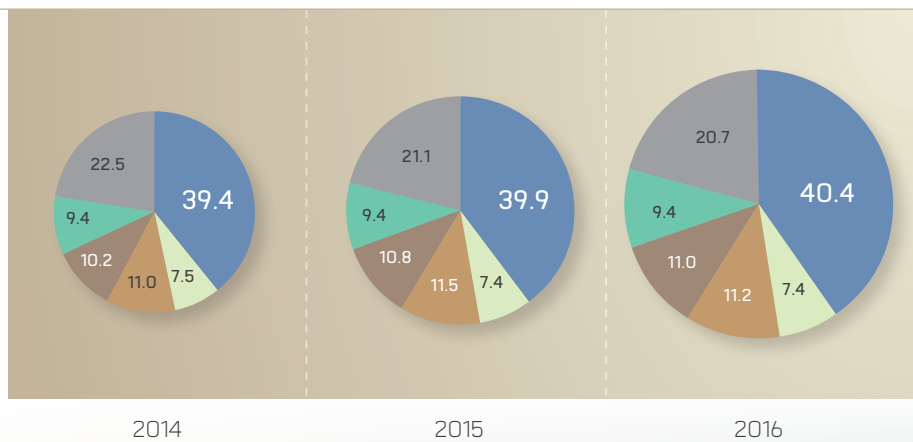
• Oil business unit infrastructural investment

Relentlessly, PTT values investment for national energy security by developing an infrastructural master plan for the Oil Business Unit, a systematic plan for the network of terminals and transport systems. The plan includes the capacity expansion of Surat Thani Oil Terminal to accommodate the South's rising oil demand.

Domestic Market Share

Unit: %

Note: Excluding lubricant products





International Trading Business Unit

In 2016, the business unit posted a trade total of 61,690 million liters of petroleum and petrochemical products, dropping by 6,236 million liters (9.18%) from previous year in line with dwindling domestic demand from an increase of domestic usage of crude oil. This was made up of 45,354 million liters of crude oil, 8,049 million liters of condensate, 5,714 million liters of petroleum products and LPG, and 2,573 million liters of petrochemicals and solvents. There was trading in other commodity markets including crude palm oil, refined palm oil, palm kernel shells, and rice bran oil. The total trade volume was 19 million liters.

As for securing the domestic use of energy, regarded as a critical mission of the business unit, below are its missions.

• Procurement of crude oil and condensate from indigenous sources

These long-term agreements with petroleum concessionaires accounted for most of the outputs for allocation to oil refineries and petrochemical plants in equity and quality fitting each refinery and each petrochemical plant. In 2016, 11,533 million liters of crude oil and condensate (94% of the total indigenous output) was procured.

• Import of crude oil and condensate

These long-term G-to-G agreements with Middle Eastern and other regions' producers provided domestic refineries and petrochemical plants with crude oil and condensate matching PTT's equity capacities or more. PTT also imported for other refineries of crude oil and condensate whose qualities matched respective refineries and petrochemical plants. In 2016, a total of 30,559 million liters was imported, or about 6% of Thailand's total imports.

• Import of LPG

To meet demands of the industrial, transport, and household sectors that exceeded domestic outputs, PTT entered into long-term agreements with the national oil companies of major producing and exporting countries. In 2016, the business unit imported a total of 801 million liters or the entire LPG imports by Thailand.

• Import of fuel oil

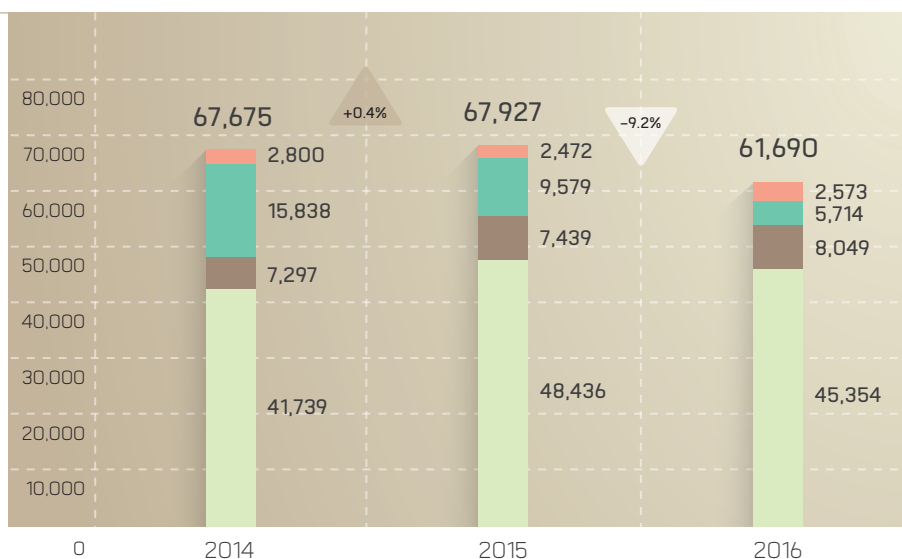
This was designed to provide fuels in case of inadequate natural gas (the core fuel) supply from breakdown maintenance. In 2016, 74 million liters (60% of total imports) of fuel oil was imported.

Representing PTT and PTT Group, the International Trading Business Unit also engaged in managing hedging in the course of trading, refining, and production through swaps or options. In 2016, the volume represented by hedging for PTT totaled 20,096 million liters; for PTT Group, 1,223 million liters.

International Trading Volumes

Unit: million liters

- Petrochemicals
- Petroleum products
- Condensate
- Crude oil





Infrastructure and Sustainability Management Business Group

In 2016, the group promoted linkage in managing PTT's core business group by raising the efficiency of mechanisms and simplifying management and service provision between PTT and PTT Group companies. To strive for new business opportunities, it includes investment and construction of new projects to supplement future value; promoting proficiency for PTT employees to accommodate its centers of excellence in professional project management; undertaking constant R&D with a focus on enhancing the technology base structure and researchers' caliber to become experts in assorted disciplines; and finally, establishing business mechanisms for process link-ups between PTT RTI and the business group. This year, saw a total of 12 patents filed and two petty-patents filed.

A success of the business group was evident in the push for gradual adjustment in NGV retail prices to reflect its cost and in the 503 PTT NGV stations in 2016.



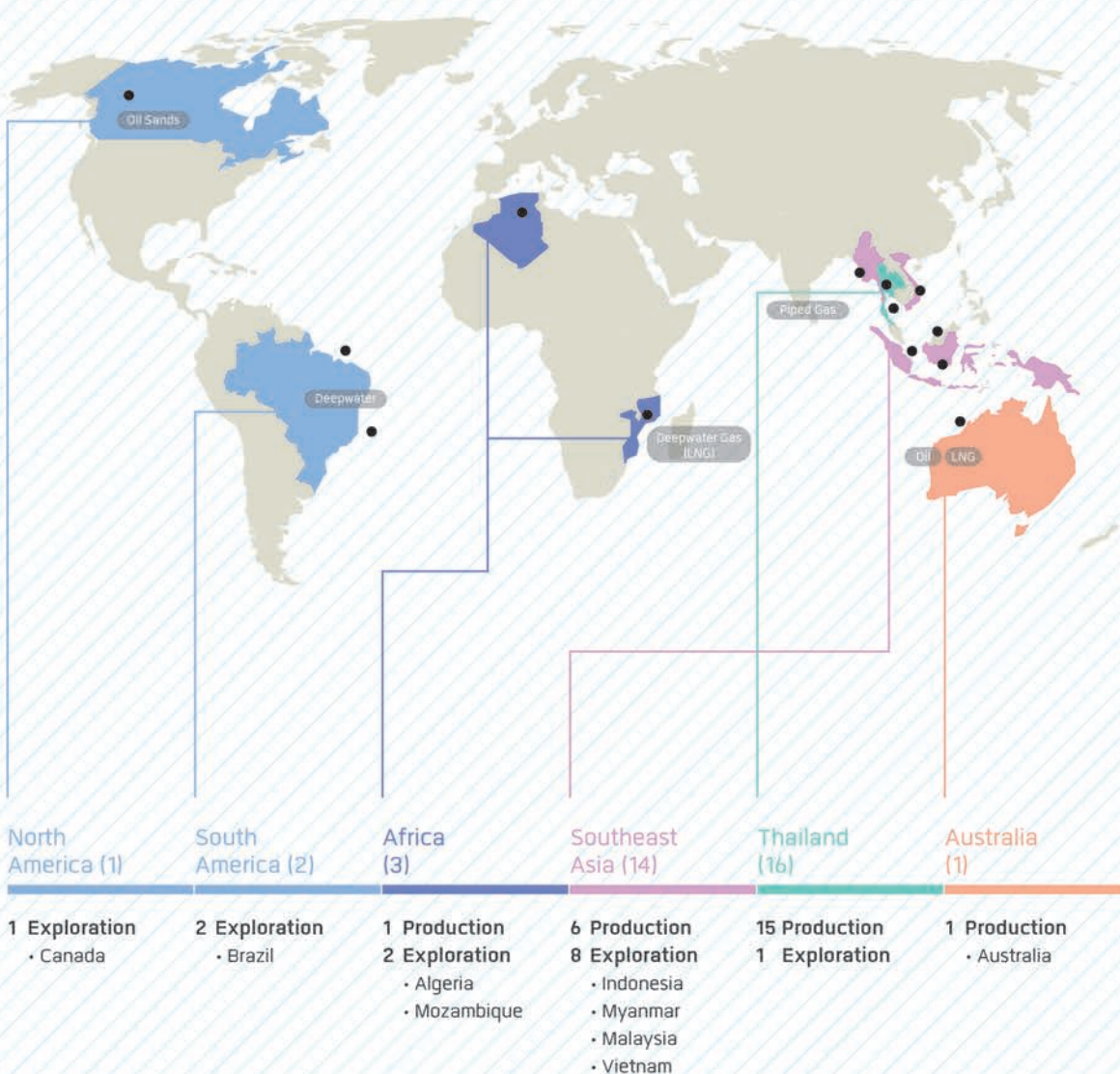
Businesses invested through PTT Group companies



Petroleum Exploration and Production (E&P) Business

PTTEP's performance in 2016 remained under pressure as the average product prices continued to stay low with the oil price crisis since mid-2014 despite signs of recovery in late 2016. The overall 2016 sales revenue totaled USD 4.19 billion, a 21% decline from 2015 because of the oil price drop from an average of USD 45.29 per barrel in 2015 to USD 35.91 per barrel in 2016. This year's average annual sales volume was 319,521 barrels of oil equivalent (BOE) per day, close to the one in 2015. Consequently, PTTEP continued to be cost-saving and efficiency improve strategies under the "SAVE to be SAFE" program, implemented since 2014. The "SPEND SMART to Business Sustainability" program was founded on the concept of "Think differently and act differently to achieve the expected results". This helped lower the unit cost to USD 30.46 per BOE, a drop of 22% from USD 38.88 per BOE in 2015. Total expenditure before impairment was brought down to USD 3.664 billion in 2016 compared to USD 4.601 billion in 2015. PTTEP's financial status remained strong with a positive cash flow of USD 2.308 billion from operations due to excellent efficiency, production levels remaining as planned, and cost management performance exceeding targets. The 2016 EBITDA margin is well maintained at 71%, with the net profit turning positive at USD 372 million, compared to a USD 854 million loss in 2015 after an impairment recognition during the year of USD 1.385 billion.

PTTEP's Exploration & Production Project Map



PTTEP invested in 37 exploration & production projects in 10 countries
(As of December 2015)

PTTEP's priority remains to increase new reserves for future use. The company operated 37 projects in 10 different countries. The followings are key project highlights in 2016.

• Projects in Thailand

PTTEP's 2016 average sales from the projects in Thailand was about 240,872 BOE per day, accounting for 75% of total sales. Major onshore and offshore projects such as Arthit, S1 and Contract 4 projects, continued with stable production.

• Projects in Southeast Asia

Projects in Southeast Asia are in Myanmar, Vietnam, Malaysia and Indonesia. In 2016, the average sales volume amounted to about 58,815 BOE per day, accounting for 18% of the total sales.

• Projects in Australasia

Projects in Australasia is located in Australia. The field in the producing phase was the Montara Field. Its sales volume in 2016 stood at 14,655 barrels per day.

• Projects in the American Continent

PTTEP operates three projects in this region located in Canada and the Federal Republic of Brazil (Brazil). All three projects are under the process of exploration and assessing the petroleum potential as well as study on cost reduction and development risk mitigation. Firstly, the Mariana Oil Sand Project is located in Alberta, Canada. Secondly, the Barreirinhas AP1 Project is located in the Barreirinhas Basin, offshore to the northeast Brazil. Lastly, the Brazil BM-ES-23 Project is located in the Espirito Santo Basin, offshore to the eastern Brazil.

• Projects in Africa and the Middle East

Located in Algeria and Mozambique. In 2016, the average crude oil production of 15,463 barrels per day was from the Algeria 433A and 416B Projects, located onshore in the east of Algeria. The Mozambique Rovuma offshore Area1, located in the exploration phase, is a massive natural gas project located offshore Mozambique. In 2016, the project is currently in the process of negotiation for its finance, and the LNG procurement in long term.



Power Business

PTT operates the power business through Global Power Synergy Public Company Limited (GPSC), a listed company certified with ESG100 sustainable operations in 2016. The certification is given in a recognition of outstanding achievements in all three dimensions; Environmental, Social and Governance.

The 2016 operating profit topped THB 2.7 billion, up from THB 1.906 billion in 2015. The total combined power generation capacity was 1,923 megawatts (MW), rising from 1,918 MW in 2015. This increasing capacity was from the 5-MW solar power plant joint-venture project by Combined Heat and Power Producing Company Limited (CHPP), a 100% subsidiary of GPSC, in partnership with Chanthaburi Prawn Farming Cooperative. The construction was completed, and the plant successfully started commercial operations. GPSC also signed a contract with the Rayong Provincial Administrative Organization (Rayong PAO) to jointly develop clean-energy system solutions from waste, a successive initiative from a waste management project run by the PAO. Together with the National Science and Technology Development Agency (NSTDA), the National Metal and Materials Technology Center (MTEC) and 24M Technologies Inc. (24M), GPSC signed a memorandum of understanding (MOU) to research and develop high-efficiency lithium battery technology which is intended for the energy storage system in the power and utility business.



Coal Business

The total 2016 sales volume of the coal business was 9.8 million tons, increasing from 7.3 million tons in 2015. Net operating profits of general coal operations totaled USD 37.4 million, higher than USD 18.3 million in 2015. However, after taking the USD 122.0-million impairment and USD 15.7-million extraordinary expenses into account, the year's performance turned into a net loss of USD 144.2 million.

In 2016, Sakari Resources Limited (SAR) continuously focused on reducing mining and other operating expenses. Negotiation with service contractors on mining plan optimization is ongoing to adjust and cope with the year's coal price situation. SAR also procured coal produced by other miners to blend with coal from the Jembayan mine to meet the specifications demanded by customers. Additional value-added activities, including mining services and infrastructure-sharing with adjacent miners, are other areas generating the revenue for SAR. In 2016, SAR had cash cost of coal production at USD 35.6 per ton, lower than USD 44.7 in 2015, accounting to 20%.

Aside from cost reduction and value-added generation from existing assets, SAR focused on expanding its customer base and new coal markets such as in Vietnam and the US (in the state of Hawaii). Its strategies also included striking more long-terms deals to reduce impacts of coal price uncertainty and help stabilize its revenue stream. SAR successfully signed deals to cooperate in mining operations and providing infrastructure services to two mining projects adjacent to the Jembayan mine. The deal with the KPUC mine was signed in June 2016 and the IBP mine in October 2016.



Petrochemical and Refining Businesses

The feedstock from the petrochemical and refining business units to PTT's Oil Business Unit totaled 653 thousand barrels per day in 2016, a decline by 5% from 2015. It was mainly due to the annual maintenance shutdown of PTTGC. Total petrochemical sales topped 7,879 thousand tons, a rise by 4%, as multiple projects by PTTGC (Aromatics II Debottleneck / Phenol II) and IRPC (UHV) started commercial operations.

The 2016 performance of the businesses posted a revenue of THB 62.065 billion, an increase of 38% from 2015, excluding the net profit from PTT's shares in Bangchak Petroleum Public Limited (BCP), which was sold out on March 31, 2016, and in Star Petroleum Refining Public Limited (SPRC), which was sold out on December 3, 2016. The significant net profit increase was driven by efficiency improvements across the organization, the crude stock value appreciating with the rising crude price, foreign exchange gains, value generation activities, and cost reduction from the Group's initiatives to capture synergies. These included Petrochemical and Refining Integrated Synergy Management (PRISM) and PTT Group Operational Excellence that applied best practices, Group Logistics Management (GLM) and Value Chain Optimization (VCO).

PTTGC and TOP were continuously included on the Dow Jones Sustainability Indices (DJSI) for the fourth consecutive year, and IRPC for the third consecutive year. TOP was also named the "World's Oil and Gas Industry Sustainability Leader 2016" for the third consecutive year.

A summary of key projects in petrochemical and refining business unit's investment portfolio expansion / capacity increase is as follows:

PTTGC

- HDI Derivatives Project in Thailand started commercial operations with a capacity of 12,000 tons per year. Products are major feedstock and raw materials for high-growth downstream industries such as automobile and construction.

- Aromatics II Debottleneck Project started commercial operations, ramping the total PX capacity up by 115,000 tons per year, BZ by 35,000 tons per year, and ortho-xylene by 20,000 tons per year.

- Phenol II Project started commercial operations with phenol capacity of 250,000 tons per year and 155,000 tons per year of acetone. This generates higher added-value for PTTGC Group's propylene and benzene products.

- mLLDPE Project construction was underway with estimated completion and commercial operations in 2018. The project, with a capacity of 400,000 tons per year, would generate added value to PTTGC's ethylene products.

- Olefin Reconfiguration Project was designed to increase flexibility in selecting feedstock and raw materials for production and to expand olefin capacity by 761,000 tons per year while using naphtha feedstock produced by PTTGC Group's refineries and aromatics plants. The project was under the feasibility study stage with the investment decision expected to arrive in Q1/2017.

- PO/Polyols Project aimed to expand business into downstream industry of polyurethane, a product of high value and gaining higher demand. The project was under a feasibility study stage with investment decision expected to arrive mid-2017.

- US Petrochemical Complex Project, a PTTGC joint-venture project to build a petrochemical complex in the US using ethane gas feedstock from shale gas to produce ethylene for

downstream use, was under assessment on entering partnership with the investment decision expected to arrive by 2017.

IRPC

Upstream Project for Hygiene and Value Added Projects (UHV) started commercial operations to improve fuel oil quality, turning it into high-value products. The key product was 320,000 tons per year of propylene which would be used in future PP expansion project. Fully Integrated PP Project is under construction. Completion and commercial operations are expected in Q3/2017.

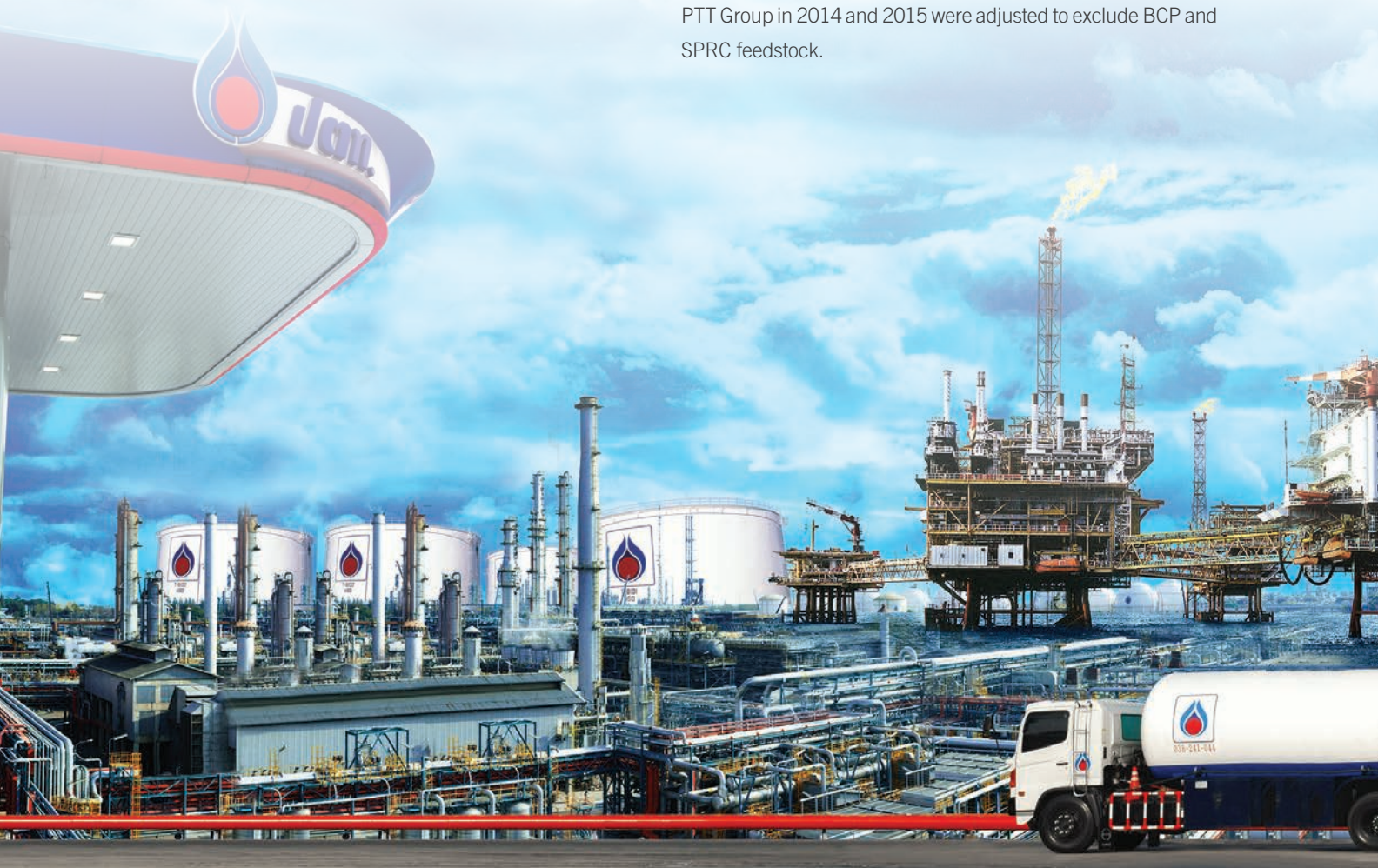
TOP

- Linear Alkyl Benzene (LAB) Project started operations with a capacity of 100,000 tons per year. LAB is a raw material for cleaning substances such as detergents and for other downstream products.

- Clean Fuel Project (CFP) aims to convert low-value into higher-value products while coping with more varieties of crude oil feedstock quality. The project was under the front-end and engineering design phase (FEED), with investment estimation expected in 2017.

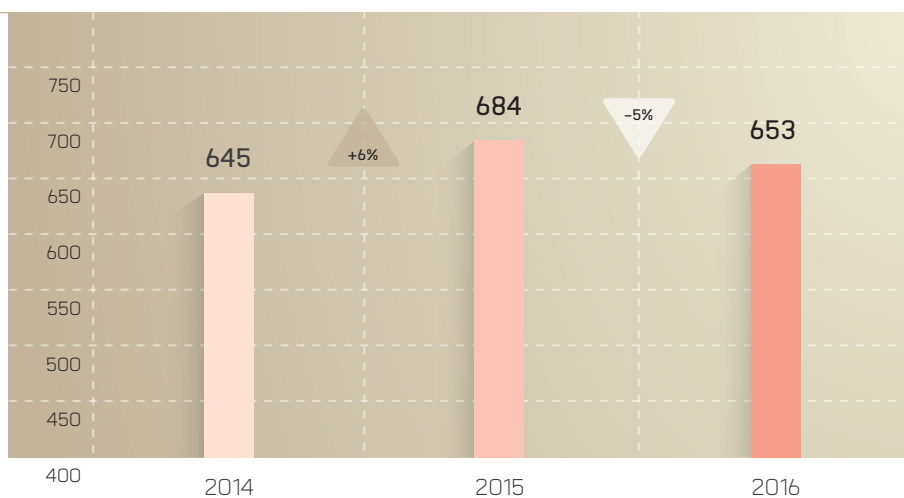
- Jetty Extension and Jetty Improvement Projects for the existing and new jetties were initiated to improve operating safety and mitigate congestion at the current port. The projects are under a feasibility study and EIA approval processes.

Note: The figures of total feedstock for refineries under PTT Group in 2014 and 2015 were adjusted to exclude BCP and SPRC feedstock.



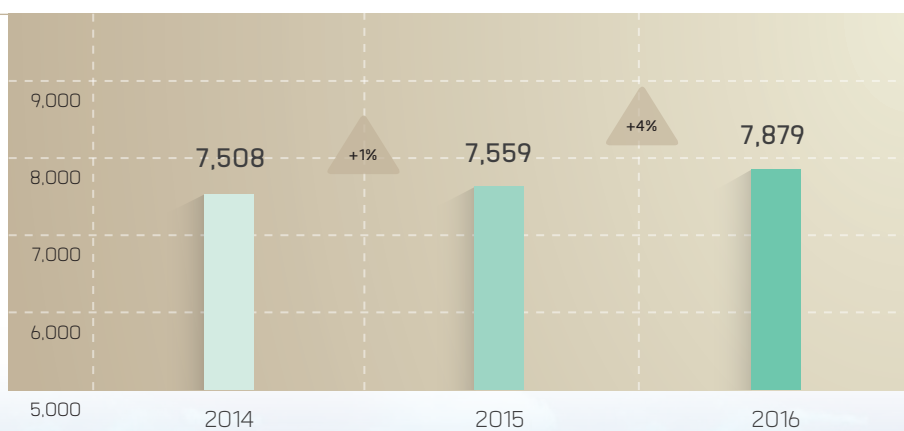
Total Feedstock for Refineries in PTT Group

Unit: Kbpd



PTT Group's Total Sales Volume of Petrochemical Products (Olefins, Aromatics, and Polymers)

Unit: KT/year



PTT 2016 Milestones

January

- The Energy Regulatory Commission (ERC) endorsed the second issue of the “TPA Code-PTT Regulations for Onshore Natural Gas Transmission Pipeline, Third-Party Access Code” allowing third parties to utilize or connect to an onshore natural gas transmission system. This is in line with the emphasis on fair competition in energy business and energy networks in the Petroleum Act (2007).

- The Energy Policy and Planning Office (EPPO) floated retail NGV price within a 50-kilometer range from main stations with conditions. Also, there was an adjustment on NGV transportation costs outside the 50-kilometer range with a limit of THB 4 per kilogram. The NGV price for public transport, however, remained THB 10 per kilogram with additional subsidies put in place until a permanent solution is provided.

- PTT enforced the second issue of the “TPA Code-PTT Regulations for Onshore Natural Gas Transmission Pipeline, Third-Party Access Code” This code followed the enactment of the “TPA Code - PTTLNG Regulations for LNG Terminals and Linking of LNG Terminals, Third-party Access (2nd issue, 2015)” as published in the Royal Gazette.

- PTT started gas delivery to B. Grimm BIP Power 2 Limited, an SPP customer, at the daily contract quantity (DCQ) of 16 million cubic feet per day.

- PTT and Energy Complex Limited (EnCo) signed a “sourcing contract for physical asset management of PTT Headquarters and PTT Research and Technology Institute at Wangnoi”. The contract aimed to upgrade service quality to international standards and to utilize the economies of scale to improve its efficiency as well as to reduce long-term office expenses under PTT’s concept on sharing services.

February



- Rayong Wanarom Eco-Forest in the PTT Wanarom Eco-Zone Industries (PTT WEcoZi) area was awarded Thailand Voluntary Emission Reduction Program (T-VER) by Thailand Greenhouse Gas Management Organization (TGO). It then was Thailand’s first eco-forest in an industrial area to qualify for T-VER. The forest’s capacity to absorb greenhouse gases totaled over 1,000 tons of CO₂ equivalent per year.

- PTT promoted the private sector’s investment in the fully-integrated NGV business. The Siam Best NGV service station located at Bang Lamung, Chon Buri, was the first along the gas transmission pipeline to provide NGV to the high-consumption transport businesses.

- PTT, jointly with PTTGC, expanded the market for FO500cst fuel oil for marine vessels, pioneering sales of this fuel oil in Thailand.



- PTT signed a memorandum in cooperation with PTT Solutions Limited, a leading software company on developing a commodity trading and risk management (CTRM) system.

March

- PTT was exempted from import duty for the Midline Compressor Station on Transmission Pipeline Project at Wangnoi-Kaeng Khoi with an investment support from the Board of Investment (BOI). This project cost reduction will consequently lower electricity charges to the publics.



- PTT and joint bidders signed an “Integrity Pact for the Midline Compressor Station on Transmission Pipeline Project at Wangnoi”. The signing was presided by Gen. Anantaporn Kanjanarat, Minister of Energy, and observed by honorable guests from the government and private sectors. The pact was intended to exhibit PTT as an organization of good governance, with transparent and auditable procurement processes, as guided by the government’s anti-corruption policy.

- PTT started commercial gas delivery to PPTC Limited, a SPP customer, at a DCQ of 20 million cubic feet per day.

April

- PTT, together with Korea Gas Corporation (KOGAS), signed a joint-venture agreement to explore investment opportunities in the natural gas and LNG supply chain as well as LNG co-sourcing.

- PTT started commercial gas delivery to TOP SPP Limited Project 1, an SPP customer, at a DCQ of 32 million cubic feet per day.



- PTT launched 148 Pracharath Sookjai Shops at service stations along highways across the country. The shops provided an alternative product distribution channel for local goods and helped promote local businesses and tourism.

May

- The National Energy Policy Council (NEPC) approved PTT's LNG liquefaction facility expansion project for LNG Terminal 1 from 10 million to 11.5 million tons per year, expecting to end the construction in 2019. The Council also approved PTT's proposal to start a construction for LNG Terminal 2 with a capacity of 5 million tons per year. This construction is expected to end in 2022, preparing to cope with a higher liquefaction capacity at a peak of 7.5 million tons per year.
- PTT started commercial gas delivery to Anghthong Power Limited, an SPP customer, at a DCQ of 14 million cubic feet per day.



- PTT launched “Yak Lak Yim (Sorting for Smiles)” Project aimed to promote consumers' and service stations' environmental and social awareness by encouraging a habit of separating trashes. The project was implemented at all PTT service stations nationwide.



- PTT started the largest gasoline distribution system in Thailand at Sriracha Oil Terminal. The system included distribution capability upgrade for gasoline bases 2, from being able to offload from only small tankers to handling large tankers of up to 50 million liters.
- PTT, together with Srinakharinwirot University and Kasetsart University, signed a “memorandum of agreement to develop a social-enterprise prototype for sustainable social, economic and environmental development” on the area of the Onshore Natural Gas Pipeline #5 Project and Onshore Natural Gas RA#6 in Ratchaburi Project.

June

- ERC endorsed PTT's and excess abilities to provide services for PTT's onshore gas transmission system after PTT has announced the “TPA Code-PTT regulations for Onshore Natural Gas Transmission Pipeline, Third-Party Access Code”. PTT has completed the system to provide accessibility and connection to the gas transmission system through its website along with other administrative processes defined by the TPA Code.
- PTT started commercial gas delivery to SPP customers, including TOP SPP Plc Project 2, Nava Nakorn Electricity

Generating Company Limited, and Amata B. Grimm Power Limited Project 5, with a combined DCQ of 54 million cubic feet per day.

- PTT started commercial gas delivery to a customer of Khanom Combined-Cycle Power Plant Unit 2 at a DCQ of 154 million cubic feet per day.
- PTT started a lubricant-blending and bottling plant in Linyi, Shandong, China. The technology and production quality were jointly developed with Shandong Hui Hua to ensure if a production of high-quality lubricants is efficient.



- PTT inaugurated Amazon Inspiring Campus (AICA) and Oil Business Academy (OBA) at Sanap Thuep Sub-district, Wangnoi District, Phra Nakhon Si Ayutthaya. AICA was founded to pass on business knowledge and experience in the coffee business, including coffee-making techniques per Café Amazon standards. OBA was founded as a center of oil business education. The aims are to collect, to develop and to transfer knowledge to employees, partners and customers.



- PTT conducted a 2016 drill on Business Continuity Management (BCM) of the Black Swan incident by simulating an oil operation disruption event (with LPG disruption). The drill was intended to boost an understanding of the crisis management process, stakeholder communication and other activities such as safety and security, demand and supply management, customers and markets, logistics, Laws and insurance.

July



- PTT launched a new “PTT Performa Euro Syn SAE 5W-30” lubricant with a premium synthetic formula designed for European sedans. Gasoline engines were equipped with Turbo GDI and common-rail diesel engine equipped with diesel particulate filters (DPFs).

August

- ERC approved natural gas pipeline tariffs which are based on variable costs for offshore Rayong (Area 1), offshore Khanom (Area 2), onshore (Area 3), onshore Chana (Area 4), and onshore Namphong (Area 5). The commission were also approved adjusted fees for storage and regasification of LNG, based on variable costs of PTT LNG.

- ERC approved the natural gas pipeline tariff which determined from the commodity charge (Tc) variable for Area 3 (onshore).

- PTT was exempted from import duty for the onshore gas transmission project Pipeline 5 as an investment support by BOI. The exemption helped with the project capital and fuel costs. It would consequently reduce electricity fees for the public.

- PTT signed a contract on mutual development and management of commercial activities at Udon Thani International Airport extension including administering commercial areas in the passenger terminal for goods and souvenir shops, restaurants and beverage stores, health-related stores, banks, and local activity exhibition as well as a cooperative store.

- PTT granted Café Amazon Master Franchisee rights to PTT (Cambodia) Limited (PTTCL) as the sole exclusive distribution representative in Cambodia. The move was intended to create a prototype for PTT's full-scale retail business in overseas markets.



- PTT signed a memorandum of agreement with the Faculty of Logistics, Burapha University, in mutual development of human resources in international trading supply chains. This would lead to co-development on human resources as well as capability improvement for Thailand's logistics and international trading competitiveness.

- PTT signed a memorandum of understanding with PTT Polymer Marketing Limited (PTTPM) in lubricating oil market expansion. The effort aimed to bring in PTTPM's polymer customers to PTT's lubricating oil customer base.



- PTT, together with six leading automobile manufacturers, namely BMW (Thailand), Mercedes-Benz (Thailand), Mitsubishi Motors (Thailand), Nissan Motors (Thailand), Porsche Thailand by AAS Auto Service Limited, and Volvo Car (Thailand), signed a contract for development and testing cooperation on PTT EV Station to ensure motorists' confidence on using electricity in vehicles.

October

- The Cabinet approved a long-term sales contract draft of liquefied natural gas (LNG SPA) of PTT together with Shell Eastern Trading Limited, and PT Singapore PTE Limited at the rate of 1 million tons per year each (total 2 million tons per year). The first LNG delivery is due by mid-2017.
- PTT was exempted from import duty for the onshore natural gas transmission project from the Ratchaburi-Wangnoi 6 (RA#6) pressure control station to Ratchaburi province as an investment supported by BOI.
- PTT promoted Thailand SME goods to ASEAN consumers in response to the government policies. The promotion was made through retail channel support in PTT's service stations. As PTT and 12 SME brands paving the way to ASEAN markets, they introduced Pueng Ngee Chiang,

Black Canyon, Pure Grilled Pork, Tummour, Yuu Nan Stewed Pork Leg on Rice, Yentafo Krueng Song by A. Mallika, Skylark, Hot Pot, and Wizard Auto Care.

- PTT set up PTT International Trading London Limited (PTTT LDN) in London, England, to expand its international trading business into the Western regions while diversifying energy sources to continuously bolster energy security for Thailand.
- PTT was honored with excellence of the highest level from the 2016 Corporate Governance Report (CGR) survey of listed companies by the Thai Institute of Directors (IOD). PTT was also rated the top quartile for the group of companies with market capitalization higher than THB 10 billion.

November

- PTT, in response to the government policy, expanded its NGV station network to 503 in 54 provinces, with coverage on key highways in all regions. PTT invested solely in 395 stations and invested with other private entities in 108 stations.
- PTT started a commercial gas delivery to Bowin Clean Energy Limited, an SPP customer, at a DCQ of 17 million cubic feet per day.



- PTT inaugurated Café Amazon at Kawauchi, Fukushima, Japan, using coffee beans from the Royal Project of King Rama IX.



- PTT signed a franchising agreement with Hua Seng Hong Dim Sum's master franchise, enabling PTT to provide another food option at service stations as a fully-integrated one-stop service. This effort was part of the development of turning service stations into mini-community malls through SMEs partnership as a new model of business partnership.
- PTT started to use analyses and insights gained from Big Data analytics to forge capability in promotional campaign which designed for a customer base expansion. The insights were also used as an input for strategic planning for product and service development in order to maximize customers' satisfactions.
- PTT completed the liquidation of International Coal Holdings Pty Limited (ICH), effectively on November 4, 2016.



December

- NEPC approved PTT's plan to expand its LNG liquefaction capacity for the new LNG Receiving Terminal (T-2) in Rayong to ensure sufficient capacity on increasing LNG imports since the expectation of demand are higher from 5 million to 7.5 million tons per year, due to deliver in 2022.

- NEPC approved a 15-year supply agreement draft of liquefied natural gas (LNG SPA) between PTT and Petronas LNG Limited at the rate of 1 million tons per year, with the first LNG delivery due around 2017-2018, and 1.2 million tons per year starting in 2019 (PTT may sign the agreement once the draft is proofread by the Office of the Attorney General.)

- PTT started a commercial gas delivery to SSUT Limited, an SPP customer, at a DCQ of 40 million cubic feet per day.

- PTT signed the first sales contract of refined petroleum products to the Latin America region. The contract value was over USD 280 million over its lifetime from January to December 2017.

- PTT signed a rental contract for refined petroleum storage in Europe as part of its distribution expansion to Europe and nearby regions.

- PTT, with a Madagascan government representative, jointly invested in coal mine development in the Republic of Madagascar. PTTER, holds 80% of the shares in the company, granted five exploration permits by the government to assess coal potential with estimated coal reserves of 108 million tons.



In addition to these performances managed by PTT business units, significant business management of PTT group in other aspects are as follows:

Strategic Planning

PTT's strategic planning is a continuous process, started from the Top Executive Thinking Session (TTS) where top executives of PTT Group review and set directions of the group for its 5-10 years' future to cope with changes of the world and business environment, ensuring PTT Group's achievement of vision and goals to becoming the Pride and Treasure of Thailand. After the TTS, all business and support units, as well as group companies, translate the top executive strategic directions into a set of strategic directions of their business units before proposing them to the Strategic Thinking Session (STS) and then to the PTT Board for endorsement. This year's business strategic directions consisted of the 3Ds as follows.



- **DO NOW: Strengthen the corporation strategy.**

Coded as “Do Now”, the short-term strategy drives PTT to top-quartile performance by raising business efficiency through assorted productivity improvement programs. It includes generating incomes, reducing cost and restructuring for greater business efficiency.

- **DECIDE NOW: Grow the corporation strategy.**

Coded as “Decide Now”, the strategy leads to business sustainability. All business groups define growth strategies through sustainable innovation.

- **DESIGN NOW: New S-Curve strategy.**

Prepare the corporation for leapfrogging growth or the “New S-Curve”. Coded as “Design Now”, the strategy calls for pursuit of business opportunities and new business models based on global mega-trends and energy delivery of the future. The strategy is to develop new technology and innovation (disruptive technology/ innovation) in parallel with identification of opportunities derived from the mechanism for Thailand’s growth by the 5+5 target industries. PTT formed a special taskforce under the Expresso (short for Express Solution) to house analytical work, filter, and select emerging business concepts, goods, and services, which leads to the Rapid Prototype process before proceeding to commercialization.



PTT Group's Financial Management

In view of the fact that PTT is the largest publicly traded company on the Stock Exchange of Thailand (SET) with a market capitalization at the end of 2016 at THB 1.062543 trillion, accounting for 7.2% of the total, and that PTT Group's market cap exceeded THB 1.822818 trillion at the end of 2016, accounting for 12.3%, PTT is set to constantly grow. PTT Group's financial management must be robust and disciplined to develop and maintain its financial strengths, discipline, and credit ratings on a par with other leading peer organizations, with disclosure transparency to all shareholders. PTT treasury and credit policy is therefore employed by PTT and PTT Group to manage its finances efficiently on the same direction.

In 2016, PTT Group arranged its financial management including managing its liquidity, financial risks from foreign exchange and interest rates to minimize costs or increase values, or both. Details are summarized below.

- Developed financial derivatives to help manage long-term financial risks of PTT, resulting in a cost saving on loans of about THB 10.91 million for its first tranche of interest.
- Managed risks on foreign exchange incurred from PTT's international trade, including transactions on import and export of products, international purchases and sales of products, and import of crude oil for PTT Group refineries, resulting in a value creation for PTT Group of roughly THB 595.57million out of the total trading volume of USD 12.255 billion.

Performance Management and Efficiency Improvement

PTT has deployed an integrated management system, including economic value management (EVM), balanced scorecard, and management criteria defined by the Thailand Quality Award (TQA) to manage performance and continuously improve efficiency across the corporation and align all units in the same direction with a common goal to generate more value for the organization with due regard to stakeholders. This integrated system also helps advance its performance management to a world-class level. It supports the national state enterprise performance appraisal (SEPA), based on the TQA criteria under the evaluation policy of the Ministry of Finance.

The top management of PTT appointed a "Category Committee, Sections 1 - 6", chaired by a Senior Executive Vice President, to align business improvement in individual aspects of the corporation with corresponding SEPA's assessment sections. A workshop organized to integrate link-up processes among sections more efficiently. Clear timeframes were imposed on each step or procedure. PTT developed an Organization Performance Report (OPR) and Self-Assessment Report (SAR) to identify strengths and opportunities for improvement (S & OFI). OFI is a springboard for PTT's five-year OFI Roadmap. An accountable unit is appointed to report an update to the Category Committee, Sections 1 - 6, the Management Committee, and the Board by the given timeframe so that PTT's business improvement may be an ongoing process.



Inspiration for Sustainable Energy for Thailand

ธ ทรงเป็นแรงบันดาลใจ
สืบสานพระราชปณิธาน เป็นพลังที่ยั่งยืน



We, each and everyone living in the Kingdom of Thailand, all realize that the wellbeing on every square inch of the country throughout the past 70 years of H.M. the Late King Bhumibol Adulyadej's reign and in the distant future is the virtuous outcome of the tireless, benevolent work that the late monarch graciously granted to his subjects. Everything that he graciously blazed on the sustainable trail has become the inspiration for PTT Group to carry on.



Profoundly grateful and determined to inherit the royal legacy, PTT Group has adopted the Sufficiency Economy philosophy as divine guidance for working with its allies in both public and private sectors as well as in the civil sector. PTT Group adheres to the philosophy in its work on development of society, communities, and the environment. The attempt particularly translates into forest preservation through PTT Reforestation Institute, Green Globe Institute, and Sirinath Rajini Mangrove Ecosystem Learning Center; soil and water conservation through a campaign to promote vetiver under the royal initiative; and support for communities' sustainable self-reliance through community projects involving energy development.

Last year PTT Group continued and even expanded its ongoing tasks while starting new initiatives. Altogether more than 40 projects have been directly carried out by PTT and by foundations established by PTT as well as by allies for the benefit of Thais and the Thai society. These projects are human resource (HR) development, social and community development, and natural and environmental conservation.

“Education in art and culture is important and should be provided in parallel with education in science. This is because enrichment of a person, a country, and the world at large is founded on both matter and mind development. When these two approaches of development go in tandem and support each other, true prosperity can be achieved.”

H.M. the Late King Bhumibol Adulyadej’s discourse
at the commencement ceremony,
Chulalongkorn University,
July 10, 1992

Human resource development projects

Development of a country must start with its people. It is undeniable that education is an essential support for one’s self-development which will ultimately benefit social and national development. PTT is determined to continually take part in education development, ranging from upgrading education, providing scholastic opportunities to raising skills and creativity. These will be done in parallel with grooming capable and ethical youths.

Educational Development

PTT recognizes that for the young generation to stand firm in the future world, their development should be founded on strengths of science and technology. It therefore aims to drive science, technology, and innovation advancement through Vidyasirimedhi Institute (VISTEC) and Kamnoetvidya Science Academy (KVIS).



Vidyasirimedhi Institute (VISTEC)

A bold step toward better education - The institute aims to develop human resources capable of doing research work. VISTEC supports technological research and development that is vital for national development. For two years now, the institute has received post-graduate students, both master's degree and PhD levels, gratis to its molecular science and energy science schools. A total of 87 students were accepted and when they graduate, they will be readily equipped with science knowledge for taking part in technological development to support the country's future.

Kamnoetvidya Science Academy (KVIS)

Fostering learning for the future - The academy- an upper secondary school in its second year- provides scholastic opportunities and nurtures the young generation with interest in science and technology. A total of 144 enrolled students are provided with free tuition. This is meant to grow capable, ethical children for the better Thai society.



Providing Scholastic Opportunities

A total of 2,629 scholarships worth THB 9.93 million were granted under PTT's 2016 scholarship program intended for needy students around PTT's sites across the country, ranging from primary to university levels. PTT, moreover, granted financial support for students who had joined PTT's Petro Camp to Petro Champ Project to pursue their studies in engineering, chemical engineering, and environmental engineering at King Mongkut's University of Technology Thonburi. As many as 57 students are offered such support worth over THB 18.32 million.





Promotion of Arts and Culture

Arts and culture are aesthetic tools which are vital for making humans grow from the inside. PTT encourages the young generation to create their own art works, a way to grow cultural seeds for the Thai society and carry on the Thai culture. In the previous year, PTT joined Silpakorn University in organizing the 31st Art Competition on the topic “Sufficiency...Sustainable Living in Thailand”.

H.R.H. Princess Soamsawali graciously presided over the award presentation ceremony for 24 winning pieces of art work out of a total of 688 entries. PTT also joined Thaksin University, Khon Kaen University, and Chiang Mai University in holding regional competitions, in which over 1,000 entries were received.



Seeding the Future

At its overseas sites, PTT also provided educational opportunities for youths as part of its social and environmental responsibilities. It initiated the “PTT Seeding the Future” Project, in which various activities are held, including granting scholarships to students with good scholastic records, donating schooling equipment, and organizing an ASEAN Youth Camp, among others. PTT Seeding the Future ASEAN Camp 2016 was held for a second year to provide information on PTT businesses in each country through a mixture of living skills, cultures and traditions in relation to geographic conditions. The project not only directly benefited each camp participants but also formed a network which will, in the long term, benefit PTT’s businesses.



"Sufficiency economy is like the root of life and the origin of the national security. It is also like poles that support a house or a building. Buildings have to rely on strong poles to stand firm. However, poles are normally unnoticed, or even forgotten."

H.M. the Late King Bhumibol Adulyadej's discourse
Published in Chaipattana Bulletin, August 1999 issue

On the path to social and community development

Self-reliance is the heart of robust development. PTT aims to bolster communities, making them self-reliant with sustainability on the sufficiency path. It makes use of its knowledge, skills, and expertise in energy management to support its community development work. People in the community can learn to manage their own community energy affairs in harmony with their respective ways of life.

Community Energy, Energy for Self-Reliance

PTT and Tha Manao Community jointly developed a project on making biogas from pig farms. The community has actually started to use biogas since 2015 and has now registered with Thailand Voluntary Emission Reduction program (T-VER) in the category of garbage, waste, and used-material management. In 2016, the project was expanded into two additional areas to reduce impacts from the foul odor and waste water from pig farms, which will further reduce greenhouse gas (GHG) emissions around the community.

Kham Kaen Sub-district, Mancha Khiri District, Khon Kaen - As many as 26 households have now used biogas to replace LPG, reflecting a saving on the overall LPG cost equivalent to THB 280,800 per year. People in the community can also derive an income of THB 35,000 per year from selling dried pig manure (sediment of the biogas system).



San Sai Sub-district, Phrao District, Chiang Mai - A total of 32 households have used biogas instead of LPG, saving THB 161,280 per year.

PTT, in addition, carried out a project to draw raw water for producing community tap water using natural energy at Phu Toei Community, Cha-lae Sub-district, Thong Pha Phum District, Kanchanaburi. The community had earlier encountered a problem: They could not divert water from the irrigation canal to the community because the community is situated 20 meters higher than the water reservoir. PTT then applied its engineering knowledge to solve the problem by installing a hydraulic ram pump without using electricity or oil. This helps the community save their electricity expenses by around THB 7,000 - 12,000 per month while reducing GHG emissions by 47,000 kilograms of carbon dioxide equivalent per year.

Energy for Community, Learning for Living

PTT developed a training course on energy for communities to provide knowledge about energy management at the community level. People in the community learn to apply the knowledge to the context of their respective communities by using the Sufficiency Economy philosophy as guidance. Three training sessions have been held with 168 community leaders attending. During the course, participants initiated several projects for actual implementation in their communities by leveraging their local resources. These projects include energy production from yang trees in Phiman Sub-district, Na Kae District, Nakhon Phanom, and promotion of solar energy to increase productivity and making use of cassava roots at Khao Khok Sub-district, Prakhon Chai District, Buri Ram.



R&D on Growing and Producing Coffee Using the Natural Resource Conservation Approach for Sustainable Development

PTT and the Royal Project Foundation jointly developed skills required for growing and producing quality coffee for farmers on high lands. A pilot project on coffee planting was carried out on a 50-rai plot of land where coffee trees have been grown and 100 rai of deforested land where coffee trees have never been planted in Ban Luang Sub-district, Chom Thong District, Chiang Mai. The project aims to help communities stand on their feet sustainably. The first harvest is expected for 2018. PTT will also grant support for the establishment of a cooperative or a community enterprise in the Social Enterprise Project, which involves buying raw coffee beans for coffee-making at PTT's Amazon Café. PTT targets to buy coffee beans from the project at 10% of the entire amount of coffee beans required for two years.



Developing Safety Zones around Sites

PTT developed safety zones around its sites to add green areas to surrounding communities. Design, development, and maintenance of safety zones have been continuously carried out at 10 operating sites, namely Khon Kaen Petroleum Terminal, Surat Thani Petroleum Terminal, Sara Buri Oil Terminal, Lam Luk Ka Oil Terminal, Lampang Petroleum Terminal, Phuket Aviation Fuel Station and Phuket Oil Terminal, Phitsanulok Oil Terminal, Khanom Gas Separation Plant, Ban Rong Poh Gas Terminal, and Songkhla Petroleum Terminal.



Taking Thailand toward Sustainable Development

Supporting government policy to drive grass-roots economy under the national Pracharath Strategy, PTT dedicated 148 retail sites across the country as outlets for OTOP and other community enterprise products under the name “Pracharath Sookjai Shop” for three years without demanding rentals. Moreover, when rice prices dropped, PTT responded to government policy to help farmers by launching the “Joining Forces to Buy Rice from Farmers” campaign at PTT Headquarters and at participating service stations around the country, allowing farmers to bring their rice for sale directly to consumers, as another distribution channel. A total of 2,132 tons of rice were sold, generating an income of THB 75,283,019 for farmers (data as of December 30, 2016).

“Yak Lak Yim” Campaign – Let’s Bring a Smile to the Society

PTT initiated the “Yak Lak Yim” campaign to forge awareness and encourage waste sorting among customers at PTT service stations and the public. The campaign has been implemented at over 1,400 stations around the country. PTT dealers will use income from the sale of refuse at the stations for the benefit of the society surrounding the stations. The benefit that can be reaped from such refuse includes schooling materials, sports equipment, medical apparatus, public toilets, and donation for charity, as well as other activities organized for the benefit of the public. PTT hopes to take part in forming a culture in which people in society care for each other while conserving the environment and having a good waste management system, which will bring smiles to all.



*“Environmental change occurred. They said it is because there’s
some carbon rising into the air and becomes a glass-like lid
over the earth. The earth will thus be warmer.
The solution is to burn less while planting more trees.”*

H.M. the Late King Bhumibol Adulyadej’s discourse
given to his subjects on his birthday, December 4, 1989

**Natural and
environmental
conservation
for every life**

Supportive coexistence between human and the nature is the foundation of life that will grow exuberantly. Over time, PTT has constantly cooperated with communities and various other parties to restore and conserve natural resources in parallel with creating awareness of sustainable natural and environmental conservation.



“Water, Forest, and Khung Bang Kachao Conservation” Project

To carry on with H.M. the Late King Bhumibol Adulyadej’s inspiration and follow his remarks on the conservation of the Bang Kachao Riverbend area, located on 11,800 rai of land in Phra Pradaeng District of Samut Prakan as a green area for Bangkok and its perimeter, PTT Group initiated a project on conservation of water, forest, and Khung Bang Kachao. It also gave support for promotion of the community economy for a sustainable economy under the Sufficiency Economy philosophy. The area is now recognized as The Best Urban Oasis of Asia. The campaign has been managed with participation of the community and allies. PTT last year signed a cooperation agreement on “Development and Restoration of Green Areas in Commemoration of H.M. the King’s 80th Birthday Anniversary” in cooperation with the Royal Forest Department and Kasetsart University to jointly develop a nature-learning center around the lower Chao Phraya River while preventing river bank erosion on a 38-rai pilot area.



Reforestation Institute

Conservation of forest areas

This project is a continued effort following PTT’s reforestation on 1 million rai of land as part of the national celebration of the 50th anniversary of H.M, the Late King Bhumibol Adulyadej’s accession to the throne. New forest areas of 207,800 rai have so far been replanted under a plan to restore the ecology and reduce global warming.



A Learning Center of Forest Restoration

The Wang Chan Forest project is carried out at Pa Yup Nai Sub-district, Wang Chan District, Rayong. Another project, Urban Forest, was carried out on Sukhaphiban 2 Road in Bangkok. The two reforested areas have so far welcomed 23,776 and 71,724 visitors respectively.

Sirinath Rajini Mangrove Ecosystem Learning Center

PTT started this learning center project at Pak Nam Pran Sub-district, Pran Buri District, Prachuap Khiri Khan. The project has turned a deserted shrimp farm into an integrated mangrove learning center, which has now become a pilot area for sustainable reforestation management. In 2016, a total of 42,665 people visited the place, generating an income of over Baht 240,906 for Pak Nam Pran community people from oyster catching, food catering, and boat trip service providing.



Development and Promotion of Vetiver under H.M. the Late King's initiative

Vetiver is recognized as an amazing plant with very deep roots. Planting vetiver is thus excellent for preserving soil and water. Realizing the value of this weed, PTT, in collaboration with the Chaipattana Foundation, Office of The Royal Development Projects Board (ORDPB), and Land Development Department, promotes vetiver planting and expands its use while developing products made from it. In 2016, a "Conserve Vetiver – Honor the King" event was organized for the vetiver conservation network. The event became a venue where people came to share knowledge and information about vetiver and its sustainable use, based on the Sufficiency Economy philosophy. Training on using vetiver for oil and water conservation was provided with participation from community people living upstream of water streams. Those who attended the training can apply knowledge on their respective land for further development.



BakaJuan: Back to the Mangroves – Reforestation Activity in the Philippines

Not only doing business with conservation of nature and the environment in Thailand, but PTT also intendedly returns benefit to the country where the company operates its businesses while joining the locals to create mutual value. In the previous year, PTT's subsidiaries overseas held a project called "BakaJuan: Back to the Mangroves", which proved successful and was well received in the Philippines. The project has been held for two consecutive years to restore deforested areas while preventing river bank erosion and returning green areas to communities, as well as preserving forest and water sources for wildlife and aquatic animals.

**Promotion
of volunteer
activities –
value creation
for society**



A pleasant society is one full of care and share among people. PTT Group believes that such an ideal society can be made realistic through the combined individuals' efforts, which will become highly powerful. PTT therefore continuously promotes volunteer spirit among its management and staff members. In 2016, PTT held several volunteer projects that encouraged PTT people to lend a hand to the society according to their potential. One such project was the Elephant Holding Hands Project, a project to produce cloth elephant dolls as a physical therapy gadget. Altogether 4,800 elephant dolls were produced and donated to patients with paralysis and grave muscular weakness at 87 hospitals around the country.

Another project was "Type for the Blind", in which volunteers jointly produced braille books for donation to the Foundation for the Blind in Thailand under the Royal Patronage of H.M. The Queen. Another related project was "Read for the

Blind", in which voice books were produced and handed to Thailand Association of the Blind. Other volunteer projects included disaster relief projects. A total of 4,700 disaster relief bags were produced and donated to flood victims while over 27,980 blankets were donated as cold-weather relief. In addition, PTT granted support for public and private cooperation to fight drought. More important, during the first 100 days of the royal funeral rites of HM the Late King Bhumibol Adulyadej, lasting from October 17, 2016, to January 21, 2017, PTT joined the Ministry of Energy, Medical Council of Thailand, and an on-site almshouse, in offering public service for the huge crowd who gathered at Sanam Luang to pay their last respects to H.M. the Late King's body by handing out Jiffy drinking water and Café Amazon drinks, as well as food and herbal drinks from communities in its network. Over 2,700 management and staff members also voluntarily took part in the public service.

Finally, PTT has passed on its volunteer spirit to people outside the organization. The company provided opportunities for fans of the "We Love PTT" fanpage to take part in PTT's voluntary activities all year round, including the Elephant Holding Hands Project, making donations at orphanages and shelters for needy children, and packing "Por Piang Paddy" bags. PTT also welcomed the public to activities organized in the footsteps of H.M. the Late King Bhumibol Adulyadej at the Khung Bang Kachao, including releasing 999 fish, taking a boat to plant trees on the river bank to conserve the ecology, and painting black shirts for donation to people at Sanam Luang to amplify sustainable benevolent power.



Innovation for a Sustainable Future

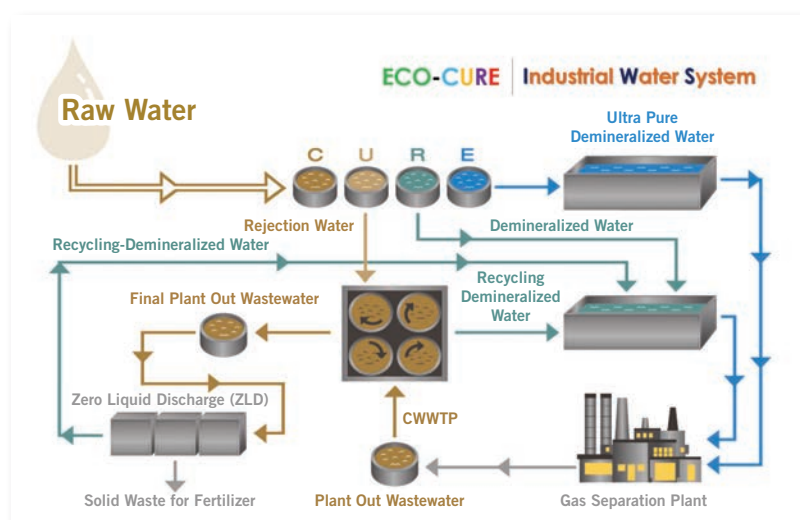


PTT's emphasis is on the SPIRIT values, where innovation involves continuing promotional activities for technology and innovations, notably through the annual PTT Innovation Awards, to inspire employees and set good examples among the workforce.



Communication and public relations (both inside and outside PTT) have been ongoing through diverse channels, including exhibitions of outstanding innovations through the “PTT We Can Corner”, authoring of innovation articles in the “Ban Rao” bulletin, communication on assorted activities through PTT What’s News, E-mail, and posters along with follow-ups on updates of development for creative ideas not yet implemented or commercialized. Support has come from various executives under the policy of the President & CEO who values and focuses on innovation for all stakeholders, namely society, communities, environments, publics, and the country.

Below are examples of outstanding innovations resulting from PTT employees’ ideas that have benefited and added value to stakeholders’ organizations.



**Energy
conservation
and
environment**

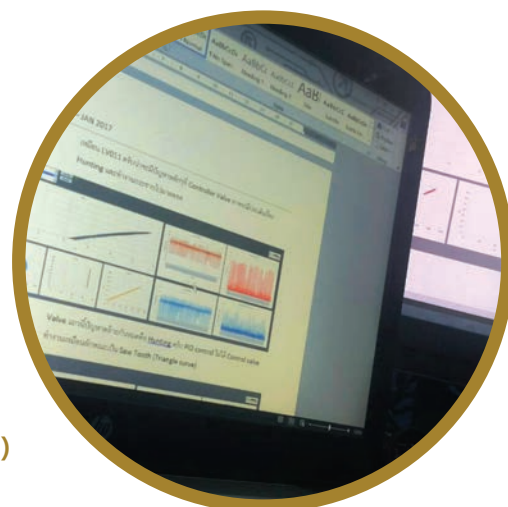
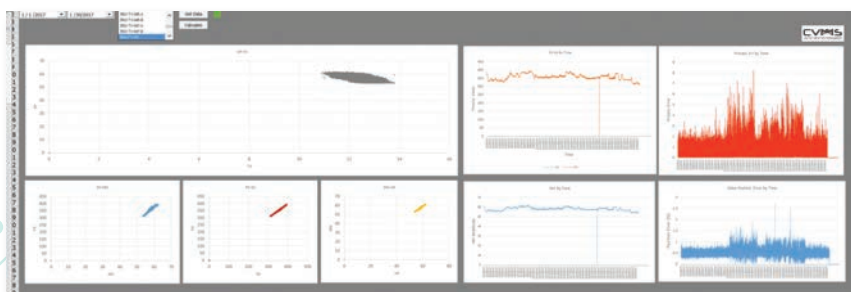
ECO-CURE Industrial Water System

The ECO-CURE Industrial Water System involves the design and development of integrated water production systems for industrial usage. This embraces knowledge about energy conservation, advanced mineral-free water production, and environmental conservation into the world’s first process design and application innovation that benefits users and society, communities, and the environment (Creating Shared Value: CSV project).

Award

Outstanding State Enterprise for innovation for 2016, presented by Office of the State Enterprise Policy Committee, Ministry of Finance, and The Asset Corporate Award 2016 (Best Initiatives, Innovation), presented by The Asset Journal.





Operating innovation

CVMS (Control Valve Monitoring System)

CVMS (Control Valve Monitoring System) concerns online monitoring inspection of control valves' ability for predictive maintenance inspection. The benefit is recognized through the prevention of unplanned shutdowns caused by control valve failures. Expert technicians' expenses could also be saved. As far as the control valve inspection task is concerned, one can increase the frequency of control valve health monitoring and can plan overhauls, as well as efficient spare parts' preparation.



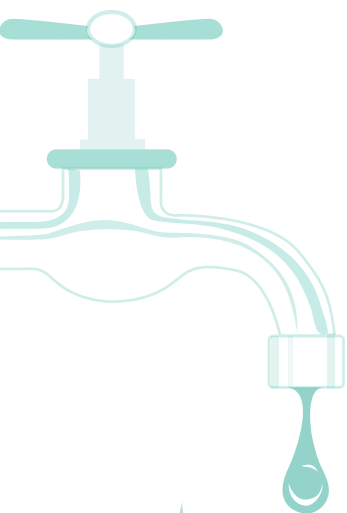
Bio SSCMB (Bio Silver Skin Coffee Master Batch)

Bio SSCMB (Bio Silver Skin Coffee Master Batch) involves compound bioplastics resulting from raw materials derived from PTT Group blended with coffee fiber, a waste from the coffee-roasting process at Café Amazon's roasting plant. The resulting product properties are suitable for application, with unique characteristics as its texture feels like natural products.



Commercial innovation





**Sustainable
energy
innovation for
communities**



CSR Clean Energy

CSR Clean Energy Project involves transport of raw water to village waterworks by leveraging natural energy. Water is transported from the reservoir of Ban Phu Toei community, Sai Yok District, Kanchanaburi, to the village itself. The pumping leverages natural energy rather than using a conventional electric water pump. In the old days, tap water in this village very much relied on electric water pumping. Villagers could not transport water from the reservoir (capacity of 1.3 million cubic meters) as the village lies on a higher elevation of about 20 meters. The community therefore faced possible water shortage. This project benefited the village by not only giving it year-round water supply, but also saving electricity charges formerly needed for the pumps, amounting to THB 7,000 - 12,000 a month. More important, these remote villagers now have a better quality of life. This innovation taught villagers about the value of prudent energy consumption which will lead to their sustainability.

Due to an ongoing drive and promotion of technology and innovation, PTT has become accepted from entities around the world as a leader in innovation as shown in assorted innovation and quality awards for the Thai premier multinational energy company that is to be the **“Pride and Treasure of Thailand”**.



SSHE: Loss Prevention for Thai Society's Sustainability

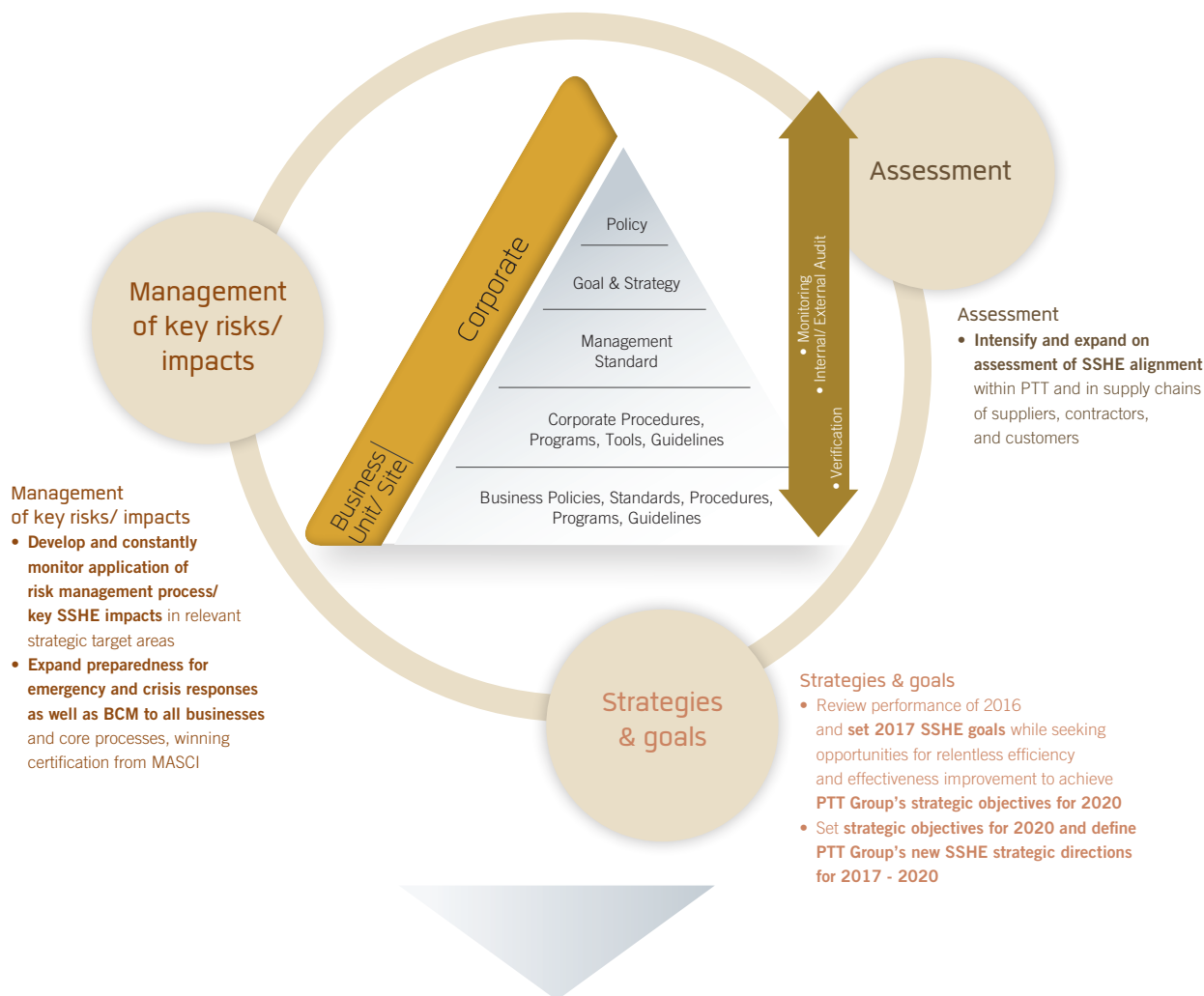
Security
Safety
Occupational Health
and Environment

Efficient SSHE (Security, Safety, Occupational Health, and Environment) management strengthens both corporate performance and the control, prevention, and reduction of losses, enabling business to proceed smoothly and safely. Likened to a shield, SSHE prevents risks and negative impacts on communities, society, and the environment. SSHE enables PTT to build on all its performance outcomes in pursuit of its sustainability vision and goals.

This year, under the PTT Group SSHE MS, PTT focused on access an awareness of all stakeholders' needs in parallel with its pursuit of technology, management tools, and opportunities. These moves led to serious and systematic business strategies and process modification.

As a result, several indicators have been steadily improved, enabling PTT to maintain DJSI member ranking for a fifth consecutive year with a rise in assessment score for environmental management. *For further details on SSHE performance outcomes, please refer to PTT's Corporate Sustainability Report 2016.*

PTT Group SSHE Management Framework



SSHE performance indicators in 2016 reflected continuous improvements in all 3 target areas (Socio-Eco-Efficient Strategic objectives)

| Socio for society, employees, contractors | | | Eco for pollution reduction | | Efficient to cut costs and reduce pollution | |
|---|---|---|--|---|---|--|
| No fatality for PTT employees and contractors | TRIR (Total recordable injury rate) for contractors assumed a healthier trend in comparison with leading companies in the same industry group | Severe accident rates involving product tank trucks dropped 30% from last year, with a healthier trend since 2013 | Waste volume for landfill in proportion to total volume steadily dropped | Successfully controlled the concentration of VOCs (volatile organic compounds) at key sites | Successfully kept GHG emissions by PTT Group comparable to last years | PTT Group's energy intensity dropped steadily from uninterrupted business as usual |
| LOST TIME ACCIDENT | | | ZERO TO LANDFILL | | CO ₂ | energy |

Positive impacts directly and indirectly to various stakeholders

- The number of work injuries and illnesses among **employees and contractors & business partners** working with PTT Group dropped. The quality of life of employees and contractors, as well as their families, improved.
- Neighboring communities, the public, and Thai society** were less affected by pollution and indirect impacts, including impacts of traffic hazards due to vehicle accidents and changing environmental quality.
- Improvement in **environmental quality at local, regional, and global levels** improved due to less pollutant emissions.
- Contributed to reduction of **state** budget for controlling, supervising, and remediation of the environment, as well as public hygiene.
- Reduced expenses and operating capital (directly and in the long term) through pollution reduction at sources and greater efficiency for resource consumption, thus raising **shareholders'** returns.



Financial Status and Performance

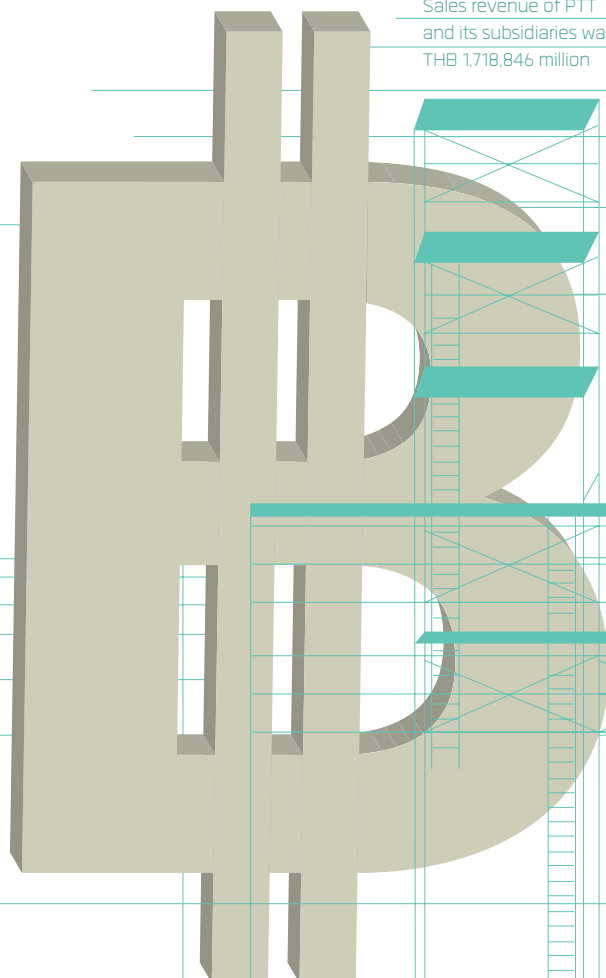
PTT and Its Subsidiaries' Performance

Unit: THB million

| | 2015 (Restated) | 2016 | % Increase/ (Decrease) |
|---|--------------------|---------------|---------------------------|
| Sales revenue | 2,025,552 | 1,718,846 | (15.1%) |
| Earnings Before Interest, Taxes, Depreciation and Amortization (EBITDA) | 286,214 | 312,526 | 9.2% |
| Share of net income (loss) from investments in joint ventures and associates | 6,032 | 4,143 | (31.3%) |
| Gain (loss) on foreign exchange | (5,992) | 4,473 | > 100% |
| Earnings Before Interest and Taxes (EBIT) | 86,988 | 184,183 | > 100% |
| Income taxes | 25,072 | 26,593 | 6.1% |
| Net income | 19,936 | 94,609 | > 100% |

Earnings before interest,
taxes, depreciation
and amortization (EBITDA)
of PTT and its subsidiaries
was THB 312,526 million.

Sales revenue of PTT
and its subsidiaries was
THB 1,718,846 million

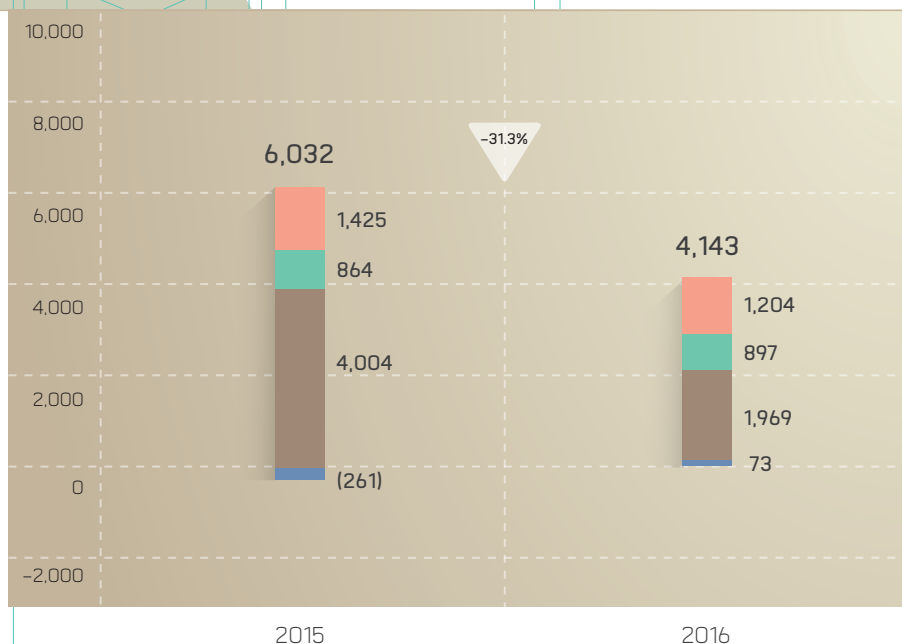


In 2016, Sales revenue of PTT and its subsidiaries was THB 1,718,846 million, decreasing by THB 306,706 million or 15.1%. The reason is mainly due to the decrease in average selling prices, especially petroleum and petrochemical products following a decline in crude oil price which average Dubai crude oil price dropped from USD 51.0 per barrel to USD 41.3 per barrel or 18.9% compared to the previous year. Consequently, earnings before interest, taxes, depreciation and amortization (EBITDA) of PTT and its subsidiaries was THB 312,526 million, increasing by THB 26,312 million or 9.2%. It was caused by improved performance of gas business from lower feed cost, especially GSP that feed cost decreased more than product prices, as well as improved performances of petrochemical and refining business group and oil business group from stock gain. However, the performance of exploration and production business decreased, resulting from the lower average selling price which was affected by the fall in crude oil price.

Share of net income (loss) from investments in joint ventures and associates

Unit: THB million

- Gas
- Oil
- Petrochemical & Refining
- Others



In 2016, the share of net income from investments in joint ventures and associates was THB 4,143 million, decreasing by THB 1,889 million from THB 6,032 million in 2015 mainly from the recognition of Star Petroleum Refining Public Company Limited (SPRC) and Bangchak Petroleum Public Company Limited (BCP)’s performances amounting to THB 3,232 million in the prior year. Where as, in 2016, there was no such recognition. Meanwhile, the share of net income increased due to PTT Asahi Chemical Company Limited (PTTAC)’s gain on foreign exchange rate and HMC Polymers Company Limited (HMC)’s higher dividend received from Rayong Olefins Company Limited (ROC).

PTT and its subsidiaries’ depreciation and amortization expenses was THB 128,734 million, decreasing by THB 14,602 million or 10.2% compared to 2015, mainly due to the increase in petroleum reserve and the recognition of loss on impairment of PTT Exploration and Production Public Company Limited (PTTEP)’s exploration and production assets in the third quarter of 2015 (Q3/2015). Gain on foreign exchange rate increased by THB 10,465 million from THB 5,992 million losses in 2015 to THB 4,473 million gain, mainly from the effect of Thai Baht appreciation against US Dollar. Furthermore, loss on oil price hedging derivative contracts was THB 8,982 million,

increasing by THB 13,711 million compared to 2015, mainly retrieved from PTTEP, PTT Global Chemical Public Company Limited (PTTGC), IRPC Public Company Limited (IRPC) and PTT International Trading Pte. Ltd. (PTTT).

In 2016, net expenses decreased due to non-recurring items in 2015, mainly from loss on impairment totaling of THB 72,873 million from exploration and production projects in overseas of PTTEP, PTT Energy Resources Company Limited (PTTER)’s loss on impairment of coal business and PTTGC’s Myriant assets. Whereas, PTT had net gain on disposal of investments in BCP and SPRC. IRPC also had revenue from reversal of doubtful account, and revenue from an insurance claim from fire incident in the VGOHT. However, in 2016, there was a loss on impairment of assets amounting to THB 7,203 million mainly from the impairment of PTTER’s investment in associates and impairment loss on assets of the Yetagun and Natuna Sea A Projects of PTTEP. Meanwhile, there was an income from insurance claim for PTTGC’s Olefins Plant Unit 3 incident.

PTT and its subsidiaries’ corporate income taxes increased by THB 1,521 million to THB 26,593 million in 2016. As a result, PTT and its subsidiaries net income was THB 94,609 million, increasing by THB 74,673 million from THB 19,936 million in 2015.

In 2016, PTT Group had non-recurring items as follows:

| January 2016 | March 2016 | April 2016 |
|---|---|---|
| Energy Policy Management Committee (“EPMC”) announced on January 21, 2016 to float NGV price for private cars. The condition was that PTT must be responsible for the price differential when the NGV cost exceeds THB 13.50 per kilogram for 6 months. | On March 25, 2016, the tribunal renders as the majority awarded that since PTT terminated the commercial contract with RPCG Public Company Limited (RPC), it was not in accordance with the contract condition and the tribunal rules. PTT was subject to make a payment for damages to RPC. However, PTT exercised its legal right by filing a motion with the court requesting the award to be abrogated. | The Chief Ombudsman submitted the complaint to the Administrative Court on April 4, 2016, regarding the issue of PTT not returning the natural gas pipeline assets in accordance with the judgment of the Supreme Administrative Court, without no further new allegation. However, the Supreme Administrative Court announced that PTT had returned all assets completely. |

| May 2016 | June 2016 | July 2016 |
|--|---|---|
| <p>PTTGC had shutdown the Olefins Plant Unit 3 since May 17, 2016 to repair the furnace coils as it was damaged from power outage and thermal shock within the coil. Taking the shutdown into account overall olefins utilization rate in 2Q/2016 and 3Q/2016 averaged at 84% and 92% respectively. The unit was able to operate at its full capacity in August 2016.</p> | <ul style="list-style-type: none"> • PTT reviewed five-year investment plan by reducing investment plan of 2016 from THB 50,839 million to THB 43,307 million. The reduction is mainly from investment projects on natural gas and infrastructure business. • Global Power Synergy Public Company Limited (GPSC) commenced small power plant producer (SPP), Nava Nakorn Electricity Generation (NNEG) with the installed capacity of 41.74 Megawatts. Where it has achieved commercial operation to supply electricity to Electricity Generating Authority of Thailand (EGAT). | <ul style="list-style-type: none"> • NGV selling price to private cars was already sold at prices reflected actual costs with no ceiling. • PTTEP signed a Production Sharing Contract (PSC) through PTTEP Hong Kong Offshore Limited (PTTEP's subsidiary) with Petroleum National Berhad (PETRONAS) for exploration and production rights of Block SK410B, offshore Sarawak, Malaysia. • IRPC has commenced the commercial operation of Upstream Project for Hygiene and Value Added Products (UHV) which generates propylene of 320,000 tons per year. |
| August 2016 | September 2016 | October 2016 |
| <ul style="list-style-type: none"> • PTT's Board of Directors approved the payment of interim dividends for the first half period of 2016 performance at the rate of THB 6.00 per share or 35.8% of consolidated net income. • Thai Oil Public Company Limited (TOP) has commenced the commercial operation of Linear Alkyl Benzene (LAB) with production capacity approximately 100,000 tons per year, and 2 small power producers (SPP) with an aggregated capacity of 239 MW for electricity and 498 tons per hour for steam. • PTTEP has signed the Sales and Purchase Agreement (SPA) to sell PTTEP Oman Company Limited (PTTEP OM) to ARA Petroleum LLC. • PTTGC informed fire broke out at waste water storage tank of PTT Phenol Co., Ltd. site, located at Hemaraj Eastern Industry Estate, | <p>The Cabinet has passed the approval resolution allowing PTT to establish PTT International Trading London Ltd. in London, United Kingdom. Where the company is wholly owned by PTT. The establishment of the company is to expand trading business to the western part of the world in order to become a Global Trading Company.</p> | <p>Global Green Chemicals Public Company Limited (GGC), PTTGC's subsidiary with more than 99% of shares held by PTTGC, is in the process of issuance, initial public offering (IPO). GGC is the designated green flagship company of the group. PTTGC will continue to be the major shareholder with managing authority after the IPO.</p> |

November 2016

On November 18, 2016, PTT’s Board of Directors agreed upon the organizational restructuring of the oil business unit to go under PTT Retail Business Company Limited which is renamed as PTT Oil and Retail Business Company Limited (PTTOR). The list of business that are transferred under this reorganization included the oil business unit, its assets and liabilities as well as the shares of companies related to the oil business unit. Also, PTT’s Board of Directors agreed to appoint PTTOR as PTT Group flagship company for oil and retail business and approved the preliminary plan for initial public offering of PTTOR’s ordinary shares and the listing of PTTOR in the Stock Exchange of Thailand.

December 2016

- PTTEP FLNG Holding Company Limited (PTTEP FH), a subsidiary of PTTEP has withdrawn its investment in the Umm Al-Quwain (UAQ) project, the United Arab Emirates.
- On December 9, 2016, GPSC has established the new subsidiary, GPSC International Holdings Limited in Hong Kong Special Administrative Region of the People’s Republic of China with an objective to support international business expansion in the future.
- PTT’s Board of Directors at the meeting held on December 16, 2016, has approved the five-year (Year 2017 - 2021) investment plan in an amount of THB 338,849 million.
- PTTEP has established a subsidiary, PTTEP Business Center Company Limited, to invest in business related to exploration and production.

January 2017

In response to the recent news regarding the admission of Rolls Royce Energy System Company (Rolls-Royce), a major producer of aircraft engine and industrial machinery in the United Kingdom, on bribery payment to energy companies in Thailand including PTT Public Company Limited (PTT) in six projects during the year 2000 - 2013. Details can be discussed as follows:

- PTT stated that PTT has placed high importance on transparency in conducting the business in compliance with good corporate governance. PTT has set up a committee to investigate the facts behind past engine procurements from Rolls-Royce in the aforementioned projects during that period in order to further report to the Board of Directors within 30 days.
- PTTEP has immediately set up Fact-finding Committee to investigate the procurement and services dealing with Rolls-Royce during the mentioned period. A result of the investigation would be reported to the Board of Directors within 30 days.

PTT and its subsidiaries' financial performance comparison for year 2016 and 2015 by business group

Unit: THB million

| | 2015 (Restated) | 2016 | % Inc. (Dec.) |
|---|--------------------|------------------|----------------|
| Sales revenue | 2,025,552 | 1,718,846 | (15.1%) |
| • Exploration & Production | 184,411 | 150,217 | (18.5%) |
| • Gas ^{1/} | 542,799 | 457,986 | (15.6%) |
| • Oil | 511,530 | 485,273 | (5.1%) |
| • International trading | 949,933 | 748,428 | (21.2%) |
| • Petrochemical & Refining | 874,195 | 784,457 | (10.3%) |
| • Coal | 13,632 | 16,307 | 19.6% |
| • Others | 4,870 | 4,497 | (7.7%) |
| EBITDA | 286,214 | 312,526 | 9.2% |
| • Exploration & Production | 132,270 | 107,464 | (18.8%) |
| • Gas | 47,832 | 72,082 | 50.7% |
| • Oil | 15,133 | 23,677 | 56.5% |
| • International trading | | | |
| • Excluding effect of FX | 3,274 | 2,865 | (12.5%) |
| • Including effect of FX | 4,405 | 5,677 | 28.9% |
| • Petrochemical & Refining | 84,888 | 101,847 | 20.0% |
| • Coal | 2,729 | 4,195 | 53.7% |
| • Others | 1,089 | 670 | (38.5%) |
| Depreciation and amortization expenses | 143,336 | 128,734 | (10.2%) |

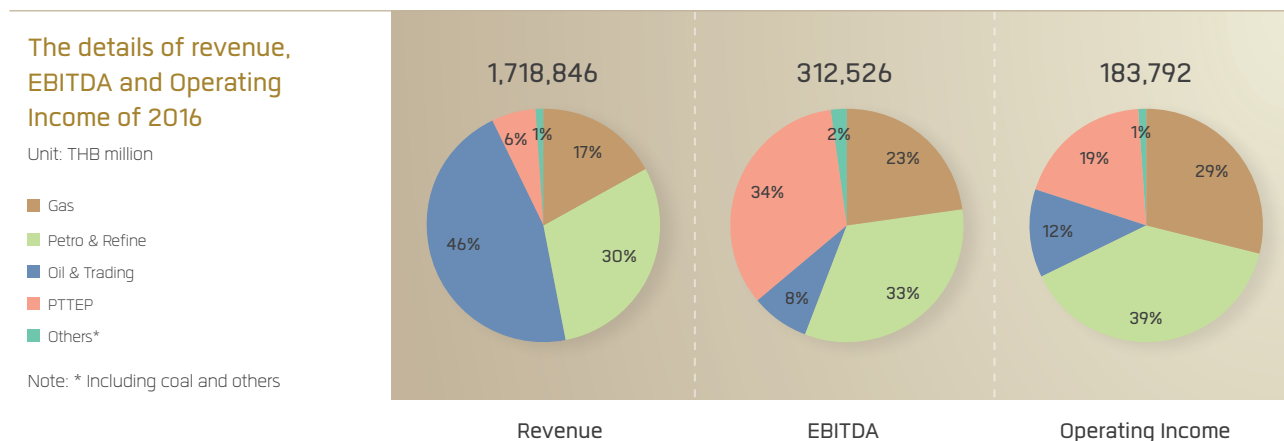
Note:^{1/} Including infrastructure business

Unit : THB Million

| | 2015 (Restated) | 2016 | % Inc. (Dec.) |
|---|--------------------|----------------|------------------|
| Operating Income | 142,878 | 183,792 | 28.6% |
| • Exploration & Production | 39,873 | 33,945 | (14.9%) |
| • Gas | 31,975 | 53,966 | 68.8% |
| • Oil | 12,157 | 19,969 | 64.3% |
| • International trading | | | |
| • Excluding effect of FX | 3,242 | 2,832 | (12.6%) |
| • Including effect of FX | 4,373 | 5,644 | 29.1% |
| • Petrochemical & Refining | 57,313 | 71,441 | 24.7% |
| • Coal | (164) | 2,261 | > 100% |
| • Others | (520) | (348) | 33.1% |
| Loss on impairment of assets | (72,873) | (7,203) | 90.1% |
| Share of net income (loss) from investments in joint ventures and associates | 6,032 | 4,143 | (31.3%) |
| Gain (loss) on foreign exchange | (5,992) | 4,473 | > 100% |
| EBIT | 86,988 | 184,183 | > 100% |
| Finance costs | 30,079 | 28,887 | (4.0%) |
| Income taxes | 25,072 | 26,593 | 6.1% |
| Profit for the period from continuing operations | 20,666 | 94,040 | > 100% |
| Profit (loss) for the period from discontinued operations - net of tax | (730) | 569 | > 100% |
| Net income | 19,936 | 94,609 | > 100% |
| Earnings (loss) per share (THB/share) | | | |
| • Continuing operations | 6.98 | 32.48 | > 100% |
| • Discontinued operations | (0.25) | 0.20 | > 100% |

Segmentation performance of PTT and its subsidiaries

The details of revenue, EBITDA and operating income by segmentation of 2016 are as follows;



Upstream Petroleum and Gas Business Group

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

| | 2015 | 2016 | % Inc. (Dec.) |
|---------------------------------|---------|---------|---------------|
| Average selling price (USD/BOE) | 45.3 | 35.9 | (20.8%) |
| Average sales volume (BOED) | 322,167 | 319,521 | (0.8%) |

In 2016, sales revenue of PTTEP was THB 150,217 million, decreasing by THB 34,194 million or 18.5% from 2015 mainly from the decrease in average selling prices by 21.0% from USD 45.3 per BOE in 2015 to USD 35.9 per BOE in 2016, following the drop in reference crude oil price. There was a decline in average sales volume in 2016 by 0.8% from 322,167 BOED in 2015 to 319,521 BOED mainly due to the Oman 44 project resulted from the disposal of PTTEP Oman Company Limited (PTTEP OM), a subsidiary of PTTEP and holds 100% of participating interest in the Oman 44 project.

EBITDA in 2016 was THB 107,464 million, decreasing by THB 24,806 million or 18.8% mainly from lower sales revenue following the decline in oil price. However, operating expenses decreased due to cost reduction policy and efficiency improvement activities under the SAVE to be SAFE program and the “SPEND SMART to Business

Sustainability” campaign to strengthen its efforts on further cost optimization initiatives, supporting long-term competitive advantage and sustainable growth. In addition, petroleum exploration, petroleum royalties and remuneration expenses decreased.

Operating income in 2016 was THB 33,945 million, decreasing by THB 5,928 million or 14.9% in line with a decline in EBITDA as aforementioned. Although, depreciation, depletion and amortization expenses decreased by THB 18,877 million, it mainly caused from an increase in the petroleum reserve from both domestic and overseas projects and the recognition of loss on impairment of assets in Q3/2015.

However, PTTEP recognized loss on impairment of assets THB 1,688 million in 2016, decreasing by THB 46,923 million from THB 48,611 million in 2015 as a result of the continuously price drop of crude oil since 2015.

Gas Business Group

The details of all product sales volume from gas separation plants (GSP) are as follows:

Unit: Ton

| | 2015 | 2016 | % Inc. (Dec.) |
|-------------------|-----------|-----------|---------------|
| LPG | 2,737,866 | 2,794,203 | 2.1% |
| Ethane | 2,199,323 | 2,058,987 | (6.4%) |
| Propane | 765,063 | 856,286 | 11.9% |
| NGL ^{1/} | 720,569 | 745,054 | 3.4% |
| Total | 6,422,821 | 6,454,530 | 0.5% |

Note:

1/ Include Pentane

The details of reference product prices of GSP are as follows:

Unit: USD per ton

| | 2015 | 2016 | % Inc. (Dec.) |
|-------------------------|-------|-------|---------------|
| LPG ^{1/, 4/} | 424 | 336 | (20.8%) |
| Ethylene ^{2/} | 1,104 | 1,037 | (6.1%) |
| Propylene ^{2/} | 774 | 705 | (8.9%) |
| HDPE ^{2/} | 1,238 | 1,132 | (8.6%) |
| PP ^{2/} | 1,155 | 1,046 | (9.4%) |
| Naphtha ^{3/} | 438 | 354 | (19.2%) |

Note:

1/ Contract Price (CP) 60 : 40

2/ South East Asia - Spot Price

3/ Mean of Platts Singapore (MOP'S)

4/ On December 15, 2014, NEPC passed a resolution of LPG price restructuring effective from February 2, 2015 onwards, with the cancellation of LPG Ex-GSP pricing at USD 333 per ton and setting the calculating method for LPG Pool price which reflects actual costs of LPG production and supply (GSP Refineries and Aromatics plants, and Imported) based on weighted average of the production and supply volume for the last 3 months.

In 2016, sales revenue of gas business was THB 457,986 million, decreasing by THB 84,813 million or 15.6% from 2015. It was mainly from lower sales revenue of PTT's GSM business unit as a result of reduction in average selling prices in all customer groups, especially selling prices for industrial customers, following the decrease in reference fuel oil price, compared with the prior year. Moreover, the average natural gas sales volume (calculated at heating value of 1,000 BTU per cubic foot) decreased 66 MMSCFD or 1.4% from 4,828 MMSCFD in 2015 to 4,762 MMSCFD in 2016 mainly due to the lower demand of gas consumption from EGAT because there were partial replacement from electricity import of coal fired power plants.

In addition, sales revenue of PTT's GSP in 2016 decreased in line with the drop in product selling prices referring to the global petrochemical product prices. Whereas, the sales volume of all products increased from 6,422,821 tons in 2015 to 6,454,530 tons in 2016 or 0.5%.

EBITDA of gas business group in 2016 was THB 72,082 million, increasing by THB 24,250 million or 50.7%. The main reason was the decrease of feed gas costs which declined more than the drop in selling prices.

Therefore, gross profit of PTT's gas business increased mainly from GSP and NGR. NGV losses decreased due to the drop in sales volume and pooled gas cost. NGV selling prices in December declined to THB 12.54 per kilogram for private cars and THB 10.00 per kilogram for public cars such as taxi, van, public bus etc.

Besides the improvement of PTT's gas business performance as aforementioned, infrastructure business had better performance in 2016 mainly from an increase in GPSC's sales volume of electricity to Small Power Producer (SPP), sales volume of electricity and steam to industrial users and revenue from the power plant of IRPC Clean Power (IRPC-CP) Phase-1. It has started its commercial operation since November 2015. Also, there was a reduction in average natural gas price, leading to the decrease in feed gas cost as well as the increase in dividend received from RPCL from 2015, resulting to the improvement of GPSC's performance. Operating income of gas business in 2016 was THB 53,966 million, increasing by 68.8% in line with the rise in EBITDA. There was a recognition of impairment loss on investment in EMG amounting to THB 3,995 million.

Downstream Petroleum Business Group

Oil Business Group

Unit: million liters

| | 2015 | 2016 | % Inc. (Dec.) |
|----------------------|--------|--------|---------------|
| Average sales volume | 25,268 | 26,464 | 4.7% |

Sales revenue of oil business in 2016 was THB 485,273 million, decreasing by THB 26,257 million or 5.1%. The fallen selling prices resulted from the decrease in global crude oil price. The average Dubai crude oil price decreased from USD 51.0 per barrel in 2015 to USD 41.3 per barrel in 2016. Whereas, sales volume increased by 1,196 million liters or 4.7% from 25,268 million liters or equivalent to 435,443 barrels per day in 2015 to 26,464 million liters or equivalent to 454,795 barrels per day in 2016, especially from gasoline, diesel and aviation fuel.

EBITDA in 2016 was THB 23,677 million, increasing by THB 8,544 million or 56.5% due to the rise in margins of diesel and gasoline (including stock gain in this year compared with stock loss in the prior year), and from the cost reduction adjusted from refund of the oil fund. Consequently, operating income in 2016 was THB 19,969 million, increasing by THB 7,812 million in line with the increase in EBITDA as aforementioned.

International Trading Business Group

Unit: million liters

| | 2015 | 2016 | % Inc. (Dec.) |
|----------------------|--------|--------|---------------|
| Average sales volume | 81,367 | 74,627 | (8.3%) |

Sales revenue of international trading business was THB 748,428 million in 2016, decreasing by THB 201,505 million or 21.2%. This resulted from the reduction in product selling prices in accordance with global oil market prices. The sales volume in this period decreased by 6,740 million liters or 8.3% from 81,367 million liters or equivalent to 1,402,171 barrels per day in 2015 to 74,627 million liters or equivalent to 1,282,509 barrels per day in 2016 mainly due to the decline in LPG import sales volume. Consumers then shifted to cheaper gasoline. There was also the decrease in sales volume of petroleum finished product

Out-Out trading, domestic crude oil and Out-In trading due to the effect of an increase of domestic crude oil usage and domestic refinery planned shutdown in 2016.

EBITDA, which adjusted the effect of foreign exchange rate in 2016, was THB 5,677 million, increasing by THB 1,272 million. Operating income, which adjusted the effect of foreign exchange rate in 2016, was THB 5,644 million, increasing by THB 1,271 million. It was mainly from the rise in domestic condensate margins following the increase in sales volume and average selling prices from of higher condensate demands.

Petrochemical and Refining Business Group

Unit: USD per ton

| | 2015 | 2016 | % Inc. (Dec.) |
|-----------|-------|-------|---------------|
| HDPE | 1,238 | 1,132 | (8.6%) |
| PP | 1,155 | 1,046 | (9.4%) |
| BZ - Cond | 238 | 262 | 10.1% |
| PX - Cond | 383 | 395 | 3.1% |

Unit: USD per ton

| | 2015 | 2016 | % Inc. (Dec.) |
|-------------------------------|--------|-------|---------------|
| Market GRM | 6.34 | 4.49 | (29.2%) |
| Inventory Gain (loss) | (1.81) | 1.26 | > 100% |
| Accounting GRM | 4.87 | 5.13 | 5.3% |
| Refinery Utilization Rate (%) | 98.2% | 94.3% | (3.9%) |

Note:
GRM is calculated from refineries of TOP, IRPC and PTTGC.

In 2016, sales revenue of petrochemical and refining business was THB 784,457 million, decreasing by THB 89,738 million or 10.3%. It was mainly from the reduction in average petroleum and petrochemical product prices and the decline in crude oil price.

Aromatics sales volume increased mainly from the improved aromatics utilization rate due to planned shutdown in the last year and the increase in utilization rate from Aromatics II Debottlenecking in 2016. Meanwhile, olefins sales volume decreased because of the utilization rate from planned and unplanned shutdown of PTTGC's olefins plant. For refineries, the utilization rate decreased by 3.9% from PTTGC's planned shutdown.

EBITDA of petrochemical and refining business in 2016 was THB 101,847 million, increasing by THB 16,959 million from 2015, while operating income was THB 71,441 million, increasing by THB 14,128 million from these following matters:

- Overall refinery performance increased from higher Accounting GRM because of higher stock gain by USD 3.01 per barrel from USD 1.81 per barrel to USD 1.26 per barrel though Market GRM declined upon the decrease in crack spread in all products.
- Aromatics petrochemical performance improved due to higher P2F in PX, BZ, Toluene and Mixed Xylene compared to last year from the drop in feed costs ie. condensate, naphtha and ULG95 on the same hand as cruied oil prices. The decrease of products price was lower than the decline in crude oil price due to the increase in demand and the reduction of excess supply in Asia. The utilization rate improved from maintenance shutdown of Aromatics II Plant in 2015.
- Overall olefins petrochemical performance increased mainly from the improved performance of IRPC due to benefit from Everest project and the increase in sales of specialty products. Meanwhile, performance of PTTGC declined slightly due to the decrease in utilization rate of Olefins plant from both planned and unplanned shutdown in 2016 and the decline in product prices. Moreover, there was a revenue from an insurance claim for the Olefins Plant Unit 3 incident in 2016.

Share of net income from investments in joint ventures and associates of petrochemical and refining business decreased by THB 2,035 million from 2015 mainly due to the recognition of SPRC and BCP's performance amounting to THB 3,232 million while there was no such recognition in this period. The share of net income increased from PTTAC's gain on foreign exchange rate from loans and HMC's higher dividend received from ROC.

Coal Business

| | 2015 | 2016 | % Inc. (Dec.) |
|-------------------------------------|------|------|---------------|
| Newcastle index price (USD per ton) | 59.2 | 66.1 | 11.7% |
| Average selling price (USD per ton) | 54.4 | 47.2 | (13.2%) |
| Sales volume (million tons) | 7.3 | 9.8 | 34.2% |

In 2016, sales revenue of coal business was THB 16,307 million increasing by THB 2,675 million or 19.6% mainly due to the rise in sales volume by 2.5 million tons or 34.2% from 7.3 million tons in 2015 to 9.8 million tons in 2016. This is because of the attempt to uplift the production and sales volume to push sales revenue and to serve the rising trend of coal prices. Average selling price dropped by USD 7.2 per ton or 13.2% from USD 54.4 per ton to USD 47.2 per ton due to the fixed price sales contract leading to an inability to capture the dramatically increase in Newcastle reference prices since mid-year 2016.

EBITDA in 2016 was THB 4,195 million, increasing by THB 1,466 million or 53.7% mainly from lower cost which benefited from cost management and higher discount from negotiation with contractors than in 2015. Operating income in 2016 was THB 2,261 million, increasing by THB 2,425 million compared with 2015 as a result of the decline in depreciation and amortization expenses in line with the decrease in coal mining assets after impairment recognition in the end of previous year.

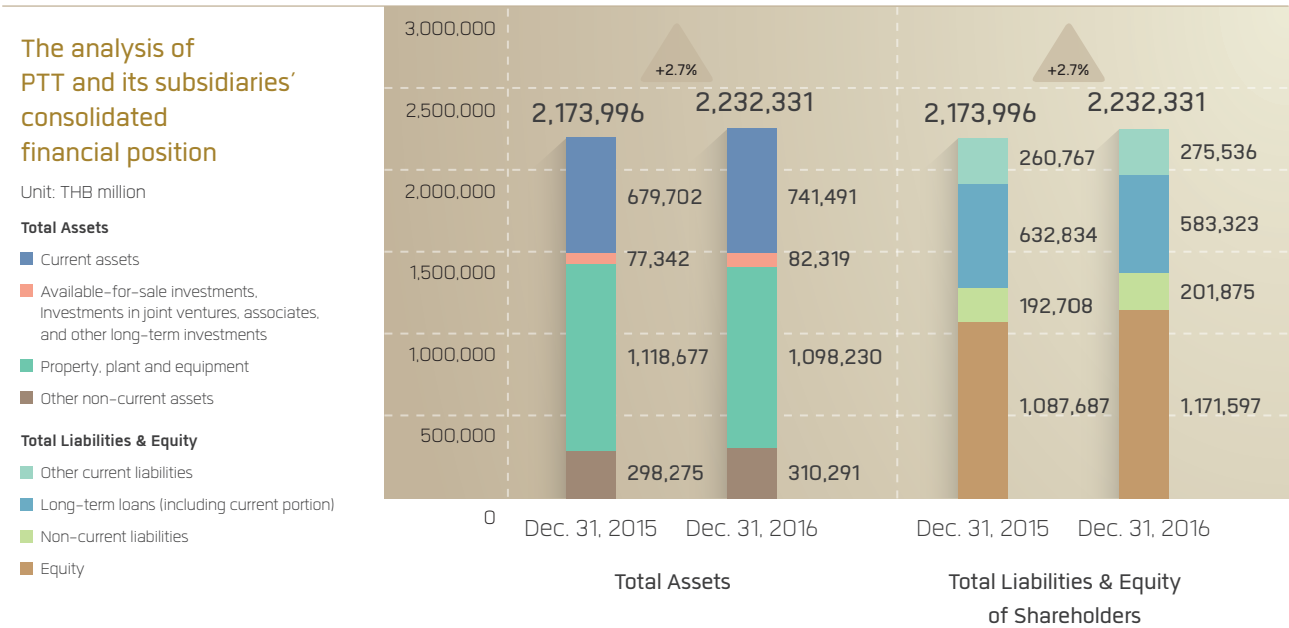
Net income was THB 94,609 million in 2016, increased by THB 19,936 million or more than 100% from 2015.

In 2016, net income of PTT and its subsidiaries was THB 94,609 million, increasing by THB 74,673 million or more than 100% from THB 19,936 million in 2015 mainly due to impairment loss from the affiliates in 2015 higher than in 2016. Loss on impairment of PTTEP’s exploration and production assets and Myriant’s assets of PTT, PTTGC, and PTTER’s coal mining assets were some of examples. In addition, there were non-recurring items last year; PTT’s net gain on disposal of investments in BCP and SPRC, IRPC’s revenue from reversal of doubtful account, and an insurance claim from fire incident in the VGOHT, etc. If excluding the non-recurring items effect as aforementioned, net profit of PTT and its subsidiaries increased by 44%. The performance of PTT, especially gas business and NGV, increased as well as stock gain. Affiliates’ performance increased in almost

all business groups. The overall performance of petrochemical and refining business group increased mainly from Aromatic petrochemical causing by an improvement in product spreads and sales volume. The overall refining performance increased from rise in Accounting GRM in all refineries as a result of stock gain, even though crack spreads decreased in almost all products. For PTTEP, the performance decreased from the prior period due to the reduction in product average selling prices in accordance with global crude oil price and loss on oil price hedging, despite the decline of operating expenses, depreciation, petroleum exploration, petroleum royalties and remuneration expenses. However, the higher appreciation of Thai Baht against US Dollar compared with the prior year led to higher gain on foreign exchange rate of PTT group in 2016 from foreign currencies loans. In addition, PTT group has implemented cost management and productivity improvement to reduce costs as part of the reason for the increase in PTT Group’s profit.

The Analysis of PTT and Its Subsidiaries’ Consolidated Financial Position

As of December 31, 2016 compared with December 31, 2015



Assets

As of December 31, 2016, total assets of PTT and its subsidiaries were THB 2,232,331 million, increasing by THB 58,335 million or 2.7% compared with December 31, 2015. The increase was mainly from the net effect of the followings:

- An increase of THB 61,789 million or 9.1% in current assets was mainly from the followings:
 - An increase of THB 45,655 million in cash and cash equivalents and current investment mainly due to cash from operation following slow-down investment and cost reduction policy of each company group.
 - An increase of THB 32,799 million in inventories mainly from an increase in raw material volumes and prices of petrochemical and refining business group and international trading business group.
 - A decrease of THB 17,877 million in other non-current assets mainly from the settlement of hedging contracts and advance purchase payment in this period and the declined in gain on financial derivatives at the end of the period.
- An increase of THB 4,977 million or 6.4% in long-term investments was mainly from the recognition of unrealized gain on fair value of available-for-sale investment, the investment in personal funds, and the additional capital paid-up in Xayaburi Power Company Limited (XPCL).
- A decrease of THB 20,447 million or 1.8% in property, plant and equipment was mainly from depreciation expenses in this period, even though there was additional assets of PTT Group such as the Nakornsawan and the Nakornratchasima onshore gas pipeline projects of PTT, Aromatics II Debottlenecking & Expansion project, Phenol II project and LLDE Expansion projects of PTTGC, RDCC Plant, the Polypropylene Expansion project (PPE) and the Polypropylene Compound and Specialties project (PPC) of IRPC, and the LNG terminal Phase II project of PTTLNG.

Liabilities

As of December 31, 2016, PTT and its subsidiaries had total liabilities of THB 1,060,734 million, decreasing by THB 25,575 million or 2.4% from December 31, 2016, mainly from the net effect of the followings:

- An increase of THB 14,769 million or 5.7% in other current liabilities was primarily from an increase in accounts payable from the higher prices and purchasing volume of raw materials during the end of 2016.
- A decrease of THB 49,511 million or 7.8% in long-term loans (including the current portion) mainly from the repayment of long-term loans and the repurchase of debentures.
- An increase of THB 9,167 million or 4.8% in non-current liabilities mainly from advance received from crude oil overseas sales contracts.

Equity

As of December 31, 2016, PTT and its subsidiaries had total shareholders' equity of THB 1,171,597 million, increasing by THB 83,910 million or 7.7% by the end of the year 2015, mainly due to performance in 2016 of PTT and its subsidiaries which was THB 94,609 million and dividends paid amounting to THB 28,560 million.

Liquidity

By the end of December 31, 2016, PTT and its subsidiaries had net decrease in cash and cash equivalents amounting to THB 24,412 million, and cash and cash equivalents at the beginning of the period was THB 239,978 million. As a result, cash and cash equivalents at the end of the period was THB 215,566 million. Details of cash flow by activities are as follows:

| | Unit: THB million |
|---|-------------------|
| Net cash provided by operating activities | 270,435 |
| Net cash used in investing activities | (178,915) |
| Net cash used in financing activities | (116,203) |
| Effects of exchange rates on cash and cash equivalents | (448) |
| Currency translation differences | 719 |
| Net increase in cash and cash equivalents during the period | (24,412) |
| Cash and cash equivalents at the beginning of the period | 239,978 |
| Cash and cash equivalents at the end of the period | 215,566 |



PTT and Its Affiliates

As of December 31, 2016

| E&P Business Group | | Percentage |
|---|---------------------|------------|
| PTT Exploration and Production Public Co., Ltd. | PTTEP | 65.29 |
| Gas Business Group | | Percentage |
| Trans Thai-Malaysia (Thailand) Co., Ltd. | TTM(T) | 50.00 |
| Trans Thai-Malaysia (Malaysia) Sdn.Bhd. | TTM(M) | 50.00 |
| PTT Natural Gas Distribution Co., Ltd. | PTTNGD | 58.00 |
| PTT LNG Co., Ltd. | PTTLNG | 100.00 |
| Oil Business Group | | Percentage |
| PTT (Cambodia) Limited | PTTCL | 100.00 |
| PTT Oil and Retail Business Co., Ltd. | PTTOR ^{1/} | 100.00 |
| Thai Lube Blending Co., Ltd. | TLBC | 48.95 |
| KELOIL - PTT LPG Sdn.Bhd. | KPL | 40.00 |
| Petro Asia (Thailand) Co., Ltd. | PAT | 35.00 |
| Petro Asia (Maoming) Co., Ltd. | PA (Maoming) | 20.00 |
| Petro Asia (Sanshui) Co., Ltd. | PA (Sanshui) | 25.00 |
| Thai Petroleum Pipeline Co., Ltd. | THAPPLINE | 40.40 |
| Intoplane Services Co., Ltd. | IPS | 16.67 |
| Bangkok Aviation Fuel Services Public Co., Ltd. | BAFS | 7.06 |
| Fuel Pipeline Transportation Co., Ltd. | FPT | 0.0000090 |
| PTT Tank Terminal Co., Ltd. | PTT TANK | 100.00 |
| PTT Oil Myanmar Co., Ltd. | PTTOM | 100.00 |
| International Trading Business Group | | Percentage |
| PTT International Trading Pte. Ltd. | PTTT | 100.00 |
| PTT International Trading London Ltd. | PTTT LDN | 100.00 |
| Petrochemical and Refining Business Group | | Percentage |
| PTT Global Chemical Public Co., Ltd. | PTTGC ^{2/} | 48.89 |
| PTT Polymer Marketing Co., Ltd. | PTTPM | 50.00 |
| PTT Asahi Chemicals Co., Ltd. | PTTAC | 50.00 |
| HMC Polymers Co., Ltd. | HMC | 41.44 |
| PTT Polymer Logistics Co., Ltd. | PTTPL | 50.00 |
| PTT MCC Biochem Co., Ltd. | PTTMCC | 50.00 |
| PTT PMMA Co., Ltd. | PTTPMMA | 100.00 |
| Thai Oil Public Co., Ltd. | TOP | 49.10 |
| IRPC Public Co., Ltd. | IRPC | 38.51 |
| Star Petroleum Refining Public Co., Ltd. | SPRC | 5.41 |
| Infrastructure Business Group | | Percentage |
| PTT Maintenance and Engineering Co., Ltd. | PTTME | 40.00 |
| PTT Energy Solutions Co., Ltd. | PTTES | 40.00 |
| District Cooling System and Power Plant Co., Ltd. | DCAP | 35.00 |
| Thai Oil Power Co., Ltd. | TP | 26.00 |
| Global Power Synergy Public Co., Ltd. | GPSC | 22.58 |
| Energy Complex Co., Ltd. | EnCo | 50.00 |
| International Investment Business Group | | Percentage |
| PTT Energy Resources Co., Ltd. | PTTER | 100.00 |
| PTT Green Energy Pte. Ltd. | PTTGE | 100.00 |
| Other Business Group | | Percentage |
| Business Services Alliance Co., Ltd. | BSA ^{3/} | 25.00 |
| PTT ICT Solutions Co., Ltd. | PTTICT | 20.00 |
| Dhipaya Insurance Public Co., Ltd. | TIP | 13.33 |
| PTT Regional Treasury Center Pte. Ltd. | PTTRTC | 100.00 |

Note:

1/ Former: PTT Retail Business Company Limited

2/ According to PTTGC's share repurchase program during 2015 and 2016, PTT's ownership interest in PTTGC as of December 31, 2016 is 49.42%.

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



Revenue Structure of PTT and Subsidiaries*

by Product Line

| Product/ Service | Operated by | % Shareholding of the company | 2014 (Revised) | | 2015 (Audited) | | 2016 (Audited) | |
|--|--|--|---------------------|--------------|---------------------|--------------|-------------------|--------------|
| | | | THB million | % | THB million | % | THB million | % |
| 1. Natural Gas Products | PTT Plc. | | 511,753.61 | 19.26 | 468,792.56 | 22.78 | 367,696.92 | 21.17 |
| | PTT Exploration and Production Plc. (PTTEP) | 65.29 | 7,147.46 | 0.27 | 12,948.33 | 0.63 | 10,362.45 | 0.60 |
| | PTT Natural Gas Distribution Co., Ltd. (PTTNGD) | 58.00 | 10,313.01 | 0.39 | 7,966.37 | 0.39 | 7,343.61 | 0.42 |
| | Global Power Synergy Plc. (GPSC) | 22.58 | - | - | - | - | 78.42 | 0.01 |
| Total Revenue from Natural Gas Products | | | 529,214.08 | 19.92 | 489,707.26 | 23.80 | 385,481.40 | 22.20 |
| 2. Oil Products | PTT Plc. | | 980,375.98 | 36.89 | 643,755.90 | 31.28 | 550,266.24 | 31.68 |
| | PTT Exploration and Production Plc. (PTTEP) | 65.29 | 25,974.76 | 0.98 | 10,349.48 | 0.51 | 8,650.59 | 0.50 |
| | PTT International Trading Pte. Ltd. (PTTT) | 100.00 | 258,278.62 | 9.72 | 183,336.31 | 8.91 | 117,599.77 | 6.77 |
| | PTT Global Chemical Plc. (PTTGC) | 48.89 | 16,655.40 | 0.63 | 32,852.68 | 1.60 | 20,315.68 | 1.17 |
| | Thai Oil Plc. (TOP) | 49.10 | 206,755.38 | 7.78 | 140,262.71 | 6.82 | 112,309.11 | 6.46 |
| | IRPC Plc. (IRPC) | 38.51 | 145,626.70 | 5.48 | 110,141.22 | 5.35 | 93,424.70 | 5.38 |
| | PTT (Cambodia) Limited (PTTCL) | 100.00 | 7,715.74 | 0.29 | 6,396.54 | 0.31 | 7,036.15 | 0.40 |
| | PTT Oil and Retail Business Co., Ltd. (PTTOR ²⁾) | 100.00 | 63,773.05 | 2.40 | 50,138.95 | 2.44 | 45,496.69 | 2.62 |
| | Subic Bay Energy Co., Ltd. (SBECL ¹⁾) | 100.00 | 1,013.18 | 0.04 | - | - | - | - |
| Total Revenue from Oil Products | | | 1,706,168.81 | 64.21 | 1,177,233.79 | 57.22 | 955,098.93 | 54.98 |
| 3. Petrochemical Products | PTT Plc. | | 28,451.58 | 1.07 | 15,647.43 | 0.76 | 20,041.99 | 1.15 |
| | PTT Global Chemical Plc. (PTTGC) | 48.89 | 105,986.61 | 3.99 | 120,598.30 | 5.86 | 110,974.12 | 6.39 |
| | Thai Oil Plc. (TOP) | 49.10 | - | - | 15,174.03 | 0.74 | 23,639.62 | 1.36 |
| | IRPC Plc. (IRPC) | 38.51 | 63,853.23 | 2.40 | 50,773.08 | 2.47 | 48,387.04 | 2.79 |
| | PTT Polymer Marketing Co., Ltd. (PTTPM) | 50.00 | 89,757.64 | 3.38 | 75,349.14 | 3.66 | 71,598.25 | 4.12 |
| | PTT International Trading Pte. Ltd. (PTTT) | 100.00 | 21,376.28 | 0.80 | 30,185.37 | 1.47 | 44,198.35 | 2.54 |
| Total Revenue from Petrochemical Products | | | 309,425.34 | 11.64 | 307,727.35 | 14.96 | 318,839.37 | 18.35 |
| 4. Mining Products | PTT Energy Resources Co., Ltd. (PTTER) | 100.00 | 20,436.37 | 0.77 | 13,632.79 | 0.66 | 15,994.85 | 0.92 |
| | PTT International Trading Pte. Ltd. (PTTT) | 100.00 | 605.47 | 0.02 | - | - | - | - |
| Total Revenue from Mining Products | | | 21,041.84 | 0.79 | 13,632.79 | 0.66 | 15,994.85 | 0.92 |
| 5. Other Products | PTT Plc. | | 0.05 | - | 1.99 | - | 137.87 | 0.01 |
| | PTT Green Energy Pte. Ltd. (PTTGE) | 100.00 | 600.57 | 0.02 | 228.37 | 0.01 | - | - |
| | Business Services Alliance Co., Ltd. (BSA) | 25.00 | 9.84 | - | 4.44 | - | 4.71 | - |
| | PTT Global Chemical Plc. (PTTGC) | 48.89 | - | - | - | - | 134.70 | 0.01 |
| | PTT ICT Solutions Co., Ltd. (PTTICT) | 20.00 | - | - | - | - | 11.30 | - |
| | PTT International Trading Pte. Ltd. (PTTT) | 100.00 | - | - | - | - | 2,937.85 | 0.17 |
| | Thai Oil Plc. (TOP) | 49.10 | 1,043.19 | 0.04 | 1,616.93 | 0.08 | 3,316.62 | 0.19 |
| | IRPC Plc. (IRPC) | 38.51 | 3,660.24 | 0.14 | 3,362.04 | 0.16 | 3,187.90 | 0.18 |
| | Global Power Synergy Plc. (GPSC) | 22.58 | 14,343.01 | 0.54 | 13,698.17 | 0.67 | 10,283.76 | 0.59 |
| | Energy Complex Co., Ltd. (EnCo) | 50.00 | 36.33 | - | 11.95 | - | - | - |
| Total Revenue from Other Products | | | 19,693.23 | 0.74 | 18,923.89 | 0.92 | 20,014.71 | 1.15 |

| Product/ Service | Operated by | % Shareholding of the company | 2014 (Revised) | | 2015 (Audited) | | 2016 (Audited) | |
|---|--|--|---------------------|---------------|---------------------|---------------|---------------------|---------------|
| | | | THB million | % | THB million | % | THB million | % |
| 6. Revenue from | PTT Plc. | | 4,669.14 | 0.17 | 5,499.12 | 0.27 | 6,307.00 | 0.36 |
| Non-Core | PTT Oil and Retail Business Co., Ltd. (PTTOR ^{2/}) | 100.00 | 4,833.01 | 0.18 | 4,833.04 | 0.23 | 5,127.76 | 0.30 |
| Business | PTT (Cambodia) Limited (PTTCL) | 100.00 | 33.76 | - | 105.72 | - | 338.92 | 0.02 |
| Total Revenue from Non-Core Business | | | 9,535.91 | 0.35 | 10,437.88 | 0.50 | 11,773.68 | 0.68 |
| 7. Revenue from | PTT Plc. | | - | - | 28.33 | - | 36.90 | - |
| Services | PTT Exploration and Production Plc. (PTTEP) | 65.29 | 4,474.74 | 0.17 | 4,044.20 | 0.20 | 2,345.22 | 0.14 |
| | PTT Global Chemical Plc. (PTTGC) | 48.89 | 1,166.92 | 0.04 | 2,804.83 | 0.14 | 6,350.31 | 0.37 |
| | Thai Oil Plc. (TOP) | 49.10 | 623.86 | 0.02 | (133.00) | (0.01) | 427.37 | 0.02 |
| | IRPC Plc. (IRPC) | 38.51 | 734.71 | 0.03 | 517.07 | 0.03 | 591.68 | 0.03 |
| | PTT Oil and Retail Business Co., Ltd. (PTTOR ^{2/}) | 100.00 | 420.23 | 0.02 | 564.52 | 0.03 | 493.11 | 0.03 |
| | PTT ICT Solutions Co., Ltd. (PTTICT) | 20.00 | 35.76 | - | 262.48 | 0.01 | 50.33 | - |
| | PTT Tank Terminal Co., Ltd. (PTT TANK) | 100.00 | 732.08 | 0.03 | 715.82 | 0.03 | 756.29 | 0.04 |
| | PTT Polymer Logistics Co., Ltd. (PTTPL) | 50.00 | 1,113.01 | 0.04 | 133.32 | - | 126.93 | 0.01 |
| | PTT Energy Solutions Co., Ltd. (PTTES) | 40.00 | 4.58 | - | 57.80 | - | 46.29 | - |
| | Energy Complex Co., Ltd. (EnCo) | 50.00 | 131.82 | - | 243.84 | 0.01 | 291.17 | 0.02 |
| | Business Services Alliance Co., Ltd. (BSA) | 25.00 | 543.75 | 0.02 | 6.94 | - | 118.63 | 0.01 |
| | PTT (Cambodia) Limited (PTTCL) | 100.00 | - | - | - | - | - | - |
| | PTT Oil Myanmar Co., Ltd. (PTTOM) | 100.00 | 1.71 | - | 2.46 | - | 8.87 | - |
| Total Revenue from Services | | | 9,983.17 | 0.37 | 9,248.61 | 0.44 | 11,643.10 | 0.67 |
| Total Revenue from Products and Services | | | 2,605,062.38 | 98.02 | 2,026,911.57 | 98.50 | 1,718,846.04 | 98.95 |
| 8. Others | | | | | | | | |
| 8.1 Other Revenue | | | 40,012.36 | 1.51 | 30,784.17 | 1.50 | 9,682.65 | 0.56 |
| 8.2 Gain/loss from Foreign Exchange | | | 11,610.31 | 0.44 | (5,992.73) | (0.29) | 4,472.68 | 0.25 |
| Total Other Revenue | | | 51,622.67 | 1.95 | 24,791.44 | 1.21 | 14,155.33 | 0.81 |
| 9. Share of net income/loss from investment under equity method | | | 860.02 | 0.03 | 6,031.70 | 0.29 | 4,143.21 | 0.24 |
| Grand Total | | | 2,657,545.07 | 100.00 | 2,057,734.71 | 100.00 | 1,737,144.58 | 100.00 |

Remarks:

* Revenue of PTT and Subsidiaries are net revenue from external.

1/ On February 17, 2016, SBECL registered its dissolution; therefore, PTT wrote off its entire investment in SBECL.

2/ Previously PTT Retail Business Company Limited (PTTRB) which changed its name on December 15, 2016.



Connected Transactions

Connected Transactions

PTT's connected transactions resulted from the following contractual agreements:

1. Transactions between PTT and state enterprises

Transaction

According to the Cabinet's resolution on March 22, 2016 acknowledging the Committee of the institute and state enterprises rights as stated on the 5th meeting on November 25, 2015, PTT's privilege followed the rights of distributing fuel oil and petroleum products of 10,000 liters or more to government office and state enterprises besides the Electricity Generating Authority of Thailand. However, in 2016, PTT sells its fuel oil to state-owned enterprises that still wishes to buy fuel-efficient from PTT such as the Electricity Generating Authority of Thailand, Bangkok Mass Transit Authority and State Railway of Thailand. Henceforth, if such state enterprise has an outstanding balance of fuel purchase, PTT can charge interest on such outstanding balance as according to the reference in terms of the contract of sale.

2. Transactions between PTT and subsidiary, PTTEP Plc.

Transaction

PTTEP and its subsidiaries produce and sell crude oil, natural gas, condensate, and LPG. In 2016, PTT was the major buyer (86% by volume) of these. For natural gas purchase argeement, PTT and PTTEP reached a long-term deal of 25 - 30 years, stipulating annual minimum contractual quantities. Both companies were engaged in crude oil and condensate agreements whereas PTT sold jet fuels and high-speed diesel to PTTEP under the world market prices which were identical to those sold to PTT by its partners or under competitive standard reference prices and sensible conditions.

(1) Normal business transactions or supporting normal business transactions

| Item | | | Value as of December 31, 2016 | Necessity and Sensibility |
|---------------------------------------|------------|-----------------|----------------------------------|---|
| 1.1 Sale of petroleum products | | | THB 127,019.60 million | Pricing of petroleum products is under world market which prices identical to those sold to PTT by its project partners. |
| LPG | 96,731.01 | metric ton | | |
| Crude oil | 23.1 | million barrels | | |
| Condensate | 12.03 | million barrels | | |
| Natural gas | 505,337.18 | Mmscf | | |
| 1.2 Purchase of fuels | | | THB 2,089.46 million | PTTEP's Board of Directors approved the five-year (2014 - 2018) fuel supply agreement with PTT. The prices under the agreement were based on competitive standard reference market prices and sensible conditions. |
| Jet fuel | 2.18 | million liters | | |
| High speed diesel | 81.05 | million liters | | |
| Natural gas | 47.02 | Mmscf | | |

3. Transactions between PTT and petrochemical and refining subsidiaries

Transaction

PTT signed crude oil and raw material supply agreements and refined product purchase agreements with its refining subsidiaries at supply rates corresponding to its own equity interests as summarized below. PTT also signed gas sales agreements (GSAs) for its feedstock and engaged in hedging through derivative contracts with these subsidiaries to ease volatility impacts from crude oil and petroleum product prices. However, price risk management is subject to the policy of each company.

Agreement with Thai Oil Plc. (TOP)

- PTT secures crude oil and buys refined products equivalent to 49.99% of TOP's refining capacity at market prices under a 10-year minimum contract, starting from 2014. After the tenth year, either party may end the agreement through a written notice sent at least 12 months in advance under the Product Offtake and Crude Supply Agreement (POCSA) terms and conditions.
- PTT secured natural gas for TOP's use in its refinery as required by an agreement between them at regular market prices under a 10-year contract (January 1, 2014 - December 31, 2023).
- PTT also engaged in hedging through derivative contracts made with TOP to ease the impacts of crude and product price volatility. However, price risk management is subject to TOP's policy.

Agreement with IRPC Plc. (IRPC)

- PTT secures crude oil supply at market prices for IRPC under a one-year feedstock supply agreement (term and spot). The contract is to be made year by year.
- PTT has a one-year contract for petroleum products with IRPC, located at Rayong and Chumphon Depots, under market prices, effective from January 1, 2016, with possible annual extensions.
- PTT has a 10-year gas sales agreement with IRPC for the consumption of gas in power production and cogeneration power generation, effective from January 14, 2011 to January 13, 2021, and in product refining under a four-year GSA (November 10, 2015 - December 31, 2019) at market prices.
- PTT also engaged in hedging through derivative contracts made with IRPC to ease the impacts of crude and product price volatility. However, price risk management is subject to IRPC's policy.

Transactions and agreement with PTT Global Chemical Plc. (PTTGC)

PTTGC was founded on October 19, 2011, through the amalgamation of PTT Chemical Plc. (PTTCH) and PTT Aromatics and Refining Plc. (PTTAR) under the Public Company Act B.E. 2535 (1992). The new company inherited all the assets, properties, and liabilities of the two companies, and continues the operation of the two companies as summarized below.

Petrochemical business

- PTT secures feedstock supply for PTTGC's processes which are ethane, propane, LPG, and NGL. Below are the details of the agreements for key raw materials.

| Feedstock | Contractual supply volume (tons/year) | Contract expiry year |
|-----------|---------------------------------------|----------------------|
| Ethane | 454,000 - 605,000 | 2020 |
| Ethane | 370,000 - 500,000 | 2020 |
| Ethane | 1,300,000 - 1,350,000 | 2025 |
| Propane | 126,000 - 168,000 | 2020 |
| LPG | 100,000 - 160,000 | 2020 |
| LPG | > 240,000 | 2020 |
| LPG | 336,000 | 2020 |
| LPG | > 156,000 | 2021 |
| NGL | 380,000 - 470,000 | 2021 |

Under these agreements, the price structure of ethane varies based on film-grade HDPE in Southeast Asian markets, reflecting the entire petrochemical chain and the HDPE market. Similarly, the price structures of propane and liquid petroleum gas (LPG) vary in line with film-grade PP in Southeast Asian markets. The prices of other raw materials are as agreed based on market prices.

The above agreements are extendable for five years, subject to the conditions of individual agreements.

- PTT supplies 4.6 - 6.1 million tons per year of condensate to PTTGC under a long-term agreement which the price is tied to a basket of crude oil prices.
- PTT entered into a long-term agreement which buys PTTGC's outputs of aromatics and naphtha for sale to export customers, effective from 2001 under an evergreen basis. It means that after 2013, the agreement is always regarded as effective unless an advance notification.
- PTT entered into a short-term deposit agreement with PTTGC for legal oil reserve.

Refining and Petroleum Product Supply Business Group

- PTT secures crude oil supply under a feedstock supply agreement, effective from February 1, 2009. Under the agreement, PTT is subject to secure crude oil of PTTGC's desired grades and volumes at market prices whether imported or from indigenous sources.
- PTT buys refined products from PTTGC at no less than 70% of the latter's refined products with domestic market prices under an 18-year agreement from February 9, 2006. The contract is assumed to remain valid after 18 years unless an advance notification.
- PTT signed an 18-year New Complex Product Offtake Agreement with PTTGC, effective from February 9, 2006. The agreement is assumed to remain valid after 18 years, unless a notification in advance. Under the contract, PTT is to buy all products from PTTGC derived from the Upgrading Complex. At least half of them are to be based on domestic market prices.
- PTT signed a GSA with PTTGC for the gas consumption in refining product and power generation which will be expired in 2018.
- PTT also engaged in hedging through derivative contracts made with PTTGC to ease the impacts of crude and product price volatility. However, price risk management is subject to PTTGC's policy.

Transactions and agreement with HMC Polymers Co., Ltd. (HMC)

- PTT signed a 15-year (between January 19, 2010 to January 18, 2035) propane feedstock supply agreement with HMC under a condition of a five-year extension at a time. The price of propane is varied based on Southeast Asia's film-grade PP.
- PTT secured natural gas for HMC to be used in its refinery as required by an agreement between them at regular market prices under a 10-year contract (between October 30, 2009 to October 29, 2019).

Transactions and agreement with PTT Asahi Co., Ltd. (PTTAC)

- In 2008, PTT signed a 15-year propane supply agreement with PTTAC for its feedstock. The agreement takes effect from the plant's start-up with a five-year extension each time. The price structure is varied based on Southeast Asia's film-grade PP.
- PTT secured natural gas for PTTAC to be used in its refinery as required by an agreement between them at regular market prices under a 15-year contract (between March 21, 2011 to March 20, 2026).

4. Transactions between PTT and its subsidiary infrastructure business group

Transactions and agreement with Global Power Synergy Plc. (GPSC)

PTT signed a GSA with GPSC for its power generation which is considered a normal business practice. PTT is the country's sole seller of natural gas to industrial operators with the prices and conditions as agreed in the agreements. PTT supplies gas to GPSC's power plants as details below

1) Sriracha Power Plant: PTT signed a 25-year GSA with Sriracha Power Plant at an IPP gas price. The agreement is effective until 2025. PTT can charge fuel costs with the energy payment to EGAT. If PTT cannot deliver the volume of gas under the agreement, and EGAT instructs PTT to use its reserve fuel, EGAT is subjected to pay PTT for the excess gas. Sriracha Power Plant also signed a diesel supply agreement with TOP for stock usage. The 25-year agreement is due to expire in 2025.

2) Central Utility Plant 1 (CUP-1): PTT secured a 15-year GSA with CUP-1 for its consumption in power generation. The agreement is due to expire in 2021.

3) Central Utility Plant 2 (CUP-2): PTT will supply gas to CUP-2 for its usage in power generation. The 15-year GSA is due to expire in 2022.

4) Central Utility Plant 3 (CUP-3): PTT signed a long-term GSA with CUP-3 for the gas consumption in its steam generation plant. The 15-year agreement will end in 2023.

Sensibility of connected transactions

The purchase of goods, raw materials and /or services from related companies is meant to create maximum mutual business benefit within PTT Group and support national energy security. Such transactions are perceived as normal business practices. The volumes of goods or raw materials bought or sold by PTT or services provided or received by related parties match PTT's needs and business. To this end, such prices are as agreed in contracts leading to commercial benefit for both PTT and related parties without siphoning of benefits or irregular items.

Policy on future connected transactions

PTT's future connected transactions will be conducted as part of its normal course of business, without special favors or transfer of benefits between PTT, its subsidiaries, associated companies, related companies, and shareholders. Pricing will continue to be at arm's length, and the prices of products supplied by PTT's subsidiaries will be market-based. Disclosure of connected transactions will conform to a notification of the Securities and Exchange Commission (SEC) and SET, and to the accounting standard for related parties/businesses disclosures, announced by the Federation of Accounting Professions.



Review of Business Assets

As of December 31, 2016,
the core assets employed by PTT and its subsidiaries
in their businesses are as follows

Net value after accumulated
depreciation and allowance
for impairment

THB



1,098,230
million

Net intangible assets

THB



160,744
million

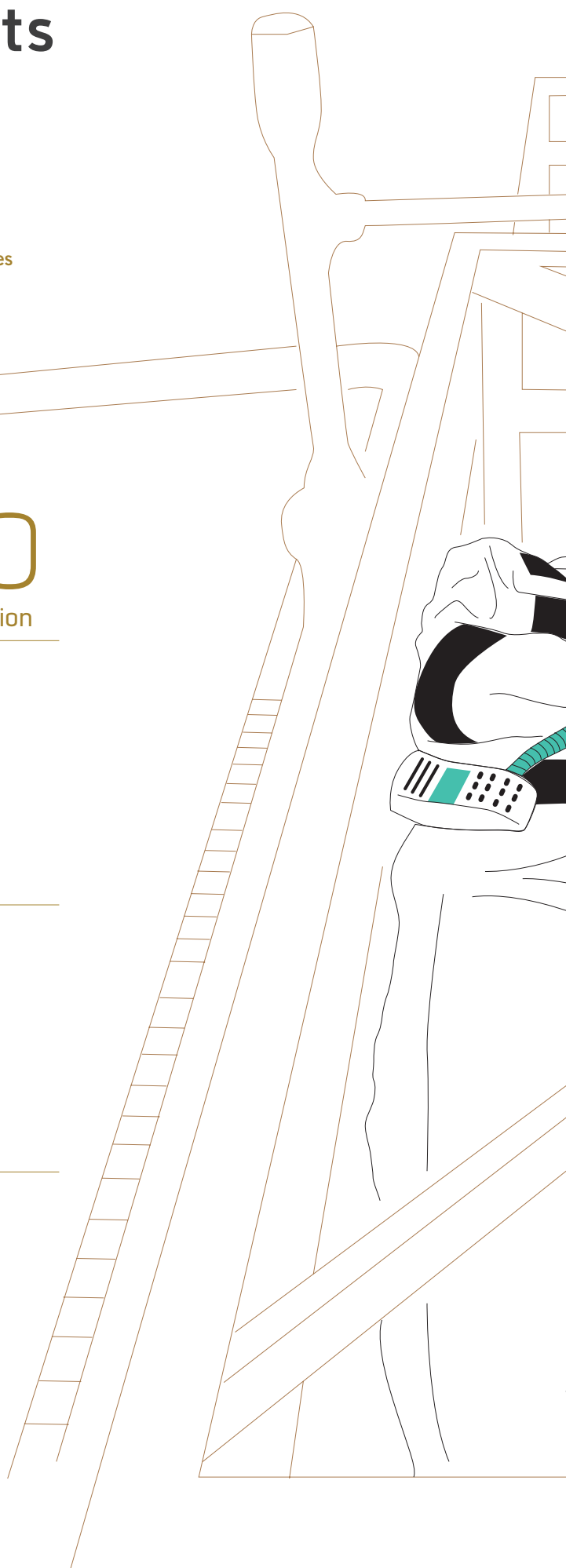
Net mining properties

THB



18,679
million

For details, please see the Notes to
the Financial Statements for PTT and its subsidiaries
for the year ended December 31, 2016:
item 17 (property, plant & equipment),
item 18 (intangible assets),
and item 19 (mining properties).





Risk Factors

Continuously exercising risk management efforts, PTT managed risk factors reasonably well in the past year. All identified risk factors have been managed to acceptable levels. In particular, the risks successfully mitigated in 2016 included NGV price-fixing.

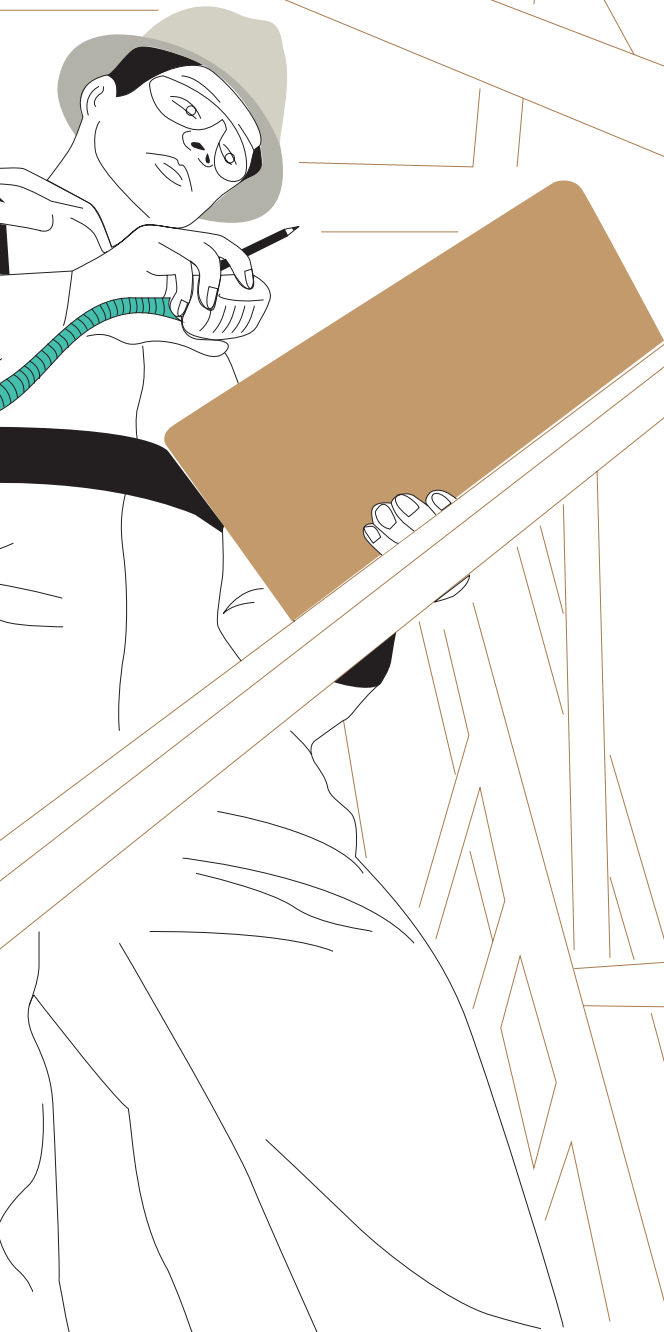
The continuing and emerging risks that focused under changing circumstances in 2017 are grouped into four aspects as follows:

1. Strategic Risks

1.1 Risks from business strategy implementation

PTT Group's business growth results from investment expansion under its strategic plans. Most of its businesses are capital-intensive, required long lead construction time, and called for a long-term advance investment. As a result, PTT traditionally faces business uncertainty such as economic uncertainty, unrest around the world, skewed energy demand and supply, petroleum and petrochemical price volatility, stakeholders' varied needs, rapid changes in technology, and impacts of legislative change. All these could prevent PTT from achieving its strategic goals, thus upsetting its overall performance and returns on investment.

To cope with this, PTT has initiated a Top Executive Thinking Session (TTS) and a Strategic Thinking Session among senior PTT executives to review PTT Group's strategic directions and accommodate changes in economic directions, social, energy, technological circumstances, and consumers' behavior in line with the anticipated megatrends. As a result, business strategies then lead to five-year business plans, which are further integrated with risk management plans.



1.2 Risks from diminishing natural gas outputs and continuity of gas production

With depleting natural gas reserves in the Gulf of Thailand and Myanmar, gas outputs look likely to fall in the long run. Some gas fields have in fact entered post-plateau periods, entitling producers to request reduction in output capacity in accordance with remaining gas reserves. The Erawan and Bongkot fields in the Gulf of Thailand are approaching the end of their gas sales agreements (GSAs) and petroleum concessions with the public sector between 2022 and 2023. Meanwhile, the Yetagun (Myanmar) GSA has reduced gas sales volumes after its post-plateau period. Yadana and Yetagun GSAs will be expired in 2028 and 2030 respectively, and it remains uncertain whether the sellers are going to seek GSA extension.

PTT's plan is to secure more LNG supply by expanding its LNG Terminal phase 1 to a capacity of 11.5 million tons a year while investing in a wharf and LNG Terminal phase 2 to accommodate rising supply of LNG. The feasibility of an FSRU (floating storage regasification unit) in Myanmar is also investigated with the Myanmar government to replace piped gas procured from that country. Incidentally, in LNG supply agreements, contractual purchase volumes will be set. If there is a failure to take those volumes, it will lead to Take-or-Pay burden.

Over the long term, the cost of natural gas looks likely to go up along with rising proportions of LNG supply and rising costs of developing domestic gas fields. These could dent the competitiveness of natural gas in comparison with other fuels and could force gas separation plants to cut their capacities. Therefore, PTT has not only investigated the feasibility of using alternative raw materials and their imports, but also examined infrastructural readiness by reviewing their economic effectiveness and PTT Group's supply chain in order to identify optimal solutions.

1.3 Risks concerning Investment efficiency

PTT not only continuously grows its businesses both in its own business operations and company investments in PTT Group, but also seeks new investments under PTT Group operations for sustainability. This could lead PTT to risks of investment efficiency, meaning lower-than-targeted returns on investment, project delays, and project cost overruns.

To ease such risks, PTT engages in risk management by developing rules and requirements on investment criteria of PTT Group and applying PTT's affiliate governance approach to screen decisions, monitor, and steer PTT Group's investment. The process is known as SIM (Strategic Investment Management) in which an Investment Administration Committee, made up of executives with expertise in various disciplines, screens, monitors, and reports on PTT's investment. This would help to support decision-making made by the PTT Management Committee and the Board to ensure the most useful and uttermost efficient capital. SIM works in four main stages: investment planning, investment analysis, execution, and operation. After such investment, PTT tracks outcomes and regularly remains watchful over changes in various factors compromising investment returns. That way, problem-solving is swift and efficient. In addition, PTT ordinarily monitors and analyzes its own investment as well as PTT Group's investment to improve performances and revise investment plans while managing the cost of funds in order to enhance its competitiveness and enable PTT growth over the long run.

1.4 Risks concerning personnel development to accommodate business growth

PTT has been experiencing swift expansion due to investment growth both inbound and outbound, together with its pursuit of new business opportunities through new investment as well as the introduction of advanced digital technology and innovations to business operations. Personnel preparedness to accommodate business growth represents a critical factor for success. If PTT is unable to groom skillful, experienced personnel in time and in adequate supply, it could harm the businesses and long-term goal achievement.

To ease such risks, PTT has relied on two career management mechanisms. First, for the management group, the PTT Group format applies under the care of an Executive and Management Development Committee which accommodates the needs of senior executives in both quantity and quality. Second, for other employees, it takes the same form of line management, supervised by a career advisory panel. A Career Management Consultation Committee ensures that in each career path, a manpower requirement plan is prepared. Key positions are stated along with individual development plans. PTT's Young People to Globalize (YP2G) Project grooms personnel for both overseas and domestic posting, or both. A Functional Academy develops technical personnel's technical and functional skills. PTT Leadership and Learning Institute (PLLI), meanwhile, develops personnel for their highest caliber by focusing on leadership development and promoting learning. These moves ensure that PTT will constantly command an adequate supply of qualified executives and employees.

1.5 Reputation risks

Varied expectations of stakeholders, events and news issues harming PTT (evident in various current media) may undo its image and the public's confidence towards PTT. This would undoubtedly cause obstacles to PTT's future business growth.

At PTT Group, a common set of values (SPIRIT) was set. All employees from top levels observe SPIRIT to become smart and conscientious, responsible for the corporation and external society. PTT sets its future business directions to strike a balance and establish common value supplementation among business, society, and the environment under the Social Enterprise (SE) concept. PTT also conducts systematic stakeholder management to meet the expectations of various stakeholders in a balanced way. Guidelines for corporate communication and reputation management align with corporate directions; issue management analysis and anticipation; database management and development of communication channels to clarify issues and obtain easier access to data. The main focus is on proactive communication through mainstream media, online media, service stations, Café Amazon outlets, and extended through assorted networks. This includes clarification of facts by executives to the mass media together with their participation in various public forums for proper public understanding of energy matters, merchandise, services, and PTT's businesses.

PTT has a clear intention on anti-corruption policy. Engaging in transparent business under corporate governance (CG), it manages risks in the aspects of people, process, and audit. For people, it rolled out a policy and campaigned for employees' awareness so that they may command ethics, a code of conduct, attitudes, values, and a corporate culture along with behavior that reflect CG. For process, PTT constantly features development and improvement of procurement processes leading to prevention of malfeasance. PTT also signed an Integrity Pact with its business partners to ward off corrupt procurement project practices. For audit, PTT commands search and compilation of internal data that allows auditors as a third party to inspect whenever dubious acts are detected. Legal action will proceed, and PTT ensures not to protect wrongdoers.

PTT also implemented GRC (corporate governance, risk management, and compliance), an integrated concept to make the oversight and management of risks to be more efficient. “G” stands for governance, meaning the delegation of authority and responsibility between the Board and the management, including the design of suitable business processes and organization structure. “R” stands for risk management, an integral part of decision-making and strategic planning. “C” stands for compliance with laws and regulations, embracing internal business procedures as well as laws and third-party regulations.

2. Business Risks

2.1 Risks from price volatility of petroleum and petrochemicals

PTT Group’s raw material and sales prices of natural gas, condensate, crude oil, petroleum products, petrochemicals, alternative energy, and the spreads between product and raw materials/feedstock prices for both domestic and oversea ones are subject to high volatility of the world market. This could compromise PTT Group’s future performance and returns on investment.

To give higher efficiency on price risk management, PTT defined a risk mitigation plan to sustain the impacts on energy price fluctuation by focusing on efficiency improvement, operating cost reduction, revised investment plans, and critical investment decision-making. Besides, PTT formulated scenario planning for various oil prices to give PTT Group suitable business and investment plans that is able to handle future changes and uncertainty. PTT Group management has appointed a price risk management team to analyze world oil price movement and jointly optimize risk management of feedstock and product prices within the group. Presently, to manage price risks, the group engages in hedging through short-term and long-term

derivative contracts with business partners. Each transaction involving derivatives abides by PTT’s price risk management policy hand in hand with price, volume, and time targets for suitable risk management in line with PTT Group’s raw material and product trade volumes. The reason is to manage costs and sales prices and ease the impacts of price volatility on PTT Group’s performance. There are also a structure and process for supervising risk management as well as checks and balances on a par with international standards.

2.2 Risks from government actions creating potential impacts on PTT’s businesses

PTT has retained its state enterprise status with the Ministry of Finance, serving as its major shareholder. The Ministry of Energy is observed as its supervisor. It is also engaged in the energy business under the supervision of the National Energy Policy Council (NEPC). Public sectors can still be supervised PTT’s actions to ensure an alignment with the national energy, economic, and social policies. Under the above-mentioned act, NEPC can make recommendations to the Cabinet, including liberalization of the natural gas business and LNG business apart from setting criteria and conditions for energy pricing in line with such policies and plans. Besides, the public sector is reviewing a draft key legislation, including draft Petroleum Act; State Enterprise Development, Supervision, and Management Act, and Public Sector Procurement and Supply Administration Act. All of which may directly impact PTT’s businesses.

PTT monitors and analyzes impacts resulting from changes in policies and measures of the public sector. PTT also coordinates closely with government agencies to provide data, appreciate, and formulate measures to mitigate potential repercussions.

3. Operation Risks

3.1 Risks from disruption of production and business operations

As Thailand's integrated petroleum and petrochemical business conglomerate, equipped with several sites worldwide, PTT is exposed to disruptions of production and business operations from human errors, accidents, malfunctioning machinery, catastrophes, threats of political instability, together with terrorist activities and other unexpected hazards. All could prove detrimental to PTT.

To lower such likelihood and impacts, all executives and employees are required to execute and concern on the conduct, compliance with its policy on, crisis management and business continuity. PTT then adheres PTT Group Business Continuity Management System Standard (BCMS) and PTT Group Security Safety, Health and Environmental Management Standard (PTT Group SSHE MS). These are applied to prevent value-adding activities under PTT's business chain from being disrupted. Also, a Zero Unplanned Shutdown Project has been launched by promoting Group companies' improvement in processing efficiency against international standards and preventing business disruptions. Like other companies in the petroleum and petrochemical industries, PTT has subscribed to insurance policies to safeguard its core operating assets against risks and business interruption.

3.2 Risks from changes in environmental and safety regulations

PTT's business operations must conform to applicable legislation and regulations on safety and environmental impacts which are bound to get increasingly tough. There are explicit provisions for public agencies to supervise its operations. Future supervisory mechanisms under the public sector are bound to get more complicated and stricter. These could shackle PTT's operation or sharply hike operating costs. Besides, risks could arise in the time required and conditions for an approval of Environmental Impact Assessment (EIA) or environmental and Health Impact Assessment (EHIA) reports. This includes the participation process and community acceptance, which could cause project delays. These could therefore compromise its future businesses and income generation.

To address these risks, PTT requires all sites to strictly monitor, measure, and assess their compliance with applicable laws and regulations. If certain sites tend to deviate from such compliance, they are to urgently map out corrective and preventive measures. PTT has developed a PTT QSHE Legal Management Center, a system of legal database and practices of a single database in PTT. It is enable all relevant agencies to become aware of laws and practices in a timely manner so as to comprehensively develop compliance plans and assess the degree of compliance. Then, there are monitoring and analysis of the impacts on PTT as a result of changes in environmental and safety laws and regulations. PTT also closely coordinates with government agencies, applies available information to develop work plans and response measures, and ensures ongoing community relations activities in operating areas with a constant focus on community engagement.

3.3 Risks from Delayed project construction

Relentlessly, PTT invests on business expansion. Each project has risks of delayed construction completion or construction cost overruns, or both. PTT runs key projects, including a project under the plan for transmission and infrastructure for natural gas for security, gas transmission system project part 1 (phase 1: 2015 - 2019, phase 2: 2015 - 2021) and the LNG Receiving Terminal Project. Development of projects could fall behind schedules for various reasons. Some of which are contractors' financial standing, weather, construction approval of applicable public agencies, objection by land owners to entering construction sites, communities' objection to construction work, blockade of operation by local influential people, procurement of equipment with long lead time and transport time, raw-material/feedstock costs, currency exchange rates, and climate variation. If projects are delayed, PTT's financial standing and performance outcomes could become vulnerable.

To enable project completion on plan and budget with suitable quality and compliance with laws and regulations, PTT takes the administration of critical-path matters seriously to minimize project development risks. For example, PTT hires competent teams to control and supervise construction work, appoints a unit to administer business operations that is accountable for seeking construction permission to enable an efficient procedure for construction project approval to project hand-over, prepares measurements to mitigate environmental impacts, constantly monitors new legislation and regulations, observes and analyzes impacts on project execution, develops people engagement plans, and prepares contingency plans and measures for potential implications of a delay on project completion.

4. Financial Risks

4.1 Risks from the Volatility of Baht

Since PTT and its subsidiaries are exposed through outstanding foreign loans, changes in the exchange rate between Baht and US dollar directly and indirectly affect the bulk of PTT's revenue and PTT's net accounting profits/losses. The fluctuation of Baht and the government's economic, monetary, and treasury policies could undermine PTT's overall financial and performance.

To ease these risks, PTT has balanced its foreign-currency loans with its foreign-currency revenue (that is, taking a natural hedge) while managing its foreign-currency deposits, leveraging financial derivatives to convert such loans (the participating swap) and purchasing forward foreign currencies to match the quantity of foreign currencies required for repayment and for commercial transactions. PTT has also developed a Finance Policy as an effective, uniform guideline for PTT Group which includes terms of reference for assorted risk management practices.

4.2 Risks from Financial support to affiliated companies

To promote constant growth, PTT invests on new projects, expands its businesses and adjusts its operation. Sometimes such investment may be undertaken through new companies or link-ups with strategic partners or through PTT Group companies, or all of the above. Some of these companies may still be observed as starting projects or facing business down-cycles or may not yet be financially strong so the shareholders and PTT will need to extend cost overrun support to allow them to operate under strategies and business policies of PTT Group as a whole. Some of them may need cash deficiency support during commercial operations which may result from force majeure. Financial help from the shareholders is then asked for supports. PTT will consider extending loans or commercial credit or both, to individual affiliates under belief that such a policy and action would foster sustainable strength for PTT Group.

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

4.3 Acquisition of funds for plan execution

The businesses of PTT-in particular, petroleum exploration and production, natural gas transmission systems, gas separation plants, and the petrochemical businesses-require massive pre-paid capital investment. Although PTT closely monitors and manages business risks, due to uncontrollable factors, the actual investment capital required could deviate from project plans, thus potentially affecting its project successes and capital costs.

Thanks to PTT's business conduct that focuses on fostering long-term growth and corporate governance, PTT plans to invest on prudent business expansion with a major concern on sources of capital, particularly capital structuring. These will enable PTT to maintain crucial financial ratios at suitable levels on a par with peer companies. To monitor the factors for investment capital sourcing continuously, PTT can be assured that it can secure sufficient and suitable funds for future business expansion.



Capital Structure

PTT's Securities

Common shares

As of December 31, 2016, PTT's registered capital totaled THB 28,572,457,250, consisting of 2,857,245,725 common shares at THB 10 per share. These shares represented THB 28,562,996,250 in paid-up capital, or 2,856,299,625 common shares.

Bonds and debentures

As of December 31, 2016, PTT's domestic loans amounted to THB 1,000 million in the form of PTT bonds guaranteed by the Ministry of Finance, and PTT debentures not guaranteed by the ministry worth THB 136,433 million, for a total of THB 137,433 million. Foreign loans were in the form of PTT debentures of US dollar and yen denominations not guaranteed by the ministry, equivalent to THB 62,924 million. A summary of these appears below.

PTT's domestic loans, in the form of bonds and debentures, amounted to a total of THB 137,433 million.



| Bonds and Debentures | Amount (THB million) | Redemption Date | Guarantee |
|--|-------------------------|-----------------|-----------|
| PTT bonds guaranteed by the Ministry of Finance | | | |
| • Domestic bonds | 1,000 | 2020 | None |
| PTT debentures not guaranteed by the Ministry of Finance | | | |
| • Domestic debentures ^{1/ 4/} | 136,433 | 2017 - 2110 | None |
| • Foreign debentures ^{2/ 3/ 4/} | 62,924 | 2017 - 2042 | None |
| Total | 199,357 | | |
| Grand total | 200,357 | | |

Note:

1/ Fitch Ratings' national rating of long-term PTT debentures at 'AAA (tha)' with a stable outlook

2/ Moody's international rating of foreign PTT debentures at 'Baa1' with a stable outlook

3/ S&P's international rating of foreign PTT debentures at 'BBB+' with a stable outlook

4/ See details of domestic and foreign PTT debentures

Unsecured, unsubordinated domestic debentures

| Symbol | Amount (THB million) | Annual Coupon Rate (%) (Payment Frequency) | Maturity Period (Years)/ Redemption Schedule |
|----------|-------------------------|---|--|
| PTTC172A | 2,636 ^{1/} | 4.10 (every six months) | Seven/ 2017 |
| PTTC17DA | 1,500 | 5.87 (every six months) | Ten/ 2017 |
| PTTC17DB | 4,000 ^{2/} | (Year 1 - 4) 3.20, (Year 5 - 6) 4.20, (Year 7) 5.00 (every six months) | 7 years, 15 days/ 2017 |
| PTTC18DA | 500 | 5.91 (every six months) | Eleven/ 2018 |
| PTTC18NA | 18,049 ^{3/} | (Year 1 - 4) 4, (Year 5 - 6) 4.40, (Year 7) 5.50 (every six months) | 6 years, 9 months and 19 days/ 2018 |
| PTTC195A | 1,000 | 5.90 (every six months) | Fifteen/ 2019 |
| PTTC195B | 15,000 | (Year 1 - 4) 4.10, (Year 5 - 6) 5.10 (every six months) | 6 years, 11 months and 24 days/ 2019 |
| PTTC195C | 10,000 | Year 1 - 4) 4.10, (Year 5 - 6) 5.10 (every six months) | 6 years, 9 months and 15 days/ 2019 |
| PTTC20NA | 22,000 | 4.75 (every six months) | 6 years, 11 months and 19 days/ 2020 |
| PTTC208A | 4,118 | 5.95 (every six months) | Fifteen/ 2020 |
| PTTC215A | 1,030 | 6.53 (every six months) | Fifteen/ 2021 |
| PTTC21NA | 10,000 ^{8/} | 4.00 (every six months) | 6 years, 11 months/ 2021 |

| Symbol | Amount (THB million) | Annual Coupon Rate (%) (Payment Frequency) | Maturity Period (Years)/ Redemption Schedule |
|----------|-------------------------|--|---|
| PTTC21NB | 4,200 | 3.50 (every six months) | 6 years, 27 days/ 2021 |
| PTTC222A | 4,000 ^{4/} | 4.50 (every six months) | Twelve/ 2022 |
| PTTC239A | 10,000 | 6.58 (once at the end of redemption period) | Ten/ 2023 |
| PTTC243A | 15,000 | (Year 1 - 5) 5, (Year 6 - 8) 6.20, (Year 9 - 15) 6.80 (every six months) | Fifteen/ 2024 (redeemable after the 8 th year) |
| PTTC247A | 9,400 | (Year 1 - 5) 4.25, (Year 6 - 10) 5.50, (Year 11 - 15) 5.75 (every six months) | Fifteen/ 2024 (redeemable after the 10 th year) |
| PTTC10DA | 4,000 | 5.9 (every six months) | 100 years/ 2110 (redeemable after the 50 th and 75 th year, and as defined in the terms on rights and duties of the issuers and the holders) |
| Total | 136,433 | | |

Unsecured, unsubordinated foreign debentures

| Symbol | Amount (THB million) | Annual Coupon Rate (%) (Payment Frequency) | Maturity Period (Years)/ Redemption Schedule |
|-------------------------|-------------------------|---|--|
| USD Bond in 2005 | 12,355 | 5.875 (every six months) | Thirty/ 2035 |
| Samurai Bond in 2007 | 11,208 ^{5/} | 2.71 on Yen-denominated principal (every six months) | Ten/ 2017 |
| USD Bond in 2012 | 17,966 ^{6/} | 3.375 (every six months) | Ten/ 2022 |
| USD Bond in 2012 | 21,395 ^{7/} | 4.50 (every six months) | Thirty/ 2042 |
| Total | 62,924 | | |

Note:

- 1/ PTT entered into a cross-currency swap from baht-denominated debentures worth THB 2,636 million to dollar-denominated ones worth USD 79.45 million at LIBOR + a fixed interest rate per year on the dollar-denominated principal.
- 2/ PTT entered into a cross-currency swap from baht-denominated debentures worth THB 3,000 million to dollar-denominated ones worth USD 99.67 million at a fixed interest rate of 1.375% per year for year 3 - 4, 2.64% per year for year 5 - 6, and 3.44% per year for the remaining years on the dollar-denominated principal.
- 3/ PTT entered into a cross-currency swap from baht-denominated debentures worth THB 9,000 million to dollar-denominated ones worth USD 285 million at LIBOR + a fixed interest rate per year on the dollar-denominated principal.
- 4/ PTT entered into a cross-currency swap from baht-denominated debentures worth THB 4,000 million to dollar-denominated ones worth USD 120.55 million at LIBOR + a fixed interest rate per year on the dollar-denominated principal.
- 5/ PTT entered into a cross-currency swap from the yen-denominated debentures worth yen 36,000 million to dollar-denominated ones worth USD 290.51 million and used financial derivatives to conduct a switchable swap and a cross-currency swap linked to LIBOR as follows: USD 96.84 million at a fixed rate of 4.975% per year, convertible by a derivative into LIBOR + 0.65% per year; another USD 96.84 million at LIBOR + 0.20% per year if LIBOR exceeds 4.25% per year, or 5.50% per year if LIBOR is up to 4.25% per year; and another USD 96.84 million at a fixed rate of 5.37% per year, convertible by a derivative to LIBOR + 0.20% per year.
- 6/ PTT entered into an interest rate swap from dollar-denominated debentures worth USD 500 million at a fixed rate to LIBOR + a fixed rate per year on the dollar-denominated principal. The interest rate swap will end on October 25, 2018.
- 7/ PTT entered into an interest rate swap from dollar-denominated debentures worth USD 500 million at a fixed rate to LIBOR + a fixed rate per year on the dollar-denominated principal. The interest rate swap will end on October 25, 2019.
- 8/ PTT entered into an interest rate swap from baht-denominated debentures worth THB 4,000 million at a fixed rate to THBFIX + a fixed rate per year on the baht-denominated principal. The interest rate swap will end on November 15, 2021.

PTT warrants

PTT has issued and offered 60,000,000 warrants to the President, the management, PTT employees, and employees of PTT Group companies seconded to PTT, consisting of two batches: PTT-W1 (40,000,000 units), offered in 2005 with the last exercise date on August 31, 2010, and PTT-W2 (20,000,000 units), offered in 2006 with the last exercise date on September 28, 2011. All warrants were exercised, and no new ones have been issued.

Bill of exchange

As of December 31, 2016, none was outstanding.

Shareholders

Below was PTT's shareholding structure as of September 5, 2016, the book closing date for the 2016 interim dividend payment.

| Item | Shares (in million) | Value (THB million) | % |
|--|------------------------|------------------------|--------|
| Registered Capital | 2,857.2 | 28,572 | - |
| Paid-up Capital | 2,856.3 | 28,563 | 99.967 |
| • Ministry of Finance | 1,459.9 | 14,599 | 51.111 |
| • Vayupak Fund 1 by MFC Asset Management Plc. | 211.9 | 2,119 | 7.420 |
| • Vayupak Fund 1 by Krung Thai Asset Management Plc. | 211.9 | 2,119 | 7.420 |
| • Institutional and Public Investors | 972.5 | 9,725 | 34.049 |
| Unpaid Capital | 0.9 | 9 | 0.033 |

PTT's top 14 shareholders (as of September 5, 2016):

| No. | Name | Shares | % |
|-------|--|---------------|--------|
| 1. | Ministry of Finance | 1,459,885,575 | 51.111 |
| 2. | Thai NVDR Co., Ltd. | 189,837,203 | 6.646 |
| 3. | Vayupak Fund 1 by MFC Asset Management Plc. | 165,000,000 | 5.777 |
| 4. | Vayupak Fund 1 by Krung Thai Asset Management Plc. | 165,000,000 | 5.777 |
| 5. | Chase Nominees Limited | 84,930,326 | 2.973 |
| 6. | Vayupak Fund 1 by MFC Asset Management Plc. | 46,927,800 | 1.643 |
| 7. | Vayupak Fund 1 by Krung Thai Asset Management Plc. | 46,927,800 | 1.643 |
| 8. | State Street Bank Europe Limited | 41,304,768 | 1.446 |
| 9. | Gic Private Limited | 33,421,100 | 1.170 |
| 10. | The Bank of New York Mellon | 30,137,700 | 1.055 |
| 11. | Social Security Office | 28,260,000 | 0.989 |
| 12. | East Fourteen Limited-Dimensional EMER MKTS Value FD | 21,629,500 | 0.757 |
| 13. | State Street Bank and Trust Company | 18,570,858 | 0.650 |
| 14. | People's Bank of China | 15,515,800 | 0.543 |
| Total | | 2,347,348,430 | 82.180 |

Note:

1. Number 5 was a nominee account. PTT's investigation at Thailand Securities Depository Co., Ltd. (TSD), found that the ultimate shareholder's name(s) could not be disclosed. However, the Ministry of Finance remained the sole majority shareholder on behalf of the state, which in part dictated PTT's management policy. The ministry nominated directors to the Board for approval by the shareholders. Other substantial shareholders, including Number 5, exercised no influence over PTT's management policy formulation, including director nomination.
2. Shareholders of Thai NVDR Co., Ltd., who held non-voting depositary receipts (NVDR) in Item 2, were ineligible for voting at shareholders' meetings except when exercising their voting rights on delisting the shares from SET.

Dividend Policy

PTT

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

Subsidiaries

Concerning subsidiaries' dividend policies, each may decide dividend payment by taking into account its remaining cash flow in relation to the investment capital. If the cash flow is substantial enough after legal provisions, the subsidiary may proceed with payment.

PTTEP Plc.

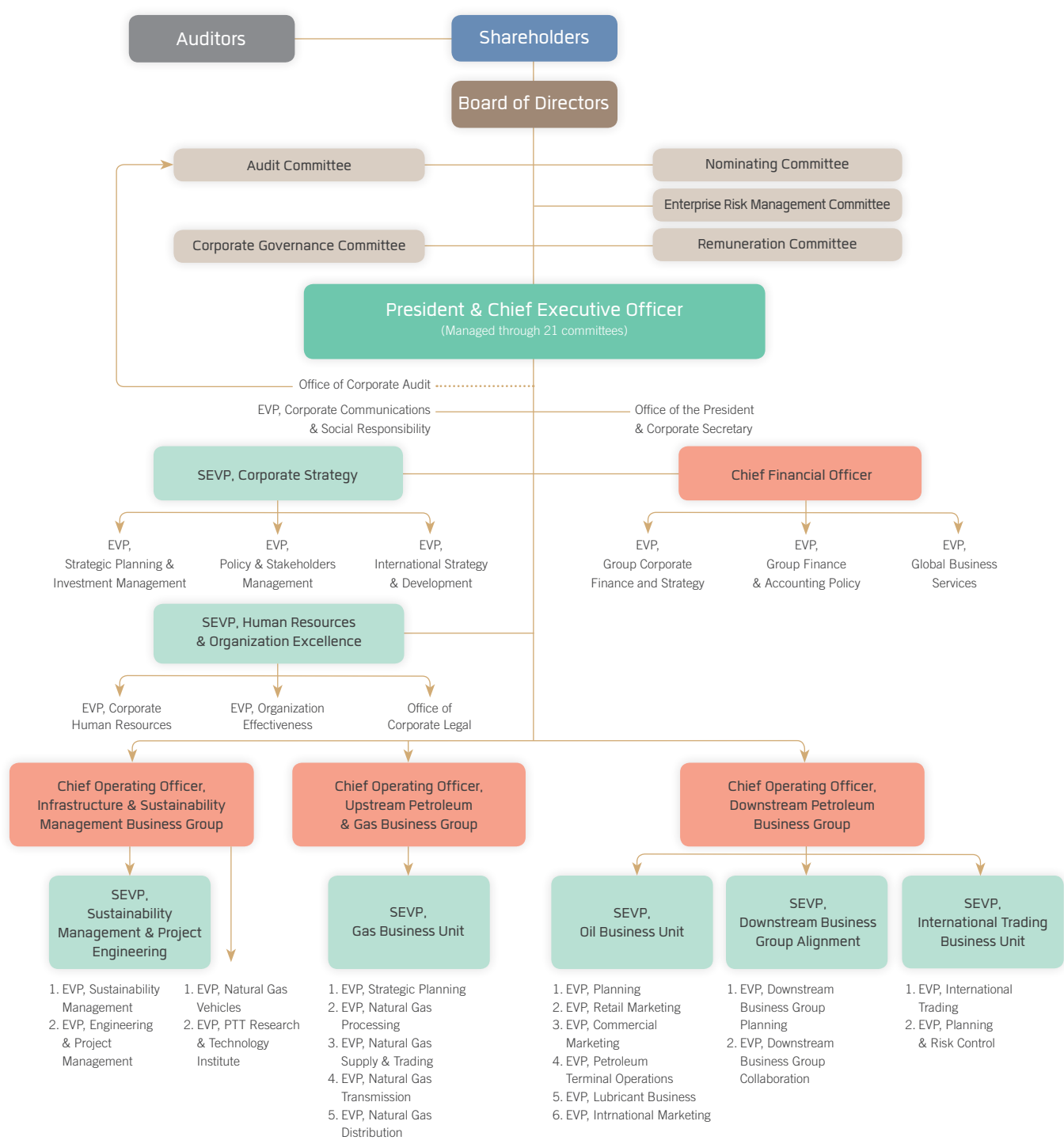
Barring other necessities, the Board's policy is to propose to the shareholders' meeting dividend payments at no less than 30% of PTTEP's net income after deducting its annual income tax each year, with occasional interim dividend payment. PTTEP allows no subsidiary to pay dividends.



Management Structure

Responsibility of the Board of Directors

PTT Public Company Limited's organizational structure as of January 1, 2017 comprises the Board of Directors and five specific committees appointed to screen matters of significance: Audit, Nominating, Remuneration, Corporate Governance, and Enterprise Risk Management Committees. The President & CEO is the top executive who manages PTT's business groups through the management's 21 committees.



Remark: EVP = Executive Vice President

Composition of the Board

Under PTT's Articles of Association, the Board of Directors consists of:

- 5 - 15 persons
- A minimum of 3 independent directors (PTT's CG requires that independent directors account for no less than a half of the Board.)
- At least one director must be knowledgeable in accounting and finance.

According to the certification of the Ministry of Commerce dated December 20, 2016, the present Board of PTT consists of 14 directors as follows:

- 13 non-executive directors (11 of whom are independent directors, which exceeds half of the Board)
- One executive director.

The current Board consists of:

| No. | Name | Position as of February 1, 2016 | Appointed Date |
|-----|------------------------------|---|--|
| 1. | Mr. Piyasvasti Amranand | Independent Director/ Chairman of the Board (Director from July 1, 2014, Chairman of the Board from July 4, 2014) | July 1, 2014 (First term) April 11, 2016 (Second term) |
| 2. | Mr. Kittipong Kittayarak | Independent Director/ Chairman of the Audit Committee | July 1, 2014 (First term) |
| 3. | AM Boonsuib Prasit | Independent Director/ Chairman of the Nominating Committee | September 4, 2014 (First term) |
| 4. | Mr. Prasert Bunsumpun | Independent Director/ Chairman of the Remuneration Committee/ Member of the Enterprise Risk Management Committee | April 11, 2013 (First term) April 11, 2016 (Second term) |
| 5. | Gen. Chatchalerm Chalermsook | Independent Director/ Chairman of the Corporate Governance Committee | September 4, 2014 (First term) April 11, 2016 (Second term) |
| 6. | Mr. Chanvit Amatamatucharti | Independent Director/ Chairman of the Enterprise Risk Management Committee/ Member of the Nominating Committee | September 4, 2014 (First term) April 9, 2015 (Second term) |
| 7. | Ms. Nuntawan Sakuntanaga | Independent Director/ Member of the Audit Committee | July 1, 2014 (First term) April 9, 2015 (Second term) |
| 8. | Mr. Vichai Assarasakorn | Independent Director/ Member of the Audit Committee | September 4, 2014 (First term) |
| 9. | Mr. Thon Thamrongnawasawat | Independent Director/ Member of the Nominating Committee/ Member of the Corporate Governance Committee | November 18, 2016 (First term) |
| 10. | Mr. Somsak Chotrattanasiri | Independent Director/ Member of the Remuneration Committee | April 22, 2015 (First term) |
| 11. | Mr. Somchai Sujjapongse | Director/ Member of the Remuneration Committee | November 1, 2015 (First term) April 11, 2016 (Second term) |
| 12. | Mr. Don Wasantapruek | Independent Director/ Member of the Corporate Governance Committee | July 26, 2014 (First term) April 11, 2016 (Second term) |
| 13. | Mr. Thammayot Srichuai | Director/ Member of the Enterprise Risk Management Committee | December 15, 2016 (First term) |
| 14. | Mr. Tevin Vongvanich | Director and Secretary of the Board (President & CEO) | September 10, 2015 (First term) |

Note:

For 2016, the Board appointed new directors to replace those that had either completed their terms or resigned as follows:

- No. 9, Mr. Thon Thamrongnawasawat replaced Mr. Watcharakiti Watcharothai, who resigned on July 25, 2016.
- No. 13, Mr. Thammayot Srichuai replaced Mr. Chavalit Pichalai, who resigned on October 28, 2016.
(Replacement for Mr. Areepong Bhoocha-oom is yet to be appointed)

Authority and Responsibilities of the Board of Directors

Authority of the Board

- The Board is authorized to supervise and manage PTT under applicable laws, objectives, articles of association, and resolutions of shareholders' meetings.
- The Board is to elect one director to serve as Chairman, if appropriate, and one Vice Chairman or more.
- The Board is to elect one director to serve as President & CEO and Secretary to the Board as appropriate.

Duties and Responsibilities of the Board

The Board is to:

- Carry out its duties under PTT's Articles of Association to ensure that the management complies with applicable laws, objectives, Articles of Association and resolutions of shareholders' meetings.
- Define PTT's vision, directions, strategies, policies and major plans and consider risks to ensure that the management can effectively put plans into practice.
- Endorse PTT's major strategies and policies, including objectives, financial targets and operating plans, and budget and monitor and ensure plan implementation and budgeting.
- Institute systems for corporate accounting, financial reporting and auditing, and institute efficient, effective internal control and internal audit systems.
- Supervise and remedy problems arising from conflicts of interest and connected transactions.
- Define comprehensive risk management guidelines and ensure an efficient risk management system or process.
- Ensure a suitable compensation system or mechanism for senior management to induce short-term and long-term motivation.

- Assess the performance of the President & CEO and decide suitable compensation.
- Ensure suitable communicating channels with each group of shareholders and stakeholders.
- Ensure accurate, clear, transparent, reliable, and high-quality disclosure of information.
- Show leadership and lead by examples.

The Board's additional authority includes:

- Approve long-term investment such as common stocks, preferred stocks, bonds, debentures and warrants or other financial instruments.
- Approve financial support including funds, common stocks, preferred stocks, loans or others as appropriate for PTT-invested companies.
- Approve debt financing and issuance of debt instruments such as debentures or bonds.
- Approve the annual budget.
- Approve procurement and other procurement-related matters if the limits exceed the CEO's approval authority.
- Consent to employ, appoint, transfer, or promote employees serving as senior executive vice presidents or equivalent upward.
- Appoint the Corporate Secretary.

Authorized Directors to Sign and Bind for PTT

According to PTT's Articles of Association, as of December 20, 2016, the directors whose signatures are authorized to sign to bind PTT, either (1) Mr. Tevin Vongvanich, President & CEO, to sign and affix PTT's seal, or (2) Two out of these three directors: Mr. Chanvit Amatamatucharti, AM Boonsuib Prasit or Mr. Don Wasantapruek jointly sign and affix PTT's seal.

Appointment and Dismissal of Directors

1. The Board consists of 5 - 15 persons elected at shareholders' meetings. It consists of a minimum of three independent directors and at least half of the directors are to reside in the Kingdom. At least one of them must be knowledgeable in accounting and finance. All directors must have qualifications as specified by law and PTT's Articles of Association. Since 2004, the Board has resolution that independent directors are to make up at least half of the Board, a requirement remains effective until present. As of January 1, 2017, it had 11 independent directors, all of whom resided in Thailand. Seven directors are experts in accounting and finance namely Mr. Somchai Sujjapongse, Mr. Somsak Chotrattanasiri, Ms. Nuntawan Sakuntanaga, Mr. Piyasvasti Amranand, Mr. Vichai Assarasakorn, Mr. Prasert Bunsumpun, and Mr. Tevin Vongvanich.

2. The shareholders' meetings are to elect qualified directors who have previously been nominated by the Nominating Committee under the following criteria:

- (1) Each shareholder has one vote per share held.
- (2) Each shareholder exercises all votes applicable under (1) in electing one or more persons as directors, provided that no vote is divisible.
- (3) Candidates with the highest number of votes are to be appointed directors up to the number required at a given meeting.
- (4) If candidates get equal votes, which makes the number of successful candidates exceed that of directors to be elected, the Chairman of that meeting will cast the decisive vote.

3. At every AGM, one-third of the directors, or if the number is not a multiple of three, then the number nearest to one-third, will retire from office. The directors retiring in the first and second year after PTT was listed are to be drawn by lots. For subsequent years, those with the longest terms are to retire.

4. If a post is vacated because of reasons other than term of completion, the Board may elect a suitably qualified person without the prohibitions, stipulated under PTT's Articles of Association, to fill the vacancy at the next Board meeting, except the remaining term of the vacated director is less than two months. The acting director must secure at least three-quarters of the votes by the remaining directors. He can also stay in office only for the remaining term of the former director.

5. Any director wishing to resign from office must tender his or her resignation letter to PTT. Such resignation will take effect from the date which the resignation letter reaches PTT.

6. In voting to remove any director from office before the expiry of his term, a three-quarter vote of eligible shareholders present at the meeting is required. The number of shares represented by the three-quarter votes account for at least half of the total number of shares represented by the eligible shareholders present at the meeting are also required.

Qualifications of Directors

Directors must be duly qualified without the prohibitions stated in the Public Limited Company Act and the Standard Qualifications for Directors and State Enterprise Officers Act (No. 6) of 2007, as well as relevant Cabinet resolutions including:

- Up to 65 years of age.
- A maximum of three state enterprise directorships, including appointments due to their positions and those due to acting assignments.
- Independent directors must be qualified under SET's announcement on the qualifications and scope of operation of audit committees.
- Never been sentenced to imprisonment, except for violations of the law by negligence or petty crimes.
- Not hold a political position, except for a director position required by law.
- Not belong to a political party or serve one.
- Never been expelled, dismissed, or made to leave a position because of malfeasance.
- Not hold shares in the state enterprise in question or a shareholder of a juristic person where that state enterprise holds shares. Exceptions apply to directors of state enterprises who are not government officials, government employees, or wage earners with positions or position salaries of centralized governments, provincial governments, local governments or other government units. Also, such state enterprise directors can hold no more than 0.5% of the paid-up capital of the state enterprise in which they serve as directors or juristic persons where the state enterprise in question holds shares.

- Not be position holders in the juristic person where the state enterprise in question holds shares. Exceptions apply when the board of directors of that state enterprise appoints them as directors or other positions in the juristic person.
- Not be directors, management team members or authorized managers or hold vested interests in a juristic person that serves as a concessionaire, a joint venture, or ones with vested interests in the affairs of the state enterprise in question. Exceptions apply for the board chairman, director, or manager assigned by that state enterprise.

Under the Corporate Governance and Code of Conduct Handbook (Version 3, 2016), on term holding, a director can hold office up to the following limits:

1. A maximum of three directorships in the State Enterprises/ juristic persons of which the state enterprise is a shareholder.
2. A maximum of five directorships in SET listed companies, provided that the directorships under (2) do not contradict (1). Such directorships in (1) and (2) must not exceed five directorships.
3. Independent directors and members of specific committee shall serve no more than nine consecutive years.

In compliance with the law, PTT ensures that at least one-third of the Board comes from the Director's Pool of the Ministry of Finance. On January 1, 2017, 10 out of 14 PTT directors' names were included in the Director's Pool.

The Board of Director Meetings

Board meetings are scheduled for the entire year. For 2016, the meetings were held monthly on the third Friday. Additional meetings may be called to discuss special items as necessary. The Office of the President and Corporate Secretary issues a meeting notice along with an agenda and relevant supplementary documents to each director seven days ahead of the meeting in order to allow the directors to have enough time to prepare themselves.

Since 2004, Board meetings have been made electronically. Meeting agenda items are put on a CD. Since 2013, the meetings have been conducted through

iPad application software for conveniences. It considerably reduces accompanying documents. This requirement also shortens the process, speeds up execution of the agenda, and eases decision-making of management with efficient information access.

Since 2015, the Board has set "sequel agenda" to report progresses of the previously proposed agenda items and to follow up the operations implemented based on the meeting's observation and comments, with the corporate strategies being applied. The agenda must be reported monthly in the meeting.

The Board has set a policy that meeting documents on particular agenda items will not be forwarded to directors with potential conflicts of interest on that matters. That directors will abstain from attending and voting during a portion of the meeting. The minutes of each meeting for each agenda item will be properly documented with all recommendations. After the adoption from the Board was given, meeting minutes will be filed for auditing purposes and reference by directors and related persons. By and large, each board meeting took about three hours.

In 2016, PTT held 13 Board meetings (12 regular and one special). One special meeting, held annually, aimed to determine/ review/ approve PTT Group's vision and missions, directions and operational strategies (five-year rolling). This year the Board and the management jointly reviewed and approved these matters as a framework and guideline for business units, subsidiaries, and associates to formulate the annual state enterprise plans and budgets between 2017 to 2021. In addition, one Board meeting was conducted in absence of the management on "Civil and Criminal Liabilities of the Directors and Executives: the Choices". The Board was acknowledged case studies of some companies. One independent directors' meeting was also held on "KPI for PTT Board of Directors for 2016." After the discussion, the independent directors therefore set KPIs to assess the Board performances to enhance directors' caliber and assess their efficiency and effectiveness, starting from 2016 onward. In addition, the Board annual assessment form. In every meeting, the Chairman allowed directors to freely and openly express their views.

Details of directors' meetings are summarized as follows:

Attendance Record of Board Meetings/ Five Specific Committee Meetings held in 2016

| Name | 1/2016 | 2/2016 | 3/2016 | 4/2016 | 5/2016 | 6/2016 | 7/2016 | Special 1/2016 | 8/2016 | 9/2016 | 10/2016 | 11/2016 | 12/2016 |
|---------------------------------|--|--|-----------|-----------|-----------|-----------|-----------|-------------------------------------|-----------|-----------|-----------|--|-----------|
| 1. Mr. Piyasvasti Amranand | / | / | / | / | / | / | / | / | / | / | / | / | / |
| 2. Mr. Kittipong Kittayarak | / | / | / | / | / | / | / | / | / | / | / | / | / |
| 3. AM Boonsuib Prasit | / | / | / | / | / | / | / | / | / | / | / | / | / |
| 4. Mr. Prasert Bunsumpun | / | / | / | / | / | / | / | / | / | / | / | / | / |
| 5. Gen. Chatchalerm Chalermsook | / | / | / | / | / | / | / | / | / | / | / | / | / |
| 6. Mr. Chanvit Amatamatuchart | / | / | / | / | / | / | / | / | / | / | / | / | / |
| 7. Ms. Nuntawan Sakuntanaga | / | / | / | X | / | / | / | / | X | / | / | / | / |
| 8. Mr. Vichai Assarasakorn | / | / | / | / | / | / | / | / | / | / | / | / | / |
| x Mr. Watcharakiti Watcharothai | / | / | / | / | / | / | / | Resigned effective on July 25, 2016 | | | | | |
| 9. Mr. Thon Thamrongnawasawat | Appointed effective on November 18, 2016 | | | | | | | | | | | | / |
| x Mr. Areepong Bhoocha-oom | / | Resigned effective on February 8, 2016 | | | | | | | | | | | |
| 10. Mr. Somsak Chotrattanasiri | / | / | / | / | / | / | / | / | X | / | / | / | / |
| 11. Mr. Somchai Sujjapongse | / | / | / | / | / | / | / | X | / | X | / | / | / |
| 12. Mr. Don Wasantapruet | / | / | / | / | / | / | / | / | / | / | / | / | / |
| x Mr. Chavalit Pichalai | / | / | / | / | / | / | / | / | / | / | / | Resigned effective on October 28, 2016 | |
| 13. Mr. Thammayot Srichuai | Appointed effective on December 15, 2016 | | | | | | | | | | | | / |
| 14. Mr. Tevin Vongvanich | / | / | / | / | / | / | / | / | / | / | / | / | / |
| Total Attendance | 15 | 14 | 14 | 13 | 14 | 14 | 14 | 12 | 11 | 12 | 13 | 12 | 14 |
| Total Directors | 15 | 14 | 14 | 14 | 14 | 14 | 14 | 13 | 13 | 13 | 13 | 12 | 14 |

Attendance Record of the Board and the Committee Meetings held in 2016

| Name | Meeting Attendance 2016 | | | | | | Appointment during the Year |
|--------------------------------|-------------------------------|----------------------------|--|--------------------------------|----------------------------------|--|---|
| | Board of Directors (Total 13) | Audit Committee (Total 15) | Corporate Governance Committee (Total 4) | Nominating Committee (Total 3) | Remuneration Committee (Total 1) | Enterprise Risk Management Committee (Total 5) | |
| 1. Mr. Piyasvasti Amranand | 13/13 | | | | | | - |
| 2. Mr. Kittipong Kittayarak | 13/13 | 14/15 | | | | | - |
| 3. AM Boonsuib Prasit | 13/13 | | | 3/3 | | | - |
| 4. Mr. Prasert Bunsumpun | 13/13 | | | | | 5/5 | - |
| 5. Gen. Chatchalem Chalersukh | 13/13 | | 4/4 | | | | - |
| 6. Mr. Chanvit Amatamatucharti | 13/13 | | | 3/3 | | 5/5 | - |
| 7. Ms. Nuntawan Sakuntanaga | 11/13 | 12/15 | | | | | - |
| 8. Mr. Vichai Assarasakorn | 13/13 | 14/15 | | | | | - |
| 9. Mr. Thon Thamrongnawasawat | 1/1 | | 0/1 | | | | November 18, 2016 (replacing Mr. Watcharakiti Watcharothai) |
| 10. Mr. Somsak Chotrattanasiri | 12/13 | | 3/3 | | | | - |
| 11. Mr. Somchai Sujjapongse | 11/13 | | | | 1/1 | | - |
| 12. Mr. Don Wasantapruet | 13/13 | | 4/4 | | | | - |
| 13. Mr. Thammayot Srichuai | 1/1 | | | | | | December 25, 2016 (replacing Mr. Chavalit Pichalai) |
| 14. Mr. Tevin Vongvanich | 13/13 | | | | | | - |

Attendance Record of Retired/ Resigned Directors held in 2016 (Total: 3 Directors)

| Name | Meeting Attendance 2016 | | | | | | Appointment during the Year |
|----------------------------------|-------------------------------|----------------------------|--|--------------------------------|----------------------------------|--|------------------------------|
| | Board of Directors (Total 13) | Audit Committee (Total 15) | Corporate Governance Committee (Total 4) | Nominating Committee (Total 3) | Remuneration Committee (Total 1) | Enterprise Risk Management Committee (Total 5) | |
| 1. Mr. Areepong Bhoocha-oom | 1/1 | | | | | | Resigned on February 8, 2016 |
| 2. Mr. Watcharakiti Watcharothai | 7/7 | | | 1/1 | 1/1 | | Resigned on July 25, 2016 |
| 3. Mr. Chavalit Pichalai | 11/11 | | | | | 4/4 | Resigned on October 28, 2016 |

Note:

A total of 13 Board meetings were held during the year: 12 regular and one special meetings.

* Reasons of meeting absence were because of prior overseas trips or official engagement. Absence letters were forwarded to the Chairman before the meeting.

Corporate Management (Management)

Management team members as of January 1, 2017, are as follows:

(PTT Organizational Chart is detailed under “Responsibility of the Board”)

| Name | Position |
|--|--|
| 1. Mr. Tevin Vongvanich | President & CEO |
| 2. Mr. Wirat Uanarumit ^{1/} | Chief Operating Officer, Upstream Petroleum & Gas Business Group |
| 3. Mr. Sarun Rungkasiri | Chief Operating Officer, Downstream Petroleum Business Group |
| 4. Mr. Chavalit Punthong | Chief Operating Officer, Infrastructure and Sustainability Management Business Group |
| 5. Ms. Nitima Thepvanangkul ^{2/} | Chief Financial Officer |
| 6. Mr. Krit Imsang ^{3/} | Senior Executive Vice President, Human Resources & Organization Excellence |
| 7. Ms. Sriwan Eamrungrroj | Senior Executive Vice President, Corporate Strategy |
| 8. Mr. Noppadol Pinsupa | Senior Executive Vice President, Gas Business Unit |
| 9. Mr. Auttapol Rerkpiboon | Senior Executive Vice President, Oil Business Unit |
| 10. Mr. Chansin Treenuchagorn | Senior Executive Vice President, Downstream Business Group Alignment |
| 11. Ms. Boobpha Amornkiatkajorn | Senior Executive Vice President, International Trading Business Unit |
| 12. Mr. Wittawat Svasti-xuto ^{4/} | Senior Executive Vice President, Sustainability Management and Project Engineering |
| 13. Mr. Sopot Laosuarpha ^{5/} | Senior Executive Vice President and Taking a Position of Executive Vice President, Office of Corporate Legal |
| 14. Ms. Nitaya Direksathapon ^{6/} | Senior Executive Vice President and Taking a Position of Executive Vice President, Office of Corporate Audit |
| 15. Mr. Somporn Vongvuthipornchai | Senior Executive Vice President, working on a secondment as President and Chief Executive Officer, PTT Exploration and Production Public Company Limited |
| 16. Mr. Atikom Terbsiri | Senior Executive Vice President, working on a secondment as President and Chief Executive Officer, Thai Oil Public Company Limited |
| 17. Mr. Supattanapong Punmeechaow | Senior Executive Vice President, working on a secondment as President and Chief Executive Officer, PTT Global Chemical Public Company Limited |

| Name | Position |
|---|--|
| 18. Mr. Sukrit Surabotsopon | Senior Executive Vice President, working on a seconment as President, IRPC Public Company Limited |
| 19. Mr. Sumrit Samneing ^{7/} | Executive Vice President, Group Corporate Finance and Strategy |
| 20. Ms. Wilaiwan Kanjanakanti ^{8/} | Executive Vice President, Group Finance and Accounting Policy |
| 21. Mr. Chienvit Udomwatwong ^{9/} | Executive Vice President, Global Business Services |

Note:
No. 1 - 5 are PTT Management under SEC's announcement.
1/ Appointed on October 1, 2016, replacing Mr. Pitipan Tepatimargorn, who retired.
2/ Appointed on October 1, 2016, replacing Mr. Wirat Uanarumit, who was appointed Chief Operating Officer, Upstream Petroleum & Gas Business Group.
3/ Appointed on February 1, 2016, replacing Mr. Pitipan Tepatimargorn, former Chief Operating Officer, Upstream Petroleum & Gas Business Group, and Acting Senior Executive Vice President, Human Resources & Organization Excellence, who retired.
4/ Appointed on January 1, 2017.
5/ Appointed on August 1, 2016.
6/ Appointed on August 1, 2016.
7/ Appointed on January 1, 2016, replacing Ms. Pannalin Mahawongtikul, who was seconded to PTT Exploration and Production Plc. The title was changed after internal restructuring on June 1, 2016.
8/ Appointed on November 1, 2016, replacing Ms. Nitima Thepvanangkul, who was appointed Chief Financial Officer.
9/ Appointed on October 1, 2016, replacing Ms. Oravan Leelarasamee, who retired.

Duties and Responsibilities of the President & CEO

Under PTT's Articles of Association, the President is authorized and responsible on managing Board-assigned PTT's overall business. The business is to be managed strictly, prudently, and with integrity under the Board-approved plans or budget. It must be in the best interests of PTT and its shareholders.

The President's authority and responsibilities include:

- Operating or managing day-to-day business or both.
- Hiring, appointing, removing, transferring, promoting, demoting, reducing the salary or wages of, taking disciplinary action against, and dismissing any officers and employees under the Board's regulations.

- Ensuring the preparation and submission of business policies, including operating plans and budget estimates, for the Board's approval, and reporting performance against them to the Board every three months.
- Ensuring an implementation of the Board-approved policies, plans, and budget.

The Board authorized the President to manage PTT businesses under the following scopes of authority:

- Manage overall business under all objectives, Articles of Association, policies, rules and regulations, specifications, directives, and resolutions of the Board or shareholders' meetings, or both.
- Order, contact, command, implement, and sign juristic acts, agreements, orders, announcements, or correspondence with government agencies, state enterprises, or other parties and engage in any essential and suitable action to facilitate this duty.

- Command all employees, including hiring, appointing, removing, promoting, demoting, cutting the salary or wages of, taking disciplinary action against or dismissing any employees under the rules, regulations, and directives of the Board. For employees serving as advisers, senior executive vice presidents or equivalent upward, prior approval of the Board is required. The President is also authorized to specify employment conditions for employees and issue rules for PTT’s operations, provided that they do not conflict with the rules, regulations, and directives of the Board.

- Assign the power of attorney and/or delegate specific tasks to other persons, provided that the action complies with the document concerning the power of attorney or rules, regulations, or directives of the Board or PTT or both.

The authority and duties of the President stated above are invalid in case of conflicts of interest with PTT in any form resulting from the President’s exercise of the authority. This year, no such cases have arisen.

The Management Committee

The PTT Management Committee (PTTMC) was appointed on October 1, 2001 with the mandate of operating PTT’s business. As of January 1, 2017, the committee consists of 14 members as follows:

| Name | Position |
|--|----------------------|
| 1. President & CEO | Chairman |
| 2. Chief Operating Officer, Upstream Petroleum & Gas Business Group | Member |
| 3. Chief Operating Officer, Downstream Petroleum Business Group | Member |
| 4. Chief Operating Officer, Infrastructure and Sustainability Management Business Group | Member |
| 5. Chief Financial Officer | Member |
| 6. Senior Executive Vice President, Human Resources & Organization Excellence | Member |
| 7. Senior Executive Vice President, Gas Business Unit | Member |
| 8. Senior Executive Vice President, Oil Business Unit | Member |
| 9. Senior Executive Vice President, Downstream Business Group Alignment | Member |
| 10. Senior Executive Vice President, International Trading Business Unit | Member |
| 11. Senior Executive Vice President, Sustainability Management and Project Engineering | Member |
| 12. Senior Executive Vice President and acting Executive Vice President, Office of Corporate Legal | Member |
| 13. Senior Executive Vice President and acting Executive Vice President, Office of Corporate Audit | Member |
| 14. Senior Executive Vice President, Corporate Strategy | Member and Secretary |

The Vice President, Office of the President & Corporate Secretary, served as Assistant Secretary.

The Management Committee meets at least once a month. This year, there were 43 meetings (37 regular and 6 special meetings).

Duties and Responsibilities

Provide advice and recommendations to the President & CEO on significant issues regarding corporate strategy and business directions, long-term planning, business performance, investment plans, budgets, allocation of resources to PTT and its affiliates, and ensure uniformity of PTT's operations.

PTTMC also provides consultation and recommendations to the President & CEO and promotes operation in the following matters:

- Sets the visions and major responsibilities for PTT Group.
- Establishes directions, strategies, and business targets for the group along with performance targets of business units and the group as a whole.
- Screens the group's capital allocation structure (budget and resources) to support future investments and operations of the group.
- Screens investment management of PTT and PTT Group (PTT Group's Portfolio Management).
- Screens and monitors PTT's extended international investment.
- Establishes a policy on human resource management, prepares and develops the group's management of level 11 up in a systematic, professional way to be ready for its future missions in line with the Leadership Affiliation and Alignment Program.
- Screens and provides opinions and recommendations on the establishment of standards/ mechanisms for the systems of business administration, human resources and information as well as the organizational structure of PTT and its affiliates in order to be a corporate of sustainability excellence.
- Considers, screens, defines policies and principles for the PTT Way of Conduct, and ensure that it is carried out in the desired directions.
- Ranks significant matters about the allocation of human and financial resources of PTT and its affiliates.
- Jointly resolves significant conflicts between PTT's upstream and downstream petroleum businesses.
- Follows up the progress and assesses the performance of the group against KPIs (PAs & KPIs).
- Scrutinizes risk management in business operations of the group.
- Screens meeting agendas before presenting to the Board.
- Ranks Board decisions to ensure effective implementation.
- Appoints committees or working groups or both, to assist the Board's tasks.
- Performs other work as may be assigned by the President & CEO.

To efficiently manage PTT Group to drive strategies and operations of companies to achieve their goals, PTT has divided its committees into three groups:

1. Strategy Committees:

- 1.1 PTT Group Management Committee: PTTGMC
- 1.2 PTT Management Committee: PTTMC
(as mentioned above).

2. Coordination Committees:

- 2.1 Upstream & Gas Business Group Alignment & Coordination Management Committee (UAC)
- 2.2 Downstream Business Group Alignment & Coordination Committee (DAC)
- 2.3 Infrastructure & Sustainability Management Business Group Alignment & Coordination Committee (IAC)
- 2.4 Technology Alignment Committee (TAC)
- 2.5 Sustainability Alignment Committee (SAC)
- 2.6 Gas Business Strategic Alignment Committee (GBSC)
- 2.7 Oil Business Strategic Alignment Committee (OBSC)
- 2.8 Petrochemicals & Refining Business Strategic Alignment Committee (PRSC)
- 2.9 Trading Business Strategic Alignment Committee (TBSC)
- 2.10 Trading Risk Management Committee (TRMC).

3. Support Committees:

- 3.1 Corporate Plan and Risk Management Committee (CPRC)
- 3.2 Human Resources Group Alignment & Coordination Management Committee (HRAC)
- 3.3 Finance & Accounting Group Alignment & Coordination Management Committee (FAAC)
- 3.4 PTT Group KM Committee
- 3.5 PTT Group Internal Audit Management Committee
- 3.6 PTT Group ICT Committee
- 3.7 PTT Group Policy & Strategic Sourcing Committee
- 3.8 PTT Group Quality, Security, Safety, Health, and Environment Management Committee (QSHEGMC)
- 3.9 PTT Group Brand Equity Optimization Committee.

Corporate Secretary

To comply with the CG principles for listed companies under the category of “directors’ responsibility” and the terms of the Securities and Exchange Act, the Board has appointed a Corporate Secretary to provide the Board with legal advice and remind them of assorted regulations that they need to know and comply with; hold meetings; supervise Board activities to enable them to perform efficiently and effectively for the maximum benefit to PTT; prepare and maintain critical documents, including directors’ registration, Board meeting notices and minutes, annual reports; issue shareholders’ meeting notices and minutes, and keep reports on connected transactions reported by directors or the management.

The position of Corporate Secretary was established in 2008. Currently, Ms. Wantanee Jaruke, Vice President, Office of the President and Corporate Secretary, serves as the Corporate Secretary, effective from December 1, 2013.

Corporate Secretary:



Ms. Wantanee Jaruke

Corporate Secretary
(Since December 1, 2013)

Age: 56

% Shares possession held: 0.000780

Education:

- Bachelor of Arts (German), Chiang Mai University
- Master of Business Administration, Kasetsart University

Company Secretary Training Record:

- Company Secretary Program (CSP 2/2002)
 - Effective Minutes-Taking (EMT 1/2006)
 - Board Reporting Program (BRP 9/2012)
 - Company Reporting Program (CRP 4/2012)
 - Anti-Corruption the Practical Guide (ACPG 11/2014)
 - Corporate Governance for Executives (CGE 1/2014)
 - Director Certification Program (DCP 215/2016)
 - Ethical Leadership Program (ELP), The Institute of Directors Association (IOD)
- TLCA: Executive Development Program (EDP 7), Thai Listed Companies Association
- Company Secretaries, Trueeventus, the Philippines (2013)
- Leadership Development Program, Centre for Creative Leadership, Singapore (2015)
- Professional Exchange Program, Hong Kong Institute of Chartered Secretaries, Hong Kong (2016)

Professional Experience:

2002 - 2005 : Expert, Office of the President and Corporate Secretary, PTT
 2006 - 2013 : Team Leader, Office of the President and Corporate Secretary, PTT
 2013 - Present : Vice President, Office of the President and Corporate Secretary, PTT

Related Important Positions Held:

- None

Extra Activity:

- Committee of Thai Company Secretary Club, Thai Listed Companies Association
- Executive Committee of the Chulalongkorn University Preparatory School Alumni Association (CUPSAA)

Relationship with Executives:

- None

Remuneration of Directors and the Management

With the validation of the Remuneration Committee, PTT fairly and sensibly specifies the compensation for directors, taking into account each director's responsibility, its financial performance, and compatibility with industry peers. Compensation consists of meeting allowances and bonuses. Directors appointed to the committees receive additional allowances for additional responsibilities. Shareholder-approved directors' compensation rates are as follows:

Directors' Compensation

Board's Compensation

The following compensation structure for the Board was approved at the 2016 AGM on April 11, 2016:

1. Meeting Allowances

1.1 Board Meeting compensation consisted of:

- Retainer fee of THB 30,000 per month (same rate as last year)
- Meeting allowance of THB 50,000 for each meeting (same rate as last year) for those in attendance only.

Payment of meeting allowances must not exceed 15 times per year.

1.2 Compensation for other Committee meetings (same rate as last year) consisted of:

1.2.1 Audit Committee

- Monthly allowance of THB 15,000 each
- Meeting allowance of THB 15,000 for each meeting for those in attendance only, whereas the Secretary received a monthly allowance of THB 7,500.
- Meeting allowance of THB 24,000 for each meeting for those in attendance only.

1.2.2 Compensation for other committees, namely **the Nominating, Remuneration, Corporate Governance, Enterprise Risk Management Committees**, and other sub-committees to be appointed by the Board as necessary, consisted of a meeting allowance of THB 24,000 for each meeting for those in attendance only.

1.3 Compensation for the Chairman of each committee was 25% higher than for other members.

Directors' Bonuses in 2016 (same rate as last year)

Bonus payouts for each director, at 0.05% of the net profit of 2016, corresponded to PTT's performance and net profit, maximum limit of THB 3 million per person (same rate as last year). Bonuses were prorated to each director's term, with the Chairman receiving 25% more than individual directors.

Remuneration for Directors in 2016

Unit: THB

| No. | Name | Days of Service | 2016 Bonus ^{1/} | Meeting Allowance (Inclusive of Monthly Allowance) | Committee Meeting Allowance | Total Allowance | Total Remuneration |
|--------------|------------------------------------|-----------------|--------------------------|--|-----------------------------|----------------------|----------------------|
| 1. | Mr. Piyasvasti Amranand | 366 | 3,750,000.00 | 1,262,500.00 | - | 1,262,500.00 | 5,012,500.00 |
| 2. | Mr. Kittipong Kittayarak | 366 | 3,000,000.00 | 1,235,000.00 | 262,500.00 | 1,497,500.00 | 4,497,500.00 |
| 3. | AM Boonsuib Prasit | 366 | 3,000,000.00 | 1,010,000.00 | 72,000.00 | 1,082,000.00 | 4,082,000.00 |
| 4. | Mr. Prasert Bunsumpun | 366 | 3,000,000.00 | 1,010,000.00 | 120,000.00 | 1,130,000.00 | 4,130,000.00 |
| 5. | Gen. Chatchalerm Chalermsook | 366 | 3,000,000.00 | 1,010,000.00 | 120,000.00 | 1,130,000.00 | 4,130,000.00 |
| 6. | Mr. Chanvit Amatamatucharti | 366 | 3,000,000.00 | 1,010,000.00 | 222,000.00 | 1,232,000.00 | 4,232,000.00 |
| 7. | Ms. Nuntawan Sakuntanaga | 366 | 3,000,000.00 | 1,090,000.00 | 180,000.00 | 1,270,000.00 | 4,270,000.00 |
| 8. | Mr. Vichai Assarasakorn | 366 | 3,000,000.00 | 1,190,000.00 | 210,000.00 | 1,400,000.00 | 4,400,000.00 |
| 9. | Mr. Thon Thamrongnawasawat | 44 | 360,655.74 | 93,000.00 | - | 93,000.00 | 453,655.74 |
| 10. | Mr. Somsak Chottrattanasiri | 366 | 3,000,000.00 | 960,000.00 | 72,000.00 | 1,032,000.00 | 4,032,000.00 |
| 11. | Mr. Somchai Sujjapongse | 366 | 3,000,000.00 | 910,000.00 | 24,000.00 | 934,000.00 | 3,934,000.00 |
| 12. | Mr. Don Wasantapruet | 366 | 3,000,000.00 | 1,010,000.00 | 96,000.00 | 1,106,000.00 | 4,106,000.00 |
| 13. | Mr. Thammayot Srichuai | 17 | 139,344.26 | 66,451.61 | - | 66,451.61 | 205,795.87 |
| 14. | Mr. Tevin Vongvanich ^{2/} | 366 | - | - | - | - | - |
| Total | | | 34,250,000.00 | 11,856,951.61 | 1,378,500.00 | 13,235,451.61 | 47,485,451.61 |

Note:

1/ Includes the directors' bonuses paid in the later installment of 2016

2/ Mr. Tevin returned all of his remuneration to PTT in compliance with the employment agreement of CEO.

In addition, the President & CEO returned to PTT all the remuneration earned in 2016 when serving as Chairman and/or director in two companies (or both) in PTT Group: from PTT Exploration and Production Company Limited for THB 1,040,000, and IRPC Public Company Limited for THB 1,889,383, in compliance with the employment agreement of CEO.

No. 9, Mr. Thon Thamrongnawasawat was appointed director on November 18, 2016.

No. 13, Mr. Thammayot Srichuai was appointed director on December 15, 2016.

A vehicle was provided to the Chairman to facilitate his duties only.

Retired and Resigned Directors (2016)

Unit: THB

| No. | Name | Days of Service | 2016 Bonus ^{1/} | Meeting Allowance (Inclusive of Monthly Allowance) | Committee Meeting Allowance | Total Allowance | Total Remuneration |
|--------------|-------------------------------|-----------------|--------------------------|--|-----------------------------|---------------------|---------------------|
| 1. | Mr. Areepong Bhoocha-oom | 38 | 311,475.41 | 87,241.38 | - | 87,241.38 | 398,716.79 |
| 2. | Mr. Watcharakiti Watcharothai | 206 | 1,688,524.59 | 554,193.55 | 54,000.00 | 608,193.55 | 2,296,718.14 |
| 3. | Mr. Chavalit Pichalai | 301 | 2,467,213.11 | 846,129.03 | 96,000.00 | 942,129.03 | 3,409,342.14 |
| Total | | | 4,467,213.11 | 1,487,563.96 | 150,000.00 | 1,637,563.96 | 6,104,777.07 |

Note:

1/ Includes the directors' bonuses paid in the later installment of 2016

No. 1 Mr. Areepong Bhoocha-oom was appointed director on July 7, 2014, and resigned on February 8, 2016.

No. 2 Mr. Watcharakiti Watcharothai was appointed director on April 10, 2009, and resigned on July 25, 2016.

No. 3 Mr. Chavalit Pichalai was appointed director on August 18, 2015, and resigned on October 28, 2016.

Directors' Remuneration Profile of 2013 – 2016

Unit: THB

| Remuneration | 2013 | | 2014 | | 2015 | | 2016 * | |
|-------------------|--------|----------------------|--------|----------------------|--------|----------------------|--------|----------------------|
| | Person | THB | Person | THB | Person | THB | Person | THB |
| Meeting Allowance | 15 | 16,324,759.22 | 14 | 17,632,709.70 | 15 | 18,232,411.29 | 15 | 14,873,015.57 |
| Bonuses | 15 | 45,129,452.06 | 14 | 27,680,910.81 | 15 | 9,664,610.82 | 15 | 38,717,213.11 |
| Total | | 61,454,211.28 | | 45,313,620.51 | | 27,897,022.11 | | 53,590,228.68 |

Note:

* Includes the directors' bonuses paid in the later installment of 2016

Remuneration to Independent Directors Serving as Independent Directors of Subsidiaries* in 2016

Remuneration to those serving as independent directors of PTT Global Chemicals Plc. (PTTGC):

Unit: THB

| Name | Director's Remuneration | | Committee Meeting Allowance | Total Remuneration |
|-----------------------|-------------------------|---|-----------------------------|--------------------|
| | Bonus | Meeting Allowance and Monthly Allowance | | |
| Mr. Prasert Bunsumpun | 4,216,531.00 | 1,240,000.00 | - | 5,456,531.00 |
| Mr. Don Wasantapruerk | 563,745.00 | 960,000.00 | 160,000.00 | 1,683,745.00 |

Note:

* According to the International Financial Reporting Standards

Management’s Remuneration

Management’s Remuneration

The Board defined the policy and criteria regarding management’s remuneration in correspondent to PTT performance under the Performance Agreement (PA), the assessment system of state enterprises stipulated by the Ministry of Finance. The President & CEO, all executives and management jointly defined KPIs as operation directions. KPIs are used in assessing the President & CEO, executives and management. The Remuneration Committee decided the remuneration reflected performance management, taking into account practices and standards of leading companies with similar businesses, and submitted the principles and proposed pay to the Board for approval.

Under SEC’s definition, PTT’s “management” included the President & CEO; Chief Operating Officer, Upstream Petroleum & Gas Business Group; Chief Operating Officer, Downstream Petroleum Business Group; Chief Operating Officer, Infrastructure and Sustainability Management Business Group; and Chief Financial Officer. The compensation paid to the management (excluded those seconded to PTT affiliates and those from PTT affiliates seconded to PTT) are detailed below:

Total Remuneration Paid to Top Management in 2016

Unit: THB

| Remuneration | 2016 | | | | |
|--------------|-----------------|---------------------------------|------------|---------------------------------|------------|
| | President & CEO | Management (under SEC criteria) | | Total | |
| | | Person | THB | Persons (incl. President & CEO) | THB |
| Salary | 30,600,000 | 4 | 26,014,080 | 5 | 56,614,080 |
| Bonus | 9,610,000 | 4 | 13,007,040 | 5 | 22,617,040 |
| Total | 40,210,000 | | 39,021,120 | | 79,231,120 |

Note:
The salary of Mr. Tevin Vongvanich, President & CEO, includes an allowance for his additional tasks, namely holding a position of Chairman of the Board and/or Director of PTT’s subsidiaries. He has already **returned the remuneration earned as Chairman of the Board and/or Director of PTT, PTT Exploration and Production Public Company Limited and IRPC Public Co., Ltd. to PTT** in compliance with the employment agreement of CEO.

Total Remuneration Paid to the Management from 2013 to 2016

Unit: THB

| Remuneration | 2013 | | 2014 | | 2015 | | 2016 | |
|--------------|--------|----------------------|--------|----------------------|--------|----------------------|--------|----------------------|
| | Person | THB | Person | THB | Person | THB | Person | THB |
| Salary | 10 | 69,023,520.00 | 10/5 | 56,454,960.00 | 5 | 51,686,336.00 | 5 | 56,614,080.00 |
| Bonus | 10 | 30,772,449.50 | 10/5 | 34,428,132.00 | 5 | 17,158,259.00 | 5 | 22,617,040.00 |
| Total | | 99,795,969.50 | | 90,883,092.00 | | 68,844,595.00 | | 79,231,120.00 |

Provident Fund Contribution to the Management from 2013 to 2016

Unit: THB

| Remuneration | 2013 | | 2014 | | 2015 | | 2016 | |
|----------------|--------|--------------|--------|--------------|--------|--------------|--------|--------------|
| | Person | THB | Person | THB | Person | THB | Person | THB |
| Provident Fund | 9 | 6,652,852.00 | 9/4 | 4,937,228.80 | 4 | 5,086,634.00 | 4 | 3,518,977.20 |

Additional Information on the Board and the management is as follows;

Records have shown no violation of the law within the past 10 years regarding:

- 1) Being sentenced for criminal charges, except for violations of traffic law, petty charges, or similar charges.
- 2) Being sentenced to bankruptcy or having assets controlled.
- 3) Serving as an executive or an authority in a company or partnership sentenced to bankruptcy or whose assets are controlled.

Employees

All employees are pivotal to its operations and that their quality is the key to its business success. PTT is committed to the development of HR management systems compatible with technological advancement and international standards. It not only promotes both conscientious merit and business competence for employees, but also encourages them to actively take part in public services. PTT focuses on its development toward a sustainability organization to elevate competitiveness reflected through employees, respond to changes in the organization, and enhance national energy security.

Headcount and Compensation

PTT employee headcount (including those seconded to PTT's affiliates) in 2016 stood at 4,616. PTT has continued to set its manpower plan in line with its operations under uncertain economic conditions. The focus is on allocating resources where significant value supplementation is likely or where continuing investment is needed.

The business-group headcounts from 2013 to 2016 are as follows:

Unit: Person

| Business Unit | 2013 | | 2014 | | 2015 | | 2016 | |
|---|---------------------|-------------------|---------------------|-------------------|---------------------|-------------------|---------------------|-------------------|
| | PTT | PTT Group | PTT | PTT Group | PTT | PTT Group | PTT | PTT Group |
| 1. Gas | 1,424 | - | 1,323 | - | 1,289 | - | 1,283 | - |
| 2. Oil | 1,496 | - | 1,409 | - | 1,465 | - | 1,440 | - |
| 3. Petrochemicals and Refining | 95 | - | 93 | - | 83 | - | 105 | - |
| 4. Infrastructure Business Group | 201 | | 342 | | 492 | | - | |
| 5. Support staff/ secondees to PTT affiliates | 1,098 ^{1/} | 282 ^{2/} | 1,218 ^{1/} | 272 ^{2/} | 1,203 ^{1/} | 278 ^{2/} | 1,042 ^{1/} | 254 ^{2/} |
| 6. Subsidiaries and jointly-controlled entities | - | 24,969 | - | 25,714 | - | 24,512 | - | 24,680 |
| Total | 4,113 | 25,251 | 4,244 | 25,986 | 4,382 | 24,790 | 4,362 | 24,934 |

Notes:

1/ Excludes PTT secondees

2/ PTT secondees

Remuneration for Personnel (excluding the President & CEO and the management) from 2013 to 2016

Unit: THB

| Remuneration | 2013 | 2014 | 2015 | 2016 |
|------------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Salary | 3,549,202,456.00 | 3,729,946,652.00 | 4,000,980,185.00 | 4,080,267,146.00 |
| Bonus | 1,756,840,371.00 | 1,869,490,435.00 | 1,647,437,327.00 | 2,136,905,643.00 |
| Provident Fund Contributions | 415,284,584.00 | 434,836,637.00 | 468,316,181.00 | 481,014,787.00 |
| Others (if applicable) | 2,364,683,270.00 | 2,750,517,905.00 | 2,676,017,663.00 | 2,953,091,552.00 |
| Total | 8,086,010,681.00 | 8,784,791,629.00 | 8,792,751,356.00 | 9,651,279,128.00 |

Other Remuneration

PTT has instituted employee welfare and other compensation programs apart from salary, bonus, and provident fund. It is contributed for the management and all employees in keeping with economic conditions, the cost of living, and other standards for peer companies and with PTT's current and future performance through constant revision and improvement. Last year, PTT revised medical welfare for employees and their families. This year, tuition fees for PTT employees' families were reviewed. The starting salaries of new recruits were revised.

HR System Development and Improvement

To become a sustainability organization, PTT continues to develop and improve its processes and mechanisms for HR management to ensure higher efficiency and realize the full potential of its employees which will lead PTT toward its goals. PTT employees are able to fully demonstrate their competence, advance in their careers, and continue to grow with PTT.

PTT has focused on participation across the board in designing business plans to suit its direction and targets, since this will efficiently align all components of PTT. To this end, it has instituted a process in which the senior management of PTT and its affiliates along with support staff jointly define a vision and directions before propagating the agreed items for other units to apply in defining business strategies and business plans and come up with budget plans in broad alignment. All employees defined individual objectives and KPIs cascaded through the ranks from the corporate, department, to the individual levels. Such objectives and indicators defined by employees then serve as a framework for performance and performance assessment standards to reflect individual performance.

PTT applies Career Management guidelines to prepare and promote the management and all employees with skills and knowledge to fit the PTT-designed model in coping with its missions and creating value for the organization. PTT has applied this model in developing all its employees for greater efficiency by dividing employees into two professional groups (senior management and staff) with clear, efficient interconnected systems for recruitment, assessment, and individual development planning in place.

- **Senior management** (equivalent to vice presidents upward) undergo Group Leader Development which sustains the needs of high-level executives in both quantity and quality. Management of this group is

supervised by a panel of CEOs in PTT Group named as “PTT Group Management Committee (PTTGMC),” responsible for defining directions and policies for development plans for senior management. Another team called “Human Resources Group Alignment & Coordination Management Committee (HRAC),” provides counseling and recommendations to the Senior Executive Vice President, Human Resources & Organization Excellence, to enhance decision-making on key coordination issues regarding to human resource development strategies and directions of the PTT Group to align with those of PTT.

- **Employee** (division manager or equivalent downward): This internal management is specific to PTT or a PTT Group company in developing employees to suit operational needs. A Corporate Human Resources Committee (HRC) was established to promote and monitor career development planning to ensure goal achievement. A Career Counseling Teams (CCT) for 17 professional groups takes charge of defining and developing individuals, providing counseling and guidance, and monitoring and following up implementation. An individual development plan is a tool for employees to set their goals and develop career paths in order to add value to their work in line with PTT’s directions and goals. Such employee development can be undertaken through proper training via competency and success profiles or via job rotation in line with their career paths. This will enable all employees to develop skills in their new positions as do suitable appointments and promotions in line with their responsibilities and potential. Finally, employee development to suit their competencies and needs of both employee and the organization would in time enable PTT to achieve its goals.

Apart from implementing HR development under the above-mentioned guidelines, PTT takes the environment seriously and held environmental courses for related employees and interested parties to enhance their awareness. In 2016, the following courses were conducted:

| No. | Course name | Start date | End date | Location | Attendees |
|-------|---|------------|------------|-------------|-----------|
| 1. | Basic Safety, Occupational Health and Environment Management | 13/6/2016 | 18/11/2016 | Head Office | 64 |
| 2. | Workplace Security, Safety, Occupational Health Envionment (SSHE), Training 1 | 1/1/2016 | 31/12/2016 | Head Office | 189 |
| Total | | | | | 253 |

In 2016, PTT held the fourth “Young People to Globalization (YP2G)” program to select qualified personnel for overseas posting in line with PTT’s strategies. These personnel will receive additional training to prepare and develop themselves for the work. They will be assigned the tasks that related to PTT’s international business development or international related businesses. This will enable them to learn and accrue experience in business acumen through on-the-job training (OJT).

Valuing career and competency management, PTT not only prepared and reviewed the success profile and career path of each position, but also assessed success profiles for alignment with the performance cycle. The employees were urged to discuss their responsibilities with their supervisors (two-way communication) at the beginning of the year. These responsibilities were monitored and evaluated at mid-year and the end of the year to monitor or formulate individual development plans (IDPs), or both, for the staff.

PTT Group values and supports employees’ learning through “PTT Leadership and Learning Institute (PLLI), whose vision is to be the top energy leadership development institution in ASEAN in 2020, with goals in establishing standards in capacity-building of employees through the management and implementation of compulsory courses for all PTT staff in the same direction.

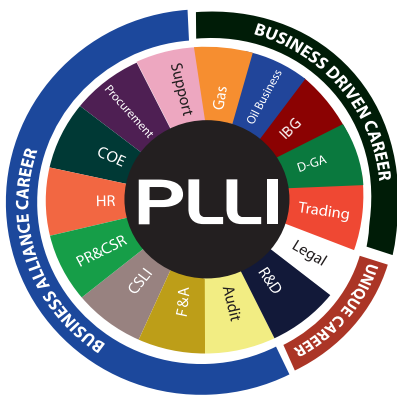
PLLI has continually provided capacity-building courses for the management and employees to be smart and conscientious, leadership development grooming for organization’s growth, and staff capacity-building to prepare them for corporate core competencies and strategic challenges.

PLLI’s course structure covers the development of all employees, from the new recruits to top management, as follows:

1. Leadership Development Program to prepare and accelerate the development of PTT Group’s management. This year the program concentrated on Building Trust, Business Trends, and Entrepreneurship Mindset and Coaching in collaboration with world-class educational institutions. Attendees can also learn from PTT business case studies.

2. Core Courses are designed for all employees and linked to the corporate goals, policy and knowledge. These competency-based courses develop not only the business/people management skills for the employees at each level, but also the soft skills that properly shape their behavior to fit core competencies.

3. Functional Courses are position-specific courses that develop the employees in each line position, from the beginners to experts. PLLI in collaboration with the Functional Academy, established by PTT, conducts this course to systematically develop corporate knowledge and encourage each unit’s line position to share knowledge and experience within their line positions.



This year, PLLI recognized changes in learning behavior in the digital era, that is, knowledge can be access “anywhere, anytime”, which suits with PTT’s HR strategy in developing its employees for present and future missions. PTT has developed an advanced system of international standards, PTT Learning Management System (LMS), to be the training information management center where PTT staff can search, file, exchange and apply the information readily and promptly. LMS was inaugurated use in April 2016.

Summary of Human Resource Development

| Hour/person/year | | | | | |
|---------------------------|-------|-------|-------|-------|-------|
| Training hour/person/year | 2012 | 2013 | 2014 | 2015 | 2016 |
| Employee | 60.10 | 63.00 | 35.24 | 55.11 | 68.40 |
| Executive | 41.80 | 43.00 | 22.61 | 30.02 | 20.91 |

| THB/person/year | | | | | |
|----------------------|-----------|-----------|-----------|-----------|-----------|
| Expense/person/year | 2012 | 2013 | 2014 | 2015 | 2016 |
| Employee & Executive | 54,611.00 | 58,000.00 | 55,435.37 | 34,476.36 | 35,168.35 |




Fostering Positive Relations between the Management and Staff in Search of the Same Goal

Communication between the management and staff at PTT comes in various forms. Needing to be aware of corporate business, obstacles, and potential repercussions, all employees should be allowed to share their views and take part in business efficiency improvement. Each year, besides the monthly labor relations committee meetings, PTT holds Joint Consultation Committee (JCC) meetings between its management team and staff of regional offices nationwide. In addition, the President & CEO not only constantly holds regular meetings with employees, but also annually



surveys employees’ satisfaction for views and suggestions for improvement. PTT is convinced that proper communication and information exchange among all staff will produce smooth relationships and cooperation, thus driving the organization toward goal achievement. Moreover, PTT surveys the basic human resource needs of the management and staff through the operation of numerous committees, such as the Human Resource Management Committee, PTT labor relations committee, and Career Path Management Committee. A survey of staff opinions was undertaken by an external human resource management adviser. There was also cooperation with PTT Group to jointly develop a database of the management as well as development plans of senior management.



HPO

-  Energy security
-  Economic prosperity
- 
 - National sustainable growth
 - Knowledge management
 - Technology and innovation research and development

CSR

-  Create common value for society and business alike under the concept of social enterprise
- 
 - Drive society and move forward together through CSR activities
 - Human resource development
 - Social and community development
 - Natural resources and environmental conservation

CG

-  Manage the organization transparently
-  Form an anti-corruption network with every sector
- 
 - Create trust and be responsive to stakeholders' expectations with balanced interest

PTT Group Core Values

PTT Group Core Values

PTT Group adopted the resolve of His Majesty the late King Bhumibol in leading their lives and work through the formulation of PTT Group core values, SPIRIT, which is significant in molding PTT management and employees to become smart, conscientious and responsible for society, communities and the nation.

Succession Planning

Because PTT is a state enterprise, the nomination and appointment of the President & CEO must follow the Standard Qualifications of Directors and State Enterprise Officer Act. Directors must possess the qualifications as specified in Article 8 *ter* and the nominating procedures as specified in Article 8 *quarter*. The Board is to appoint a Nominating Committee, with five members duly qualified and without prohibitions under the law, which nominates persons with appropriate knowledge, capability, and experience to fill

the positions of PTT management. Candidates must be legitimately qualified and without prohibitions under the laws and are not PTT directors, except for management team members who are directors by title. They must not be older than 58 years old on the date of application submission. When the Nominating Committee selects appropriate candidates, it submits the results to the authority. The appointment must be completed within one year from the day the incumbent vacates the position. Each employment contract lasts up to four years for each term. If the Board wishes to hire a previous management team member after the completion of his term as specified in the hiring contract, it does not have to go through the nominating process, but a person cannot be hired for more than two consecutive terms.

In 2015, the Board proceeded with the nomination of the new President to replace Mr. Pailin Chuchottaworn, who completed his term on September 9, 2015. The Nominating Committee was appointed as required by the Standard Qualifications for State Enterprise Directors and Officials Act. Four fully qualified candidates applied for the position, consisting of three PTT management personnel and one non-PTT management person. The nominating process was transparently conducted in compliance with Section 8, paragraph 3, of the above-mentioned act (No. 6) B.E. 2550. The Nominating Committee proposed a qualified candidate, Mr. Tevin Vongvanich, to the Board for consideration. On June 26, 2015, the Board approved the Committee's proposal and appointed him President & CEO, replacing Mr. Chuchottaworn. Mr. Vongvanich assumed office on September 10, 2015, and his term will be completed in two years and 11 months from the date of appointment because Mr. Tevin will be 60 years old on August 30, 2018.

PTT has been grooming top management to become qualified candidates for the next President's nomination. It has also prepared successors to replace the retiring top management during 2016 and 2020. Furthermore, PTT lays out a policy/ direction to develop PTT Group's top management and formulates the IDPs by preparing the management pool, consisting of 307 management personnel and a potential pool in key areas.

In 2007, PTT set up a Group Leader Development Program (GLDP) to develop a succession plan for personnel when the time comes for assuming higher positions that become vacant, such as:

- President
- Senior Executive Vice President (SEVP) or equivalent
- Executive Vice President (EVP) or equivalent
- Vice President (VP) or equivalent.

Core responsible management parties and units are as follows:

- PTT Group Management Committee (PTTGMC)
- PTT Group Management Committee-Minor (PTTGMC-Minor)
- Human Resources Alignment & Coordination Management Committee (HRAC)
- Human Resources Management Committee (HRMC)
- Corporate Human Resources Committee (HRC).

Performance in 2016

- Selection of SEVP pool members from EVPs (PTT Group)
 - 39 pool members (as of December 31, 2016)
 - 24 pool members already promoted (2008 - 2016)
- Selection of EVP pool members from VPs (PTT Group)
 - 119 pool members (as of December 31, 2016)
 - 38 pool members already promoted (2009 - 2016)
- Selection of VP pool members from PTT division managers (PTT)
 - 149 pool members (as of December 31, 2016)
 - 128 pool members already promoted (2009 - 2016).

Labor Disputes

No reports of PTT labor disputes have been received over the past three years.



Corporate Governance



Corporate Governance Policy

As the national energy company and a listed company on the Stock Exchange of Thailand (SET), PTT recognizes its vital mission of boosting business confidence with good management, transparency and fairness to all stakeholders. The key to gain trust and confidence of shareholders is through legitimate policies and business conduct that preserve their basic rights under the law or more, together with the suitable management filled with efficiency and optimal effectiveness, which will bring about continued acceptance by investors and relevant parties.

Ever since the privatization into PTT Plc. and the distribution of its shares on SET in late 2001, the company has valued corporate governance (CG) as its guiding principles. PTT regulations state: “The Company must have and implement a policy on its business ethics, including the ethics of its Board of Directors, senior executives, the management, and employees in compliance with good CG practices as its code of conduct for the proper conduct of the organization with a high standard.” PTT has issued its rules on CG in 2001, and revised them in 2014. The company also published a CG handbook in 2003 and delivered to each director, the management, and the employees to sign, acknowledge, and comply with. The handbook was revised in 2005, 2009, 2013 and revised again for the fourth time in 2016. The latest revision complied with 2012 SET’s CG of listed companies as well as suggestions and recommendations from IOD’s Corporate Governance Assessment Report, which was revised in line with the ASEAN Corporate Governance Scorecard (ASEAN CG Scorecard) and DJSI Corporate Sustainability Assessment and good practices of leading international companies. The handbook was renamed “Corporate Governance, Ethical Standard, and Code of Business Ethics Handbook”. Essential provisions added to the handbook are:

- More channels for enquiry about ethics and the code of conduct
- More guidelines for insider trading by asking the Board of Directors, executives, and those dealing with information to refrain from PTT Group securities trading. If necessary, they must notify the Corporate Secretary in advance for transparency.
- More composition and qualifications of the Board and appointments, including the independence of the Chairman
- More roles for directors and the Chairman
- More qualifications and roles of the Board’s specific committees
- More Board performance assessment and development
- More business ethics and code of conduct concerning anti-money laundering
- More guidelines for Receiving and Offering Customary Gifts, Assets or other Benefits

PTT has integrated CG in its vision, missions, and core values to enable itself to grow in a sustainable way, to become a leading Thai energy company and a high-performance organization (HPO) with corporate social responsibility (CSR), and to provide appropriate returns to its stakeholders on CG principles.

Corporate Governance Policy

PTT duly reviewed its CG Policy and handbook to suit prevailing economic and social circumstances as well as requires all directors, the management, and employees to acknowledge it in writing and observe all policies in their work to illustrate the commitment to practical application of such policy and code of conduct to their jobs. The Board’s policy on CG are as follows:

1. The Board, management, and staff shall commit to PTT’s six Good Corporate Governance Principles, namely: Accountability, Responsibility, Equitable Treatment, Transparency, Vision to Create Long-Term Value, and Ethics. An organization structure balances the roles of the Board, the management, and the shareholders.
2. Directors must perform their duties independently with full commitment, responsibility, and independence. There is a clear division of responsibilities between the Chairman and the President & CEO.
3. Playing a key role in the formulation of the corporate vision, strategies, policies, and key plans with due regard for risk factors and suitable risk management, the Board must also ensure the credibility of PTT’s accounting system, financial statements, and accounting audits.
4. Leading the rest of PTT on ethics and CG, the Board must supervise the management and solution to any conflict of interest or connected transaction.
5. The Board may appoint committees to help it screen and scrutinize critical issues.
6. The Board must undergo annual self-assessment to obtain a framework for its performance assessment.

7. The Board must establish a code of conduct for itself, the management, employees, and all contract employees to observe in addition to PTT's regulations.

8. Disclosure of financial and non-financial information must be carried out adequately, credibly, promptly, and fairly for all shareholders and stakeholders. The Public Relation and Investor Relations departments are thus responsible for such disclosure to the investors and the public.

9. Every shareholders are treated as equally, where they can access the same vital information through proper communication channels with PTT.

10. A proper selection procedure must be in place for the appointment of key management personnel under a fair and transparent nomination process.

11. The Board must establish an efficient anti-corruption system to ensure that the management is aware of and values anti-corruption, as well as complying with anti-corruption measures.

PTT publicized the “Corporate Governance, Ethical Standard, and Code of Business Ethics Handbook” on its website.

CG performance is summarized as follows:

1. Shareholders' Rights

As the owners, the shareholders are entitled to dictate PTT's direction or decide on matters of significant impacts. Shareholders' meetings therefore serve as their key forums for the expression of views, questioning, and voting, apart from the election of directors to supervise PTT's operations on their behalf. Shareholders are entitled to attend shareholders' meetings, take adequate deliberation time, and acknowledge meeting minutes.

1.1 Shareholders' Meetings

As a rule, PTT schedules an annual general meeting of shareholders (AGM) within four months of the annual closing date of its accounting books. For urgent matters that affect or involve the shareholders' interests or involve conditions, regulations, or laws that require the shareholders' approval, however, it can call an extraordinary meeting of the shareholders.

In 2016 the AGM held on April 11 at the Bangkok Convention Center, 5th floor, CentralPlaza Lardprao (Plaza Zone), 1695 Phaholyothin Road, Chatuchak District, Bangkok. No extraordinary meeting was held this year.

1.2 Delivering Meeting Notices

For 2016 AGM, the Board at Meeting No. 2/2016 on February 19, 2016, decided to call a meeting on April 11, 2016. Its decision, meeting date, and meeting agenda were disclosed in detail ahead of time by announcing on SET's website to alert the shareholders before sending the meeting notices. PTT assigned Thailand Securities Depository Co., Ltd. (TSD), its securities registrar, to mail the notices together with details of the agenda and accompanying documents, supplementary and supporting information for decision-making, opinions of the Board, complete minutes of the last meeting, the annual report, meeting documents, and proxy forms with complete instruction to the shareholders more than 14 days ahead of the meeting date. The meeting notices were sent on March 21. Three days ahead of the meeting, the invitation was announced through one Thai and one English newspaper, each for three consecutive days (April 5 - 7), to allow the shareholders enough time to prepare themselves for the meeting.

The AGM meeting notice and supporting documents were made available at PTT's website (www.pttplc.com) 32 days ahead of the meeting date (starting March 10, 2016).

1.3 On the Meeting Date

Before the meeting, the Chairman of the meeting introduced the directors, management team members, the external auditor, and the legal adviser who acted as a neutral party. The Chairman then clearly explained on the voting and vote counting for individual agenda items under PTT's Articles of Association, as well as how to vote on each agenda item. Once information had been provided on each item, the Chairman gave the floor to all attendees to express opinions or recommendations and ask questions, giving adequate time for debate. The Chairman and the management addressed and answered all questions clearly and precisely, treating all questions with due respect. For the election of directors, individual votes were required.

The Chairman ensured that the meeting proceeded by the order of the agenda and did not add any item without notifying the shareholders in advance. If the meeting should

decide to change the order of the agenda, it would need at least two-thirds of the votes of the shareholders in attendance. Alternatively, the shareholders with at least one-third of all sold shares may ask the meeting to consider other matters not mentioned in the meeting notice. At the 2016 AGM, the order of the agenda was not changed, and there was no request to consider any other matter.

At every meeting, the minutes must be completely and accurately recorded with the vote tally on each applicable agenda item. As a rule, a shareholders' meeting lasts 3 - 4 hours. The 2016 AGM began at 9.30 a.m., with registration beginning at 7.30 a.m. At the meeting's opening, a total of 3,109 shareholders registered, of whom 1,446 were shareholders and 1,663 were proxy holders, holding a total of 1,805,929,231 shares, or 63.23% of the total shares, which exceeded one-third of all PTT's sold shares of 2,856,299,625, with the following attendees:

Board of Directors

| | |
|----------------------------------|---|
| 1. Mr. Piyasvasti Amranand | Chairman/ Independent Director |
| 2. Mr. Kittipong Kittayarak | Independent Director/ Chairman of Audit Committee |
| 3. Gen. Chatchalerm Chalermsook | Independent Director/ Chairman of Corporate Governance Committee |
| 4. Mr. Vichai Assarasakorn | Independent Director/ Member of Audit Committee |
| 5. Mr. Prasert Bunsumpun | Director/ Member of Enterprise Risk Management Committee |
| 6. Mr. Don Wasantapruet | Independent Director/ Member of Corporate Governance Committee |
| 7. Mr. Somsak Chotrattanasiri | Independent Director/ Member of Corporate Governance Committee |
| 8. Mr. Watcharakiti Watcharothai | Independent Director/ Chairman of Nominating Committee/ Member of Remuneration Committee |
| 9. Mr. Chanvit Amatamatuchart | Independent Director/ Chairman of Enterprise Risk Management Committee/ Member of Remuneration Committee |
| 10. AM Boonsuib Prasit | Independent Director/ Member of Nominating Committee |
| 11. Mr. Chavalit Pichalai | Director/ Member of Enterprise Risk Management Committee |
| 12. Mr. Tevin Vongvanich | Director and Corporate Secretary/ President and CEO |

Ms. Nuntawan Sakuntanaga had an overseas assignment, and Mr. Somchai Sujjapongse had an urgent meeting.

Executives

| | |
|------------------------------|--|
| 1. Mr. Pitipan Tepatimargorn | Chief Operating Officer, Upstream Petroleum & Gas Business Group |
| 2. Mr. Sarun Rungkasiri | Chief Operating Officer, Downstream Petroleum Business Group |
| 3. Mr. Wirat Uanarumit | Chief Financial Officer |
| 4. Mr. Chavarit Punthong | Chief Operating Officer, Infrastructure and Sustainability Management Business Group |

Also in attendance were several senior executive vice presidents, executive vice presidents, and executives from PTT Group at the front of the stage, ready to address queries and provide information for relevant questions. Independent directors also served as proxies for minor shareholders.

External Auditors

| | |
|-----------------------------|---|
| 1. Ms. Mayuree Chanthamat | Office of the Auditor General of Thailand |
| 2. Ms. Metawee Suaysom | Office of the Auditor General of Thailand |
| 3. Ms. Jarawat Prueksa-suay | Office of the Auditor General of Thailand |

Legal Advisers (to proctor balloting in case of disputes during the meeting)

| | |
|----------------------------|---|
| 1. Ms. Peangpanor Boonklum | Weerawong, Chinnavat & Peangpanor, Ltd. |
| 2. Ms. Kulnisha Srimontien | Weerawong, Chinnavat & Peangpanor, Ltd. |
| 3. Mr. Anurak Ramanat | South Asia Law Co., Ltd. |
| 4. Mr. Gun Vasharakorn | South Asia Law Co., Ltd. |

Number of Shareholders (at the meeting's conclusion at 1:19 p.m.)

A total of 5,236 shareholders registered, of whom 2,326 were shareholders and 2,910 were proxy holders, commanding a total of 2,329,298,341 shares or 81.55% of the total sellable shares.

1.4 Practical Guidelines for Reporting Conflicts of Interest

As specified by PTT CG Handbook, all directors, management team members, and employees must prepare reports on conflicts of interest, consisting of annual reporting forms and a new interim reporting format in case of changes. At a given meeting, those with vested interests or conflicts of interest with PTT must inform the meeting to excuse themselves and abstain from voting on each connected matter.

At the shareholders' meetings, any director with vested interests or involvement on any agenda item must inform the meeting to excuse themselves and abstain from voting on each connected agenda item.

1.5 Disclosure of Shareholders' Meeting Outcomes

For the 2016 AGM, PTT submitted the summary of AGM resolutions to SET and SEC within the period of the time at the end of the day after the meeting (April 11, 2016). It also submitted the report of the shareholders' meeting with minutes (each agenda clearly separated), number of directors in attendance/absence, questions raised by shareholders and answers from directors, together with the voting tallies of each agenda item to SET and SEC within 14 days after the meeting. Meeting information, video-recording, photos, and audio-recording are accessible through PTT's website.

2. Equitable Treatment of Shareholders

PTT treats all shareholders fairly despite different shareholding proportions and corresponding voting power. Shareholders' fundamental rights are conserved regardless of their gender, age, race, nationality, religion, belief, social status, physical impairment, or political inclinations. At the AGM, seats at the most convenient spots were reserved for the elderly, the handicapped, and pregnant women with officers attending to their needs. Information on the shareholders' meeting was announced ahead of the meeting, in Thai and English. Directors with vested interests in any agenda item must excuse themselves from the meeting on that item. All shareholders have equal rights to take part in PTT's activities.

2.1 Proposing Additional Meeting Agenda Items and Nominating Directors

To enable minor shareholders to earnestly take part in business operations and auditing, PTT has defined the criteria and consideration process for entitling them to propose meeting agenda items or nominate directors in advance, or both, to deliberate agenda items that could prove useful to PTT, including the selection of qualified directors to perform their duties efficiently in the best interests of PTT, the shareholders, and the stakeholders. In practice, shareholders with a combined holding of at least 100,000 shares could propose agenda items or nominate directors before the AGM from September to November of the previous year, in case the nomination of directors might need the approval of the State Enterprise Policy Office (SEPO), as required by the regulation of The Prime Minister's Office on State Enterprise Policy and Monitoring B.E. 2557 (2014).

For the 2016 AGM, PTT posted such criteria on its website and an announcement on SET's website from September 1, 2015, to November 30, 2015. However, it attracted no recommendation of such agenda items or nomination of directors, and the Corporate Secretary had duly informed the Board meeting on the matter.

2.2 Facilitating Shareholders at the Meeting

As in previous AGM meetings, for the 2015 version, PTT facilitated all shareholders by manning officers to welcome and take care of them, and provided adequate convenience. The meeting venue was well chosen to accommodate all shareholders and facilitate the elderly and those on wheelchairs. Back-up meeting rooms were in place, as was a signal relay system between meeting rooms. Security precautions and emergency contingency plans were in hand. Examination of registration credentials five days ahead of the meeting was possible. Officers provided photocopying services and verified documents. On the meeting day, registration opened two hours early and extended until the period before the last meeting agenda. A barcode system quickened registration and voting. Finally, the shareholders had access to a refreshment and snacks.

Since most shareholders attending the AGM were Thais, it was conducted in Thai. However, for the benefit of foreign shareholders, PTT commissioned the translation of shareholders' meetings, supplementary documents, and relevant documents in English. Its website is also bilingual. It also provided officers with good command of English on hand at meetings to facilitate foreign shareholders. If shareholders cannot communicate in Thai but want to pose queries or discuss topics at the meetings, PTT arranges for suitable communication and provides translation into Thai language for both queries and answers for other shareholders to preserve their interests and ease communication needs for foreign shareholders.

2.3 Appointing Proxies

To maintain the rights of those who could not attend the 2016 AGM in person, they could appoint proxies or delegate their votes to any independent director in attendance. To this end, PTT has specified these independent directors' names on proxy forms defined by the Ministry of Commerce for voting on behalf of shareholders without conditions. PTT treats proxies as if they were shareholders. As a rule, 30 days ahead of each meeting, PTT discloses the proxy form, which is attached along with details and procedures on its website. Shareholders may make further inquiries about this by phone or other channels such as PTT's website and e-mail.

3. Roles toward Stakeholders

As the national energy company, PTT accounts for all stakeholders' rights and interests by establishing guidelines for addressing the needs of each group in and outside PTT, as well as its own responsibility to society and the environment. The following spells out PTT Group's missions for each of the six stakeholder groups:

- To the country** Ensuring long-term energy security by providing adequate high-quality energy supply at fair prices to support economic growth.
- To communities and society:** Maintaining a good standing corporate status in Thai society by exercising environment stewardship of internationally accepted standards and helping to improve the quality of life for community and society.
- To shareholders:** Operating profitable businesses that lead to sustainable growth while generating optimal returns.
- To customers:** Ensuring customer satisfaction and loyalty by delivering world-class quality products and services at fair prices.
- To business partners:** Conducting fair practices with all partners while promoting trust, relationship, and cooperation to expand business capability and increase efficiency in long-term business partnerships.
- To employees:** Promoting capability building professionally and ensuring that employees' quality of worklife is on the source level as other leading companies in order to embolden organization-employee bond.

3.1 Treatment of Six Main Stakeholder Groups

3.1.1 Thailand

As the national energy entity, PTT is tasked with a mission to satisfy the country's demand in line with the "Secure, Prosperous, and Sustainable" Thailand vision, leading to a foundation for robust national development through forging long-term energy security so that all Thais may have access to adequate energy in a fair and sustainable manner.

PTT's policy is to conduct its businesses in line with the public policy under the National Economic and Social Development Plan and the Ministry of Energy's strategic directions with a focus on supplying adequate amounts of energy for security at suitable and fair prices and a focus on sustainable energy development that is friendly to the environment. PTT's roles are as follows.

1) Security: PTT leverages over 50% of its investment budget to develop energy infrastructure, including natural gas transmission systems, LNG-receiving terminals, LPG import facilities, oil terminals, and service stations. In sourcing energy supply, PTT executes risk management plans for supplies from various sources to ensure adequate volumes, quality, and standards to satisfy national demand, including sourcing of natural gas from domestic deposits, importing from neighboring countries, and LNG.

2) Economy: PTT invests in the procurement of energy at suitable costs, acceptable to the public and businesses; energy efficiency improvement; and value addition to petroleum through gas separation plants (GSPs), oil refineries, and the petrochemical business. These have created countless businesses and promoted the application of technologies to improve efficiency and develop caliber for operators throughout the business chain to strengthen and grow in the digital economy.

3) Ecology: PTT invests in research and development (R&D) of “green” energy and bioplastics, while supplementing value to agricultural produce of communities.

3.1.2 Society and Communities

PTT is committed to maintaining the royal resolve for participating in the development of Thai society and sustainably elevating the quality of life of Thais by adopting the Sufficiency Economy principle advocated by H.M. the Late King Bhumibol Adulyadej in its social activities. The aspects involve human resource development, social and community development, and the rehabilitation and stewardship of natural resources and the environment to promote Thai society's balanced, secured, and sustainable development.

Details about these matters appear under “Inspiration for Sustainable Energy for Thailand” and the Corporate Sustainability Report 2016.

3.1.3 Shareholders

The Sustainable Growth Strategy finds application in PTT management to achieve a high-performance organization (HPO) that is based on CG in tandem with corporate social responsibility (CSR) to ensure investors that PTT provides sound investment returns, is sustainable, and will continue to be a part of Thai society in the future.

Investors' Activities

Since 2006, PTT has continually arranged trips for minor investors to visit its operation, update information, and meet the management as well as participate in PTT's CSR activities in Rayong.

This year PTT organized these activities on November 23 - 24 by mailing invitation letters and response forms to all shareholders whose names appeared on the roster on the date of closing of its registration to suspend share transfer for the 2016 AGM attendance (March 8, 2016). Interested shareholders were asked to notify PTT of their interest in the visit. But due to the overwhelming interest shown by shareholders (about 1,900 persons), PTT had to draw lots to select those who won the right to visit, as done in past years. Witnessing the draw on October 11 were executives and CG taskforce members. The winners' names were posted on PTT's website. PTT notified the winners by phone to confirm their acceptance. This activity involved minor shareholders' visit to the Rayong Gas Separation Plants (GSP), a brief, and tour of the compound by cart, with GSP's engineers on hand to advise and answer questions. They also stopped at the H.R.H. Princess Maha Chakri Sirindhorn Herb Garden and observed CSR activities conducted by PTT at the garden. Two batches of visitors, each 180, joined the activities.

Those interested in visiting PTT's sites can follow project updates and details on PTT's website. PTT reserves the rights to invite only those that have never taken part in this activity.

Activities for Debenture Holders

Since 2010, PTT has organized ongoing debenture holders' activities to serve as a channel for maintaining cordial relations with them and repay them for the confidence in PTT bonds over the long term. This year the activities were diverse to meet the needs of debenture holders, who numbered over 23,000, including:

- The "Happiness" quarterly journal, which communicates corporate information, provides energy knowledge, and interesting articles in an edutainment way.
- Two visits to PTT's business operations. The first was a trip to VISTEC, KVIS, and the Wang Chan Forest Project in Rayong in May. The second was a trip to Amazon Inspiring Campus (AICA) and the Oil Business Academy (OBA) in September.
- Family relationship activities, including assorted workshops, particularly concerts, which consistently met with excellent responses. This year PTT continued its annual major concert for everyone; three types of concerts were held to cater to each debenture holder.

PTT still has plans to develop its formats of activities to raise its efficiency and satisfaction of shareholders, including wider access to information on activities through the webpage to ease holders' contacts and align with prevailing technologies.

Activities for Institutional Investors

This year, besides investors' meetings to inform institutional investors and securities analysts about its quarterly performances, PTT organized annual company visits and meetings with its executives in January at Nakhon Ratchasima, where such visitors and analysts learned about PTT's business directions and opportunities to be involved in PTT Group's businesses from executives first-hand.

3.1.4 Customers

PTT divides its market into two portions, domestic and overseas. Its core products are natural gas products and petroleum products. These are sold to customers of the International Trading Business Unit, Oil Business Unit, Gas Business Unit, and Infrastructure and Sustainability Management Business Group, with two major groups of customers: Business to Business (B2B) and Business to Customer (B2C).

PTT listens to customers' opinions to analyze their needs and expectations through assorted channels, including customer visits, seminars, and opinion surveys. These provide information on competitors, state of competition and technology, customers' behavioral trends and lifestyles, the market environment, and future needs of customers. All input is reviewed together with other information, namely situations and trends of energy economics, public policies, regulations, technological innovations, and financial and economic data for the design of products and services that match the needs and expectations of current and future customers.

Constantly, PTT developed support systems to ease customers' transactions including taking purchase orders through the Order & Customer Relations Center, and the e-Order, e-Billing, e-Payment, and Direct Approved systems designed to improve the efficiency of the complaint-receiving center through the Mind System, which links all related information centers, including e-mails, the website, and PTT Blue Card member data, so that officers that receive complaints can swiftly respond to customers with accurate and timely information.

PTT also developed a service standard manual and procedure manual that are comprehensive, including a manual on PTT's service station standard, LPG bottling, aviation fuel refueling, and Contact Center standard. In place are procedures for periodic assessment against service standards under QSHE MS, Mystery Shopper, and Mobile Lab to ensure that its personnel can regularly forge good experience for customers.

PTT developed means to foster relations with customers that suit each life-cycle of customers, designed to lead repurchases and “word of mouth” to others, which is the ultimate goal. In place is PTT satisfaction and engagement assessment in comparison with competitors via the annual satisfaction survey. To this end, PTT considers the outcomes directly with customers’ purchasing behavior to allow survey outcomes to reflect current operations while extending future businesses more clearly. Customers’ dissatisfaction has been regularly compiled and analyzed, including information from the Contact Center and customer visits, so that PTT may know trouble indicators, promptly resolve problems, and prevent losses of customers or competitors’ intervention.

PTT groups complaints by severity of impact, with defined service level agreements for different types of complaints, for which relevant units must resolve problems within given periods. All complaints must be addressed within 24 hours, and after problem resolution, an inquiry will be made to all customers to determine their satisfactions with PTT’s problem-solving. This ensures that problems are indeed reasonably resolved and that customers are satisfied and will continue to buy PTT’s products and services in the future.

Constantly paying attention to customers’ convenience and safety, PTT launched PTT Tune Up Project for free engine checks and tune-ups. This year, it launched a “Friendly Design” concept for service stations to ease access for the disabled and the elderly. PTT also launched the Crime Zero Project, a cooperative project with the Metropolitan Police under which direct emergency notification is made to the police whenever abnormal incidents happen at service stations. This would make PTT service stations safer.

3.1.5 Business Partners

Since business partners are key to business success through mutual support, PTT takes them seriously and treats them fairly on the basis of fair competition, mutual respect, and in good cooperation. PTT strictly complies with contracts and values procurement processes since they are vital to the determination of expenses and the quality of PTT products and services. A clear procurement procedure is in place to ensure transparency, accountability, and maximum benefit.

To achieve its resolution, PTT is committed to do business for sustainable growth in parallel with good governance for communities, society, and the environment. It put a high value on supply chain management and has developed a risk management system to mitigate impacts from business partners’ business conduct to ensure the success and sustainability of the supply chain management process. The key driving factors are as follows:

1. Clear policy and directions

This means PTT’s policies and strategies are key factors for forging awareness of PTT’s commitment and business directions among employees and society. Therefore, this year PTT issued a **PTT Group policy on procurement and sustainable business partner management**.

In order to guideline PTT’s business partners’ business conduct to be more in line with and more suitable for the sustainable organization management concept, the company revised the **PTT Supplier Sustainable Code of Conduct (SSCoC)** and announced its third edition on August 3, 2015. IT defines the contents and scope under relevant regulations and laws, together with the aspects taken seriously by PTT in four main topics:

1. Business Ethics
2. Social Responsibility
3. Safety
4. Environmental Management

2. Sustainable business partner selection and management process development

To align supply chain management with corporate directions, PTT manages its business partners with due regard for ESG (Environmental, Social, and Governance/ Economics) impacts. Assessing risks and impacts from the perspectives of the environment, society, and oversight of goods and services groups, PTT divides business partner management into three levels: strategic/ critical, key, and managed (in order of potential severity of impacts). For those in the critical group, management actions will be more intensified than the other groups, specifically they must respond to the Sustainability Performance Assessment Form, which would determine if they will need to formulate ESG Corrective Action Plans. PTT reserves the auditing right. This year a PTT team in conjunction with a third-party agency conducted sustainability assessment of five “critical” business partners. Overall, they scored decent marks. A project designed to develop business partners’ sustainable operation caliber was launched, under which each unit selected major business partners whose operation involved ESG for self-assessment and plan further development.

In addition, to illustrate PTT’s “pride” action in being a transparent company, it joined public agencies in preventing and suppressing corrupt practices by signing a memorandum of cooperation on driving the prevention and suppression of corrupt practices with the Office of the National Anti-Corruption Commission (NACC), State Enterprise Policy Office, and state enterprises to ensure that the national strategy on prevention and suppression of corrupt practices, relevant measures, relevant government policies, and action plans are successfully driven to implementation in state enterprises under CG. To this end, for the provision and disclosure of information on procurement, PTT disclosed related data in compliance with the announcement of the panel on information public of public agencies that requires outcomes of procurement deliberation to be open to the public under Article 9 (8) of the Public Information Act of B.E. 2540 (1997). Disclosure must be done monthly through the www.pttplc.com website for public examination; such disclosure is subject to annual assessment. In 2015, PTT scored 87.27% on procurement information disclosure, prompting it to develop a gap analysis to improve this year’s practices. This year, PTT added a process of formulating

an annual procurement process and required all its units to develop procurement plans in advance for disclosure at www.pttplc.com.

The annual procurement audit is the responsibility of a panel on materials and supplies audit and examination, appointed under PTT’s regulation on materials and supplies, which ensures transparency of materials and supplies processes. This year the panel random-checked procurement propriety in all business units. In addition, this year PTT executives are committed to the vision of a transparent company and set KPIs in every line of business to meet the company’s rules and requirements. Findings from the audit done in 2015 served as the baseline. Procurement units mapped out a plan and took action to lessen shortcomings through training at orientation sessions and providing contents to courses at the Procurement Academy, which will become compulsory for all employees as organization knowledge.

A system is now in place, called Material Receive (MR) on Web, through which user units assess business partners in assorted aspects, including quality, delivery, service, performance, SSHE, and sustainability. Initially, assessment outcomes will be released to registered business partners for further improvement.

On March 14 this year, PTT signed an Integrity Pact, a joint agreement with public agencies and bidders to execute their duties with integrity and not demand bribes or other benefits; it must also disclose essential project data of every process in the “Wang Noi Natural Gas Compressor Station Project” for transparency. Presiding over the event was Gen. Anantaporn Kanjanarat, Minister of Energy. Signing the agreement was Mr. Piyasvasti Amranand (PTT’s Chairman). The event was attended by Mr. Manat Chamweha (Director-General, Comptroller General’s Department), Mr. Sompol Kiatphaibool (Vice Chairman, Anti-Corruption Organization of Thailand), Mr. Vichai Assarasakorn (Member of the PTT’s Audit Committee), and Mr. Tevin Vongvanich (PTT’s President & CEO).

This signing was between PTT Plc. and five bidders, together with five observers and experts from the public and private sectors. The signing illustrated PTT’s desire to be a business entity under CG, comply with the government’s anti-corruption policy, and manage transparent procurement processes that are auditable.

To this end, the Comptroller General's Department's panel on fraud prevention cooperation requested PTT, through the Ministry of Energy, to hand-pick at least three procurement projects to be undertaken in fiscal year 2016. The projects must represent the core mission and worth THB 500 million or more. PTT then proposed three projects, and Wangnoi Compressor Station Project was selected.

The Wangnoi Compressor Station Project is located in Wang Noi District, Phra Nakhon Si Ayutthaya. PTT won an endorsement to proceed with the Cabinet's resolution of June 30, 2015, to enhance Thailand's energy security by delivering natural gas to the South Bangkok (Replacement) Unit 1 of EGAT. The project is due for completion by 2018 at a budget of THB 4.8 billion.

3. Capacity-building of relevant parties

Since mastery and caliber of relevant parties represent another key factor driving the success of this matter, PTT values a systematic and suitable approach to capacity-building on procurement and management of business partner for PTT's executives and staff. This is achieved through training, communication, and knowledge management (KM) to meet the sustainability objectives of business partner management.

In addition, PTT establishes business partners' readiness and communicates with them in parallel so that they may prepare themselves and develop their own businesses along with the sustainability approach (PTT Supplier Sustainable Code of Conduct) announced by PTT.

| Business partner group | Date (2016) |
|--|--------------|
| Nakhon Si Thammarat GSP's business partners | June 27 |
| Natural Gas Transmission's business partners | August 24 |
| Rayong GSP's business partners | September 30 |

At each SRM, PTT conveyed business directions and organized activities fitting business partners. This year's topics and seminar activities are as follows:

- Business directions, vision, and missions
- Policies and procurement directions and applicable laws
- Procurement, business partner management, and sustainable organizational management
- Procurement of green products and services
- Group activities and shared activities among procurement officers and business partners involving the sharing of views for adjusting business processes for greater efficiency. As a result, business partners' needs and satisfaction increased along with cordial relations and sustainable partnership
- Workshops on ESG assessment for business partners in pursuit of genuine supply chain sustainability

A seminar for core business partners supplying procurement services to PTT was held on August 11, 2016, under the "Integrity and Transparency: The Power of Success", which reflected PTT Group's clear opposition to corrupt practices. This was done through a discussion forum of executives of PTT Group and invited guests amid participants from business partner companies, procurement officers, PTT user units, and about 350 representatives from PTT Group companies.

Business partner seminars in 2016 represented an excellent opportunity for PTT's business partners to learn PTT's policy and business directions which focus on transparency and corruption-free approaches while forming strong anti-corruption alliances by jointly expressing their desires for transparent business undertakings for sustainable growth with PTT.

PTT requires price bidders to strictly conform to the rules of work safety and handling of tools, as well as other regulations, particularly in the types of work affecting health, safety and the surroundings. PTT visits business partners' sites to assess their capabilities, particularly those on the QSHE side. In addition, business partners' employees must undergo the do's and don'ts on PTT's sites in addition to conforming to the requirements for entering sites to work, as described for each.

A PTT Approved Vendor List (PTT AVL) is prepared for the benefit of procurement through bidding to ensure that, under the process to determine business groups and procedures or methods of selecting business partners to register for PTT AVL, the business partners are efficient and deliver products/ services that meet PTT's requirements and foster sustainable partnership with PTT. This year the PTT AVL consisted of 422 companies from 34 business groups.

To ensure efficient preparation of PTT AVL, the company considers criteria, conditions, qualifications of the business partners who apply to PTT AVL in each business group. The initial qualifications of the business partners must meet the following requirements:

1. Business partners must not abandon the work of PTT, the government sector, state enterprises, and government agencies.
2. If business partners are removed from the Vendor List, they have no right to apply for the list in that particular business group for three years. An exception applies when the removal is the result of abandoning the work of PTT, the government sector, state enterprises, and the government agencies. PTT will not accept them to PTT AVL until PTT receives a letter proving the cancellation of the removal.
3. Business partners must understand and recognize PTT Suppliers' Sustainable Code of Conduct (SSCoC).

Apart from the initial criteria, PTT assesses business partners' operations and sustainable implementation in parallel.

After business partners deliver products/ services in each allotment, PTT will assess them and notify them of the good points/ improvements to be made in operations so that they may acknowledge and improve themselves for future supplier development.

Moreover, PTT supports Thai suppliers and gives them the top priority. Past procurement information reveals that, for the past five years, PTT has procured more than 90% of local products, generating cash flow in the Thai economic system, promoting procurement of products from the areas where PTT sites are located, as well as promoting jobs and generating income for people in the communities.

3.1.6 Employees

*(The information on employees is reported under Management Structure/ **Employees**).*

3.2 Respect for Universal Human Rights Principles

PTT requires that all its directors, the management, and employees observe laws, customs, and cultures which differ in each country where PTT invests in and strictly respect universal human rights principles under the Universal Declaration of Human Rights. This is the minimum requirement of PTT's business operations.

As a leader, PTT encourages PTT Group of companies to apply human rights principles to their PTT Group sustainability management framework. This year PTT developed a human rights management system to devise ways to manage such issues in PTT Group's businesses, which require operations to align with local or international laws while advocating community engagement in rectifying potential non-alignment. PTT was also one of the 15 founders of "Global Compact Thailand Network", set up primarily to forge participation by domestic entities in developing economic, social, and environmental tasks for balance, leading to national security and sustainability. PTT Group companies and founders of the network consisted of PTTGC, PTTEP, IRPC, and TOP.

3.3 Significant Disputes with Stakeholders

This appears under “Legal Disputes”, disclosed in Form 56-1

4. Disclosure of Information and Transparency

Disclosure of information is a key index of transparency, a crucial factor for confidence among investors and stakeholders. PTT values correct, precise disclosure of information and creates numerous channels of disclosure so that all stakeholders can gain easy access to information. The company promotes awareness among directors, the management, and employees of the importance of CG and transparency to their work, and creates appropriate mechanisms to receive complaints while providing fair treatment to those who file complaints and those complained against as follows:

4.1 Financial and Non-financial Reports

PTT prepared the Corporate Sustainability Report 2016 to communicate its policy, management approach, and outcomes of its economic, social, and environmental performance by relying on the Sustainability Reporting Guidelines and Oil and Gas Sector Disclosure (OGSD) (G4) of the Global Reporting Initiative (GRI) approach to ensure that its disclosure was suitable to and more specific for the business. PTT commissioned an external party for the sixth consecutive year for the certification of the report's accuracy, transparency, and accountability. This report together with the annual report was delivered to the shareholders and is accessible to those interested via www.pttplc.com.

4.2 Investor Relations

Ever since PTT's privatization and share trading on SET in October 2001, the Investor Relations Department has been established as a clearing house for disclosing essential information to investors and financial reporting, which includes performance reports, financial statements, and information reported to SET, together with quarterly management discussion and analysis (MD&A) reports with updated performance and corporate directions. These are disclosed to domestic and international shareholders fairly, regularly, and thoroughly. A quarterly investors' magazine under the “Happiness” title communicates business news and information as well as PTT's performance, for debenture holders. A quarterly newsletter called “PTT Bizway” bears the same purpose but aimed at common-share holders. It is published both in Thai and English to communicate PTT's vision, missions, quarterly performance, CG, management for sustainability, and other current major activities. Investors may contact the department directly or through the PTT website, for further information, which is regularly updated, both in Thai and English. The information includes:

- Company information
- Annual report (Form 56-2)/ Form 56-1
- Information for common-share holders
- Information and activities for debenture holders
- Presentations and webcasts
- Roadshow/ conferences
- Activity calendar
- Code of Conduct for Investor Relations
- Major investment project information
- Procurement and hiring
- Policy statements by the management
- Implementation of government policies
- Key plans
- Corporate governance policies and promotional activities
- Financial performance
- Non-financial performance
- Highlights of social responsibility activities.

Through the years, PTT has valued disclosure of information that is accurate, complete, transparent, and comprehensive. The company kept the investors, shareholders, and relevant parties informed of its information on performance through direct and indirect approaches. The following charts below are highlights of our activities:

- **Direct:** PTT regularly presents information to analysts, investors, and employees at analysts' meetings, roadshows, conference calls, and conferences organized by various entities. PTT also holds joint activities with SET to meet minor investors (Opportunity Day). Relevant persons can make appointments for company visits and meet PTT executives to inquire about business updates at all times.

This year, these key activities took place:

| Activities | 2015 (times) | 2016 (times) |
|---|---|---|
| International Roadshows | 9 | 12 |
| Domestic Roadshows | 10 | 7 |
| Analyst Meetings | 4 | 4 |
| Credit Rating Reviews | 4 | 4 |
| Company Visits/ Conference Calls | 79 | 54 |
| E-mail/ Phone Calls | 8 - 10 times/day | 8 - 10 times/day |
| Joint activities with SET and other agencies to meet investors | 4 | 4 |
| Trips for institutional investors to visit and meet management team members | 5 | 5 |
| Trips for minor (retail) investors to visit and meet management team members | Scheduled once (two groups, November 18 - 19) | Scheduled once (two groups, November 23 - 24) |
| Relations activities with debenture holders | 15 | 12 |

- **Indirect:** Information about PTT, its performance, financial statements, and reports filed with SET are found at www.set.or.th, PTT's website, and the "Happiness" magazine for debenture holders as well as the quarterly newsletter "PTT Bizway" for common shareholders.

- Investors and interested parties can also contact Investor Relations Department at Tel. 66 (0) 2537-3518-9, e-mail: ptt-ir@pttplc.com, or through PTT website at www.pttplc.com.

In addition, PTT has constantly publicized news, business activities, operation and project updates, apart from addressing questions and facilitating contacts from the media and the public. The 2015 - 2016, activities are listed as follow:

| Activities | 2015 (times) | 2016 (times) |
|---|-----------------|---------------------------|
| E-mails | 144 | 277 |
| News/ photo releases | 316 | 277 |
| Press conferences | 28 | 22 |
| Media visits to operations (domestic and international) | 19 | 5 |
| Welcoming and information provisions to visiting agencies for assorted purposes | 55 groups | 43 groups (1,920 persons) |

4.3 Complaint-Filing and Access to Information

All stakeholders have equal access to PTT's public information, including reporting of news and leads, whether inside PTT through the intranet webboard or outside PTT through its website, by phone, letter, or e-mail. Please contact Investor Relations, Office of the President and Corporate Secretary, Corporate Communications, or the Ordering & Customer Relations Center through these channels:

- Telephone: PTT Contact Center 1365, 66 (0) 2537-2000
- Website: www.pttplc.com
- E-mail:
 - Ordering & Customer Relations Center: 1365@pttplc.com
 - Corporate Communication Department: corporate@pttplc.com
 - Office of the President and Corporate Secretary: corporatesecretary@pttplc.com
 - Investor Relations: ptt-ir@pttplc.com
 - CG Hot Line: cghelpdesk@pttplc.com

Queries, comments and recommendations will be forwarded to relevant agencies to be addressed through the complaint management system. Follow-up on the action is done through e-mail every three days. If the action is not completed, a notification will be sent to another level of supervisors for action. When completed, responsible units will notify the contact person(s), with another follow-up to find out about their satisfaction with the services of Contact Center officers, which will help improve information system management. The management tracks all information every month to detect trends and apply them as an approach for refinement of processes, products, and services in response to all stakeholders. This year, queries, comments, and recommendations received totaled 243,958, mostly concerning PTT Blue Card, NGV discount cards, service stations/ shops, and PTT's projects.

PTT offers opportunities for the public to file complaints about improper behavior of directors, the management, and staff or their violation of PTT's business ethics. The complaints will be directed to the Office of Corporate Audit, Office of the President and the Corporate Secretary, or Human Resources Department. PTT treats all complaints on the basis of equality, transparency, and fairness to all concerned. An appropriate timeframe to consider the complaints is set, and secrecy and protection of complainants will be observed. However, no complaint on ethical issue was made this year.

Specific Committees, Directors' Assessment, Directors' Orientation, Directors' Development

1. Specific Committees

The Board values CG by initially appointing the Audit Committee, the Nominating Committee, and the Remuneration Committee. For a period, the Audit Committee also looked after CG and risk management for the Board.

In 2004, the Board set up a Corporate Governance Committee, charged with promotion and screening of CG and promotion of excellence in such areas. In 2013, the Board set up the Enterprise Risk Management Committee to ensure clearer implementation of corporate risk management in compliance with the CG of listed companies and the State Enterprise Policy Office's (SEPO) guidelines on the CG of state-owned enterprises (2009). PTT today therefore has five specific committees investigating critical matters under the CG principles for maximum benefit for shareholders, taking into account stakeholders' concerns and interests, business ethics, transparency, and accountability. Each of these committees consists of qualified, non-management directors as required by SET, with clearly written roles and responsibilities in a charter. Since 2009, the duties of the Corporate Governance Committee have been expanded to

cover additional policies, implementation, and monitoring of the operation on responsibilities for society, communities, and the environment so that the committee may be responsible for the stakeholders in a more comprehensive and efficient way. In 2013, the duties of the committee also covered the definition of guidelines for CG monitoring in relation to PTT's counter-corruption implementation. In 2015 and 2016, the Board updated the authorities of the Nominating Committee, Remuneration Committee, Corporate Governance Committee, and the Enterprise Risk Management Committee.

PTT has appointed five specific committees with the following duties and responsibilities:

1.1 The Audit Committee

Each quarter, together with Accounting Department and the Office of the Auditor General of Thailand, the Audit Committee reviews PTT's financial reports and presents its findings to the Board. The Board is accountable for PTT Group's consolidated financial statements as well as other financial information presented in the annual report. The financial statements are prepared under generally accepted accounting principles and are audited and certified by the Office of the Auditor-General. Material information, financial and otherwise, is completely and consistently disclosed.

The Board approved the appointment of the Audit Committee on October 1, 2001, which consisted of directors with the qualifications specified by SEC laws and SET. The committee must consist of at least three directors. As of January 1, 2017, it consisted of three independent directors as follows:

| Name | Position | Remarks |
|-----------------------------|----------|----------------------|
| 1. Mr. Kittipong Kittayarak | Chairman | Independent Director |
| 2. Ms. Nuntawan Sakuntanaga | Member | Independent Director |
| 3. Mr. Vichai Assarasakorn | Member | Independent Director |

Note:

Ms. Nuntawan Sakuntanaga meets the qualifications required to review the credibility of PTT's financial statements.

1. Mr. Kittipong Kittayarak was appointed Member with effect from July 5, 2014, and appointed Chairman with effect from September 4, 2014.
2. Ms. Nuntawan Sakuntanaga was appointed Member with effect from July 5, 2014.
3. Mr. Vichai Assarasakorn was appointed Member with effect from September 4, 2014.

The Executive Vice President, Office of Corporate Audit, served as secretary.

Duties and Responsibilities

- Prepare a charter on internal audit for the Audit Committee compatible with PTT's scope of work and responsibilities. The charter must be approved by the Board and revised at least once a year.
- Review the efficiency and effectiveness of CG, risk management, and internal control processes.
- Review PTT's financial reporting process to ensure accuracy and reliability.
- Review compliance with laws, regulations, rules, stipulations, cabinet resolutions, SET regulations, SEC laws, and laws relevant to PTT's business.
- Ensure the suitability and effectiveness of the internal control system and internal audit procedures and consider the adequacy of the budget and personnel, as well as the independence of the Office of Corporate Audit.
- Consider connected transactions or transactions of potential conflicts of interest or potential malfeasance affecting PTT's operations under the laws and SET's regulations.
- Provide recommendations to the Board on the appointment, transfer, promotion, and assessment of the head of the Office of Corporate Audit.
- Select, nominate, and recommend fees for the external auditor to the Board.*
- Coordinate with the external auditor audit findings and recommend reviews or verification of any items, if necessary.
- Report its internal audit performance to the Board at least quarterly, except for the fourth quarter, which will be reserved for the annual report. The reports must be submitted to the regulating ministry and the Ministry of Finance for acknowledgment.

Note:

** In practice, PTT is regarded as a state enterprise under the definition of the Budgetary Practice Act, B.E. 2502 (1959), Article 4, interpreted by an organic law concerning the auditing of state budget, B.E. 2542 (1999), Articles 4, 39, and 42, which state that the Office of the Auditor-General is authorized to state its views on the accounting standards generally accepted of state enterprises under the law concerning budgetary practices.*

- Evaluate its own internal audit performance at least once a year and report the results to the Board.
- Disclose a report on its annual performance and the fees of the external auditor in the annual report.
- The chairman or members of the Audit Committee must attend shareholders’ meetings to address matters related to the Committee or the appointment of the external auditor.
- Ensure that the management has a mechanism to receive complaints and supervises the system of complaints.
- When it is necessary to provide its opinions on PTT’s assorted operations, seek independent opinions from or hire advisers or specialists on PTT’s expenses.
- If internal reports show any sign of violation against laws, regulations, Cabinet resolutions, announcement, or orders relating to PTT’s operations, the top management must be informed and responsible unit(s) ordered to take due actions.
- Hold the committee meeting at least every quarter and a meeting with the external auditors in the absence of the management at least once a year.
- Hold a formal meeting with the management at least once a year.
- Perform other tasks as required by the law or as assigned by the Board within the committee’s scope of duties and responsibilities.

These are in line with PTT’s regulations on the Audit Committee and the Office of Corporate Audit 2014.

This year the committee held 15 meetings (12 regular and 3 special meetings) and duly reported its findings to the Board. It participated in quarterly financial audits along with the external auditor and Accounting.

The Audit Committee has reported this year’s performance in the Report of the Audit Committee section.

1.2 The Nominating Committee

The Board approved the appointment of the Nominating Committee on October 1, 2001, consisting of three directors. As of January 1, 2017, it consisted of:

| Name | Position | Remarks |
|--------------------------------|----------|----------------------|
| 1. AM Boonsuib Prasit | Chairman | Independent Director |
| 2. Mr. Chanvit Amatamatucharti | Member | Independent Director |
| 3. Mr. Thon Thamrongnawasawat | Member | Independent Director |

- Note:**
1. AM Boonsuib Prasit was appointed Member with effect from September 4, 2014, and appointed Chairman with effect from November 18, 2016.
 2. Mr. Chanvit Amatamatucharti was appointed Member with effect from September 26, 2015.
 3. Mr. Thon Thamrongnawasawat was appointed Member with effect from November 18, 2016.

The Vice President, Office of the President and Corporate Secretary, served as secretary.

Duties and Responsibilities

1. Define the methods and criteria for directors' nomination for transparency.

2. Select director nominees to fill vacancies (due to resignation or term completion) for the Board's or the shareholders' meeting's consideration and appointment regarding to the composition of the Board, expertise, competencies, and experience that would be useful to PTT in compliance with PTT's Board Skill Matrix and the Director's Pool of Ministry of Finance and IOD. Equally important, nominees must have no conflicts of interest with PTT. The qualifications of desirable directors must prove compatible with PTT's business strategies.

3. Propose directors for committee duties with due regard for the compositions of the committees in question, qualifications, expertise, and competencies. Then these names are to be tabled for the Board's appointment. An exception is for the committee itself, appointed by the Board.

4. By its mandate, be accountable to the Board directly while the Board is accountable to all stakeholders.

5. Assess its own performance and report the findings to the Board for acknowledgment and disclose them in the annual report.

6. Disclose its own performance in the annual report.

7. Hold at least two meetings a year.

8. Perform other Board-assigned tasks.

The recruitment procedures for directors are as follows:

1. The committee defines qualifications needed for a replacement to ensure that the new directors meet the criteria and qualifications as required by related laws and regulations, align with PTT's operations. It defines procedures for nominating qualified candidates.

According to the Corporate Governance Handbook, ethics standards, and the Code of Business Conduct, the Board should gather experts from a variety of disciplines needed for the administration of PTT businesses. Specifically, it should have at least three persons that are knowledgeable in the petroleum business. There should be at least one person that is knowledgeable in law, and at least one person that is knowledgeable in finance and accounting.

2. The committee summarizes its recruitment results and presents to the Board a shortlist of qualified candidates along with supporting rationale.

3. The Board appoints the qualified candidates from the list prepared by the committee and submits their names to the shareholders' meeting for approval. The list of suitable persons must also be endorsed by SEPO in conformance to the Directive of the Prime Minister's Office on the Definition of Policy and Supervision of State Enterprises, B.E. 2557 (2014).

This year, the committee held three meetings with all committee members at the time in attendance. The Corporate Secretary served as secretary to the committee.

The committee disclosed its own performance in the annual report under the Report of the Nominating Committee.

1.3 The Remuneration Committee

The Board approved the appointment of the Remuneration Committee on October 1, 2001, by appointing three directors from the Board. As of January 1, 2017, it consisted of:

| Name | Position | Remarks |
|-------------------------------|----------|----------------------|
| 1. Mr. Prasert Bunsumpun | Chairman | Independent Director |
| 2. Mr. Somchai Sujjapongse | Member | Director |
| 3. Mr. Somsak Chotrattanasiri | Member | Independent Director |

- Note:**
- 1. Mr. Prasert Bunsumpun was appointed Chairman with effect from November 18, 2016.
 - 2. Mr. Somchai Sujjapongse was appointed Member with effect from November 1, 2015.
 - 3. Mr. Somsak Chotrattanasiri was appointed Member with effect from November 18, 2016.

The Vice President, Office of the President and Corporate Secretary, served as secretary.

Duties and Responsibilities

- 1. Define the criteria or method for compensation and propose fair, sensible compensation for the directors and the committee members for the Board's and the shareholders' approval.
- 2. Propose guidelines for assessing the performance outcomes and compensation for the President & CEO for the Board's approval.
- 3. Acknowledge and comment on organization restructuring and job levels, and assess and decide compensation for the senior executive vice presidents.
- 4. By its mandate, be accountable to the Board directly while the Board is accountable to all stakeholders.
- 5. Assess its own performance and report the findings to the Board for acknowledgment and disclose it in the annual report.
- 6. Disclose its own performance in the annual report.
- 7. Hold at least two meetings a year (to be enforced in 2017).
- 8. Perform other Board-assigned tasks.

This year, the committee held one meeting with all committee members at the time in attendance. The Corporate Secretary served as secretary to the committee.

The committee disclosed its own performance in the annual report under the Report of the Remuneration Committee.

1.4 The Corporate Governance Committee

The Board approved the appointment of the Corporate Governance Committee on June 24, 2004, consisting of three directors. As of January 1, 2017, it consisted of:

| Name | Position | Remarks |
|---------------------------------|----------|----------------------|
| 1. Gen. Chatchalerm Chalermsook | Chairman | Independent Director |
| 2. Mr. Don Wasantapruet | Member | Independent Director |
| 3. Mr. Thon Thamrongnawasawat | Member | Independent Director |

Note:

- 1. Gen. Chatchalerm Chalermsook was appointed Chairman with effect from September 4, 2014.
- 2. Mr. Don Wasantapruet was appointed Member with effect from September 4, 2014.
- 3. Mr. Thon Thamrongnawasawat was appointed Member with effect from November 18, 2016.

The Vice President, Office of the President and Corporate Secretary, served as secretary.

Duties and responsibilities

- 1. Propose practical CG guidelines to the Board.
- 2. Advise the Board on matters dealing with CG.
- 3. Ensure that the performances of the Board and the management align with CG practices.
- 4. Revise PTT's CG approach by comparing with international practices and propose revisions to the Board.
- 5. Assign the CG policy to PTT's CG taskforce.
- 6. Assign the policy and practical guidelines for sustainability management (SM), including CSR guidelines.
- 7. Assign a policy of allowing minor shareholders to nominate directors and propose AGM agenda items.
- 8. Monitor SM implementation and report its findings to the Board.
- 9. Define the scope for supervising matters dealing with PTT's anti-corruption practices.
- 10. Hold at least one meeting each quarter.

This year the committee held four meetings with all committee members at the time in attendance. The Corporate Secretary served as secretary to the committee.

The committee disclosed its own performance in the annual report under the Report of the Corporate Governance Committee.

1.5 The Enterprise Risk Management Committee

The Board approved the appointment of the Enterprise Risk Management Committee on October 25, 2013, November 22, 2013, and January 31, 2014, by appointing at least three directors, one of whom must be an independent director. As of January 1, 2017, the board consisted of:

| Name | Position | Remarks |
|--------------------------------|----------|----------------------|
| 1. Mr. Chanvit Amatamatucharti | Chairman | Independent Director |
| 2. Mr. Prasert Bunsumpun | Member | Independent Director |
| 3. Mr. Thammayot Srichuai | Member | Director |

- Note:**
- 1. Mr. Chanvit Amatamatucharti was appointed member with effect since September 4, 2014, and was appointed Chairman with effect from January 30, 2015.
 - 2. Mr. Prasert Bunsumpun was appointed member with effect from November 25, 2013.
 - 3. Mr. Thammayot Srichuai was appointed member with effect from December 15, 2016.

The Senior Executive Vice President, Corporate Strategy, as Chief Risk Officer (CRO), served as the secretary.

Duties and responsibilities

- Define and review PTT’s risk management policy and framework.
- Regulate and support risk management processes in line with strategies and business goals as well as prevailing circumstances.
- Provide recommendations on, monitor, and evaluate risk management for further implementation of the Corporate Plan and Risk Management (CPRC) (management level).
- Review risk management reports and provide recommendations on risks including specifications of control measures or mitigation plans and the development of the risk management system to CPRC to ensure continued efficiency.
- Support the Chief Risk Officer (CRO) in achieving PTT’s risk management’s goals.
- Report risk management outcomes to the Board. In case where factors or events might have significant impacts on PTT, the Board must be notified immediately.
- Screen and comment on items with long-term obligations, business complexities, and risks with significant impacts on PTT before tabling such items to the Board.
- Attend the Enterprise Risk Management Committee meeting at least once a quarter.
- Perform other Board-assigned duties.

The Enterprise Risk Management System was reviewed by the Audit Committee and the Office of Corporate Audit.

This year the Committee held five meetings with all committee members at the time in attendance. The Senior Executive Vice President, Corporate Strategy & Organization Development, served as the secretary.

The committee disclosed its own performance in the annual report under the Report of the Enterprise Risk Management Committee.

2. Self-assessment of the Board

By the resolution of Board Meeting No. 10/2016 of October 21, 2016, the Board approved all four self-assessment forms used in 2015 again this year, namely Assessment of the Board, Assessment of Individual Directors (Self-assessment), Individual Assessment of Other Directors (Cross-assessment), and Assessment of the Committees (entire committees). The Board agreed that the forms were appropriate for the assessment of the Board this year with improvements in some items for completeness, namely the request for the Board's stipulation of the courses or specific skills needed by directors so as to secure clearly suitable training for each director. The four assessment forms stipulated the percentages corresponding to the levels of performance achieved in each of these details below:

| | | |
|-----------|---|-------------------|
| Over 85% | = | Excellent |
| Over 75% | = | Very good |
| Over 65% | = | Good |
| Over 50% | = | Fair |
| Below 50% | = | Need improvement. |

The findings from the self-assessments were as follows:

1. Assessment of the Board consisted of 5 topics: Board Policy, Board Composition, Board Practices, Board Meetings, and Board Training and Development.

The results indicated excellent/most suitable overall performance, with an average score of 94.24%.

2. Assessment of Individual Directors (Self-assessment) consisted of 6 topics: accountability for decisions and actions, responsibility for performing the job with full ability and efficiency, equitable treatment of all stakeholders, transparency in job performance and information disclosure, vision to create long-term value, and business ethics.

Overall results of the six categories indicated excellent performance by most directors, with an average score at 97.99%.

3. Individual Assessment of Other Directors (Cross-assessment) consisted of six identical categories as listed above for direct comparison.

Cross-assessment results in these six categories indicated excellent conformance by most directors, with an average score of 98.39%.

4. Self-assessment of the Committees (entire committees) consisted of Board policy, Board composition, Board practices, and Board meetings.

The results in the four categories indicated excellent/most suitable overall performance for the committees as follows:

4.1 The Nominating Committee indicated excellent performance, with an average score of 96.88%.

4.2 The Remuneration Committee indicated excellent performance, with an average score of 97.92%.

4.3 The Corporate Governance Committee indicated excellent performance, with an average score of 97.22%.

4.4 The Enterprise Risk Management Committee indicated excellent performance, with an average score of 100%.

5. Assessment of the Audit Committee's Performance

Under PTT's regulations on performance assessment of the Audit Committee and Office of Corporate Audit 2014, the Audit Committee Manual for State Enterprises under the Ministry of Finance, and SET's good governance handbook for internal auditors and the audit committee Section 1.1: Responsibility of the Audit Committee, the Audit Committee must assess its performance by undertaking self-assessment at least once a year. The individual self-assessment or the entire committee's assessment is presented yearly to the Board, specifying problems leading to unfulfilled objectives. This year the Audit Committee's meeting No. 10/2016 of November 3, 2016 passed a resolution to use the same assessment forms of the Audit Committee, namely Assessment of Individual Directors (Self-assessment), Individual Assessment of Other Directors (Cross-assessment), and Assessment of the

Committee (entire committee), since they conformed to the good governance stipulated by SEPO and SET. The Audit Committee's meeting No. 1/2017 of January 13, 2017, approved the assessment of its performance for 2016 with the following details:

- Self-assessment consisted of business knowledge/ specific expertise/ duties and authorities/ independence and fairness/ understanding of duties and responsibilities of members/ commitment to work and meetings.

The assessment criteria were 4 = Excellent, 3 = Very good, 2 = Good, 1 = Need improvement. The results of the Audit Committee's self-assessment indicated "very good to excellent" overall performance, with an average score of 3.83.

- Cross-assessment consisted of six identical categories as listed above for direct comparison. The results of the Audit Committee's self-assessment indicated "very good to excellent" overall performance, with an average score of 3.97.

- Assessment of the entire committee consisted of Structure and composition/ meetings/ roles and responsibilities/ relationship with the Office of Corporate Audit and the external auditor/ relationship with the management/ reporting/ quality consistency.

The assessment criteria were 4 = regularly implemented, 3 = mostly implemented, 2 = sometimes implemented, 1 = never implemented.

The results of the assessment of the entire Audit Committee was at the "regularly implemented" level, with an average score of 3.95.

Incidentally, PTT will analyze topics for further work improvement.

3. Directors' Orientation

For new directors, PTT arranges an orientation program to inform business policies, capital structure, shareholding structure, business performance, information systems as well as related laws and regulations. Each director receives a Director's Handbook which includes the following topics:

Director's Handbook

1. Public Company Act
2. Securities and Exchange Act
3. Standard Qualifications of Directors and State Enterprise Officer Act
4. Company Registration Certificate
5. Company Certificate
6. Company Objectives
7. Company's Articles of Association
8. Company Rules (17Rules)
9. PTT Corporate Governance Handbook
10. Guidelines for Directors of Listed Companies.

Information kit for directors

1. Overview business presentation of PTT by the President & CEO
2. List of directors, committees, and management structure
3. Director Fiduciary Duty Check List
4. Good CG principles for listed companies
5. Connected transactions of listed companies
6. Guidance on providing information for listed company management
7. PTT Plc. Company Profile (short version)
8. Annual Report
9. Financial Report
10. Annual Sustainability Report
11. Governance book
12. Publication "PTT: The S-Curve Story"

- 13. Debenture Magazine
- 14. PTT Spirit publication
- 15. Article: “Truth about Privatization”
- 16. PTT Way of Conduct
- 17. Factsheets
- 18. PLLI brochure
- 19. PTT Technology and Innovation Management Operating System.

In his briefing to new directors this year, the President & CEO presented PTT about its policies and relevant information for their overview of business operations and performance. At the same time, the above-mentioned documents and handbook for new directors were handed over on two occasions.

4. Directors’ Development

• Course/ Seminar

The Board and the management value regular participation in development training relevant to their performance as seen on their profiles. Most directors (over 90%) have undergone trainings with IOD. PTT supports and encourages their training sessions with IOD as well as other institutions in all relevant courses throughout the year, included regular in-house briefings by experts and consultant companies with helpful business data. It stages study trips to other agencies and organizations to promote useful initiatives for application to PTT’s business.

This year the following directors underwent training and seminars.

| Name | Course/ Seminar |
|-------------------------|--|
| Mr. Piyasvasti Amranand | <ul style="list-style-type: none">• Visited PTTGE’s project area and employees in Indonesia• Joined the 6th Tulip in Rayong Exhibition• Joined the 18th International Conference & Exhibition on Liquefied Natural Gas (LNG 18) and met foreign energy companies in Australia• Visited PTT Group’s businesses, assets, and employees in Qatar and Mozambique• Joined the inauguration of the coffee-roasting plant and Amazon Inspiring Campus (AICA) and the Oil Business Academy (OBA) in Wang Noi District, Phra Nakhon Si Ayutthaya• Attended the Chairman Forum “Corporate Governance vs Corporate Performance: Duty or Choice?”, hosted by IOD• Joined the Outstanding State Enterprise 2016 ceremony• Joined the “Anti-corruption: Leadership Role of the Board” Seminar and discussed the role of the Board in driving the organization under the draft Development of Good Governance and Oversight of State Enterprise, B.E. and sound management principles |

| Name | Course/ Seminar |
|------------------------------|--|
| Mr. Kittipong Kittayarak | <ul style="list-style-type: none"> • Joined the 18th International Conference & Exhibition on Liquefied Natural Gas (LNG 18) and met foreign energy companies in Australia • Visited PTT Group's businesses, assets, and employees in Qatar and Mozambique • Joined the Outstanding State Enterprise 2016 ceremony • Joined the “Enhancing Knowledge and Good Governance of State Enterprise Directors” Seminar, hosted by SEPO |
| AM Boonsuib Prasit | <ul style="list-style-type: none"> • Visited PTTGE's project area and employees in Indonesia • Joined the 6th Tulip in Rayong Exhibition • Joined the 18th International Conference & Exhibition on Liquefied Natural Gas (LNG 18) and met foreign energy companies in Australia • Visited PTT Group's businesses, assets, and employees in Qatar and Mozambique • Attended the Thailand Energy Academy, Class 8, 2016 • Joined the inauguration of the coffee-roasting plant and Amazon Inspiring Campus (AICA) and the Oil Business Academy (OBA) in Wang Noi District, Phra Nakhon Si Ayutthaya |
| Mr. Prasert Bunsumpun | <ul style="list-style-type: none"> • Joined the 18th International Conference & Exhibition on Liquefied Natural Gas (LNG 18) and met foreign energy companies in Australia • Joined the inauguration of the coffee-roasting plant and Amazon Inspiring Campus (AICA) and the Oil Business Academy (OBA) in Wang Noi District, Phra Nakhon Si Ayutthaya • Joined the Outstanding State Enterprise 2016 ceremony • Joined the “Anti-corruption: Leadership Role of the Board” Seminar and discussed the role of the Board in driving the organization under the draft Development of Good Governance and Oversight of State Enterprise, B.E. and sound management principles |
| Gen. Chatchalerm Chalermsook | <ul style="list-style-type: none"> • Attended the Director Accreditation Program (DAP 129/2016), hosted by IOD • Joined the 18th International Conference & Exhibition on Liquefied Natural Gas (LNG 18) and met foreign energy companies in Australia • Joined the Outstanding State Enterprise 2016 ceremony • Joined the “Enhancing Knowledge and Good Governance of State Enterprise Directors” Seminar, hosted by SEPO |

| Name | Course/ Seminar |
|---|--|
| Mr. Chanvit Amatamatucharti | <ul style="list-style-type: none"> • Joined the 6th Tulip in Rayong Exhibition • Joined the 18th International Conference & Exhibition on Liquefied Natural Gas (LNG 18) and met foreign energy companies in Australia • Visited PTT Group's businesses, assets, and employees in Qatar and Mozambique • Joined the inauguration of the coffee-roasting plant and Amazon Inspiring Campus (AICA) and the Oil Business Academy (OBA) in Wang Noi District, Phra Nakhon Si Ayutthaya • Joined the “Enhancing Knowledge and Good Governance of State Enterprise Directors” Seminar, hosted by SEPO • Joined the “Anti-corruption: Leadership Role of the Board” Seminar and discussed the role of the Board in driving the organization under the draft Development of Good Governance and Oversight of State Enterprise, B.E. and sound management principles |
| Ms. Nuntawan Sakuntanaga | <ul style="list-style-type: none"> • Attended the Financial Statements for Directors (FSD 31/2016) course, hosted by IOD • Visited PTT Group's businesses, assets, and employees in Qatar • Joined the Outstanding State Enterprise 2016 ceremony |
| Mr. Vichai Assarasakorn | <ul style="list-style-type: none"> • Attended the Directors Certification Program (DCP 215/2016), hosted by IOD • Visited PTTGE's project area and employees in Indonesia • Joined the 18th International Conference & Exhibition on Liquefied Natural Gas (LNG 18) and met foreign energy companies in Australia • Visited PTT Group's businesses, assets, and employees in Qatar and Mozambique • Joined the inauguration of the coffee-roasting plant and Amazon Inspiring Campus (AICA) and the Oil Business Academy (OBA) in Wang Noi District, Phra Nakhon Si Ayutthaya • Joined the “Anti-corruption: Leadership Role of the Board” Seminar and discussed the role of the Board in driving the organization under the draft Development of Good Governance and Oversight of State Enterprise, B.E. and sound management principles |
| Mr. Thon Thamrongnawasawat (Appointed November 18, 2016) | <ul style="list-style-type: none"> • New Directors' Orientation • Attended Thailand Energy Academy, Class 9, 2017 |

| Name | Course/Seminar |
|--|---|
| Mr. Somchai Sujjapongse | <ul style="list-style-type: none"> Joined the Outstanding State Enterprise 2016 ceremony Joined the “Enhancing Knowledge and Good Governance of State Enterprise Directors” Seminar, hosted by SEPO |
| Mr. Somsak Chotrattanasiri | <ul style="list-style-type: none"> Attended the Capital Market Academy, Class 24 |
| Mr. Don Wasantapruerk | <ul style="list-style-type: none"> Joined the 6th Tulip in Rayong Exhibition Joined the 18th International Conference & Exhibition on Liquefied Natural Gas (LNG 18) and met foreign energy companies in Australia Visited PTT Group's businesses, assets, and employees in Qatar and Mozambique Joined the Outstanding State Enterprise 2016 ceremony Joined the “Anti-corruption: Leadership Role of the Board” Seminar and discussed the role of the Board in driving the organization under the draft Development of Good Governance and Oversight of State Enterprise, B.E. and sound management principles |
| Mr. Thammayot Srichuai (Appointed on December 15, 2016) | <ul style="list-style-type: none"> New Directors’ Orientation |
| Mr. Tevin Vongvanich | <ul style="list-style-type: none"> Joined the 6th Tulip in Rayong Exhibition Joined the 18th International Conference & Exhibition on Liquefied Natural Gas (LNG 18) and met foreign energy companies in Australia Visited PTT Group's businesses, assets, and employees in Qatar and Mozambique Joined the inauguration of the coffee-roasting plant and Amazon Inspiring Campus (AICA) and the Oil Business Academy (OBA) in Wang Noi District, Phra Nakhon Si Ayutthaya Joined the Outstanding State Enterprise 2016 ceremony Joined the “Enhancing Knowledge and Good Governance of State Enterprise Directors” Seminar, hosted by SEPO Joined the “Anti-corruption: Leadership Role of the Board” Seminar and discussed the role of the Board in driving the organization under the draft Development of Good Governance and Oversight of State Enterprise, B.E. and sound management principles |

• Visits to Businesses, Assets, and Employees of PTT Group Companies/ Energy Business Investigation

PTT's policy is to organize periodic visits and study trips to operations, assets, and employees, domestic and overseas. For the directors, it is to foster their understanding of the business and apply their expertise and experience to their consideration of energy-related matters concerning PTT and Thailand.

The Board can compare energy policy-making with that of Thailand while enabling directors to track data and progress in the energy business and share views with experts from world-class, leading energy companies first-hand. This would provide insights to PTT Group's investment growth abroad which aligns with its future business directions. The knowledge and direct experience derived from this activity will contribute to their mastery of world-class energy businesses and aid in setting both PTT's and Thailand's businesses.

This year, the Board's visits to PTT Group's business operations, assets, and employees were as follows:

- PTT Green Energy Pte. Ltd. (PTTGE)'s oil palm project areas in Indonesia
- Visited business operations and studied energy or related businesses along with new technologies in Australia. Joined the 18th International Conference & Exhibition on Liquefied Natural Gas (LNG 18) and met foreign energy companies in Australia. Visited PTTEP Australasia's business operations and employees to get updates and acknowledge problems facing Montara and Cash-Maple Fields. Visited LNG plants operated by Woodside, Australia's biggest LNG producer. Discussed with Woodside's executives productivity improvement useful for operational excellence. Visited an LNG plant operated by Shell (BG) where LNG supply potential exists. Discussed with executives of Origin Energy, an integrated energy company to share views on the energy business, discuss feasibility and opportunities of conducting business together.
- Visited Qatar Gas to study and meet executives and employees affiliated to PTTEP, namely Cove Energy Mozambique Romuva Onshore in Mozambique.

Also, the Board made the following domestic study visits:

1. The Board joined the inauguration of the coffee-roasting plant and the Amazon Inspiring Campus (AICA), an integrated coffee learning center where people can study the coffee business background. This helped in promoting an image and engagement between consumers and PTT. Another was the Oil Business Academy (OBA), which houses business knowledge and experience focusing on development of caliber for employees, customers, business partners, and the Oil Business's stakeholders. Both are located at Sanap Thuep Sub-district, Wang Noi District, Phra Nakhon Si Ayutthaya.

2. The Board visited the 6th Tulip in Rayong exhibition of cold-weather plants at the HRH Princess Maha Chakri Sirindhorn Herb Garden in Map Kha Sub-district, Rayong.

Nomination and Appointment of Directors and the President & CEO

1. Independent Directors

1.1 Qualifications of Independent Directors

At Meeting No. 1/2556 of January 17, 2013, the Board endorsed a proposal of the Corporate Governance Committee to redefine PTT independent directors' qualifications to be more stringently than the criteria of SEC and SET and to define their roles and responsibilities in a manual, signed by the Chairman on January 21, 2013, as follows:

• Qualifications of Independent Directors

(1) Hold up to 0.5% of the voting shares of PTT, its subsidiaries, associates, or related companies (*including the shares held by connected parties under Article 258 of Securities and Exchange laws*)

(2) Have not been involved in the management or employees, wage earners - including audit advisors, legal or other advisers - on the payroll of PTT, or have control over PTT, its subsidiaries, associates or juristic persons that could pose conflicts of interest for the past two years.

(3) Have no blood relationship or relationship through registration as parents, spouses, siblings, and children. This definition also applies on children's spouses, executives, major shareholder, controllers, or people to be nominated as an executive or controller of PTT or its subsidiaries.

(4) Business relationship with PTT

(a) Types of relationship

- Professional service
 - Auditor and other professional service provider including legal adviser, financial adviser, property valuator
 - “Non-independent” criteria
 - Total prohibition for auditors
 - Other professional services: when the total value exceeds THB 2 million per year.
- Commercial/business relationship (similar to SET's requirements for connected transactions)
 - Types of relationship: Full coverage of business transactions, that is, normal transactions, real-estate leasing, asset/service transactions, and financial assistance transactions
 - “Non-independent” criteria: Transaction value from THB 20 million or 3% of PTT's NTA upward (**whichever is lower**); the total value must include items occurring within six months before this transaction.

(b) Should the relationship under (a) apply to a juristic person, the parties regarded as “non-independent” consist of the major shareholder, directors that are not independent ones or not a member of the Audit Committee, and executives (or partners) of that juristic person

(c) The forbidden periods for (a) and (b): Two years before the appointment

(d) Exceptions: **If necessary and suitable (exceptional cases)**, independent directors/Audit Committee members may have more relationship than the non-independent criteria **while holding directorship**, provided that a prior unanimous approval has been given by the Board. PTT must disclose such relationship in Form 56-1 and its annual report (Form 56-2). PTT should decide to extend the term of that independent director, it must disclose details about such relationship in the meeting notice for the next shareholders' meeting (in the directors' election agenda item).

(5) Are not appointed to represent PTT's directors, its major shareholder, or shareholders relation to PTT's major shareholder.

(6) Have no qualifications that compromise the expression of free views.

(7) Independent directors with qualifications 1 through 6 above may be assigned by the Board to decide on business matters of PTT, its subsidiaries, associated companies, sister companies, or juristic persons that could pose conflicts of interest; such decisions will be collective decisions.

Incidentally, if independent directors serve in this position in PTT, its subsidiaries, associated companies, or sister companies, PTT must also disclose information about that service and the total compensation in Form 56-1 and Form 56-2.

• Roles and Responsibilities of PTT's Independent Directors

(1) Recommend essential, beneficial matters to PTT and all its shareholders to the Board or the President & CEO, or both.

(2) Advocate roles and responsibilities of the Board and provide views commonly expected of independent directors for the benefit of PTT and all its shareholders.

(3) Review matters to ensure PTT's compliance with laws dealing with independent directors, and revise the definition of independent directors for suitability and legal completeness.

(4) Take other Board-assigned actions provided that these actions do not compromise their independence.

(5) An independent director's term begins once he or she fulfills all the requirements under the definition for PTT's CG; it ends when he or she lacks qualifications or completes the PTT term.

(6) The independent directors must hold their own meeting at least once a year.

1.2 Segregation of the Chairman and the President & CEO Positions

To segregate policy-making duties from those of day-to-day management and to enable directors to oversee, look after, and assess performance effectively, PTT has required that the Chairman and the President & CEO are always two distinct persons. This is because the Chairman needs to oversee the management's performance, guide, and assist it, but not to take part in or interfere with day-to-day management, which is the duty of the President & CEO under the authority delegated by the Board.

The current Chairman is an independent director. He exercises high-level leadership and ensures that directors do not fall under the influence of the management by encouraging them to exercise their voting rights and strictly comply with CG principles.

1.3 Independence of the Chairman

To ensure fairness and efficiency and support the Board, the Chairman of the Board also serves as Chairman of shareholders' meetings. At Extraordinary Meeting No. 1/2557 of July 4, 2014, the Board appointed Mr. Piyasvasti Amranand

as the Chairman in compliance with the CG principles for listed companies (2012 edition). It would allow the work of the Chairman to be independent and boost confidence in transparency of operations and fair treatment of all stakeholders.

2. Nomination of Directors and President & CEO

2.1 Nomination of Directors

(The nominating process to appoint directors is reported under Corporate Governance, entitled "Proposing Additional Meeting Agenda Items and Nominating Directors" and "The Nominating Committee").

2.2 Nomination of President & CEO/ Succession Planning

Since PTT is a state enterprise, the nomination and appointment of the President & CEO must follow the Standard Qualifications of Directors and State Enterprise Officer Act. The directors must have the qualifications as specified in Article 8 quarter and the nominating procedures as specified in Article 8 quarter. The Board is to appoint a Nominating Committee with five members legitimately qualified to nominate persons with appropriate knowledge, capability, and experience to fill the positions of PTT management. They must be legitimately qualified and cannot be PTT directors, except for the management who are directors by title. They must not be older than 58 years old when submitting the application form. When the Nominating Committee has selected appropriate candidates, it submits the results to the authority's consideration. The appointment must be completed within one year from the day the incumbent vacated the position. The employment contract lasts up to four years for each term. If the Board wishes to hire the previous management team member after the completion of his term as specified in the employment contract, it does not have to go through the nominating process, but it cannot hire that person for more than two consecutive terms.

*The information on **succession planning for the executives** is reported under Management Structure, entitled "Employees".*

Governance of Subsidiary and Associated Companies

Governance Mechanism

PTT defined a CG policy for PTT Group companies in the “PTT Way” handbook and the “PTT Way of Conduct” guidelines. Both compile work procedures in various aspects of PTT Group so that their work procedures are in conformity and unity. They will provide PTT executives who take the positions of directors and presidents in PTT Group or relevant agencies with the guidelines that they can comply with and foster cooperation in business operations among PTT Group companies in the same direction, conforming to and complementing one another, in order to forge competitiveness so as to meet long-term goals and experience sustainable growth.

Management task grouping falls into two levels:

- **Corporate level**, consisting of
 - Corporate center which focuses on governance and shared services, a consistent policy.
 - COO/BG whose role is to define strategies and goals and to closely monitor each business group’s performance to pursue operational excellence and forge synergy.

- **Operating level in PTT Group**, namely business units and their companies which focuses on their own businesses to achieve success and integrate PTT Group governance and shared services with their own operations for maximum efficiency.

Corporate level and BU/Flagship management are linked through governance mechanisms as follows:

- Definition of company regulations and requirements
- Policy transfer leading to implementation by PTT executives holding directorships or the top management positions of PTT Group companies or PTT officers on secondment in PTT Group
- Linkage and driving of tasks toward goal achievement through assorted panels
- Transfer, monitor, advice, and assessment of policy drives among PTT Group companies through the management of affiliate of each business unit

Also, PTT has defined the key roles in the management of PTT Group companies for maximum benefit as set by the mission.

Roles of the Board are as follows:

- Define the company’s vision, directions, strategies, and policies
- Appoint the management to conduct business
- Monitor and ensure that the company’s operations provide maximum benefit to the shareholders and stakeholders
- Adhere to good governance.

Roles of the top management are as follows:

- Provide linkage of strategies and policies between the company and PTT Group based on concrete implementation
- Manage the company so that its performance may satisfy shareholders.

Roles of the Corporate Secretary are as follows:

- Support the Board and the President & CEO
- Ensure the company’s compliance
- Establish an internal control system.

Roles of the Shareholders are as follows:

- Elect and monitor directors
- Formulate the company’s policy.

Below are the criteria and rules that specify the roles and duties of PTT’s directors and the top management in PTT Group:

- PTT Plc. Articles of Association on the investment criteria in PTT Group companies and governance guidance of PTT-invested companies (2014)
- PTT Plc. Articles of Association on the internal task division of PTT (2010)
- PTT Plc. Articles of Association on personnel management
- PTT Plc. Articles of Association on the investment criteria in PTT Group companies and governance guidance of PTT-invested companies (2015)
- Rules of the Securities and Exchange Commission (SEC)

- Rules on the replacement of directors in PTT Group companies not listed on the stock exchange
- Rules on the appointment of executives as boards of directors in PTT Group companies not listed on the stock exchange
- Rules on the management of PTT Group companies
- Anti-corruption rules regulated by the CAC panel.

Policy on Serving as Directors of Other Companies

This year, PTT had 42 affiliated companies, five of which are SET-listed. PTT adopted the PTT Group management structure for synergy and alignment of policies. To achieve this, it appoints directors or management team members as directors in these companies to supervise policies and business management which align with PTT's policies for the benefit and value addition for all stakeholders. The objectives of such appointments are

1) To ensure that the management of a given company aligns with the policies of PTT Group companies and to monitor its overall business performance to align with PTT's policy and institute comparable standards.

2) To establish synergy for the business of PTT Group companies and add value to all related parties including Thailand as a whole.

3) To apply specific expertise in support of business including financial know-how to improve accounting and financial processes to enable a given company to grow robustly. This includes assistance to companies outside PTT Group. The resulting application of the knowledge and expertise gained from serving in such leading companies will enhance the benefit to PTT and foster cordial relations and business alliance with PTT.

4) This is part and parcel of the responsibility of the directors and the management of PTT.

PTT ensures its consideration of executives or outsiders from the Ministry of Finance's Director's Pool for appointment within PTT Group, regarded as a state enterprise, based on the act on standard qualifications of directors and state enterprise officials. Chosen directors from the pool must make up no less than one-third of other directors of a given state enterprise. As of February 1, 2017, PTT had 30 members who belonged to the Director's Pool. It also ensures that PTT executives and such outsiders who serve

as directors in PTT affiliates serve on no more than three PTT affiliates or other state enterprise affiliates. This is designed to lower risks of conflicts of interest and ensure conformance to applicable laws as well as conformance to a Cabinet resolution of January 24, 2011, on fraud prevention measures at state enterprises, entitled "The appointment of senior government officials or persons as directors on multiple state enterprises", as proposed by the National Anti-Corruption Commission.

The Board decided to define guidelines and criteria for serving in various positions by PTT Group's executives. This year, the Board decided to adopt them as a part of the Corporate Governance Handbook.

Supervision of the Use of Internal Information

1. Internal Control System

PTT consistently values internal controls, particularly a system that is comprehensive in scope of activities and aspects, as well as adequate and suitable for its businesses in order to achieve objectives on:

1. Operational Excellence: Ensure efficient, effective management of resource consumption together with stewardship of properties through prevention and reduction of errors, damage, waste, and fraud

2. Reporting Reliability: Ensure that financial and other reports developed for internal and external consumption are accurate, credible, and timely

3. Compliance: Ensure compliance with laws and regulations dealing with the organization's business together with strict compliance with PTT-defined policies and procedures dealing with its businesses.

Under PTT's system, a unit is responsible for internal control to assess such control. The President & CEO has authorized the Corporate Plan and Risk Committee to define work procedures under PTT's internal control standards and assess the outcomes and report the overview of PTT internal control in line with the rules of the Office of the Auditor-General governing the formulation of internal control standards, B.E. 2544 (2011), Article 6. Under the rules, the head of a government agency or state enterprise must report to the Office of the Auditor-General, the monitoring

agency, and the Audit Committee on internal controls at least once a year. The Board has assigned the Audit Committee to review the findings of such internal control assessment, annually conducted by the management and the Office of Corporate Audit, as highlighted below.

(1) Control Environment

PTT commands a sound overall control environment that is adequate for business efficiency and effectiveness. Its executives have promoted an organizational culture, focusing on the Code of Conduct as a role model with the following implementation:

- PTT has defined a policy and procedures in writing on integrity and the Code of Conduct. The Corporate Governance Committee defines a CG policy in line with international standards. Disclosures are made about conflicts of interest to ward off activities of such conflicts, as well as illegal, and improper activities. The policy and the handbook are yearly revised. Each director, management team member, and employee must sign his or her name to acknowledge and conform to such policy and handbook as part of their work, illustrating the commitment to applying the CG policy and code of conduct for practical results.
- PTT has instituted an organizational structure that decentralizes power for business flexibility and alignment with prevailing circumstances as well as clear, suitable lines of command. Duties and responsibilities are defined in writing, with definitions of Key Performance Indicators (KPIs) set early in the year as guidelines for employees' performance. Performance is regularly monitored against goals and measured at the year-end. Goals are revised each year. All employees are aware of their roles, authority, duties, and responsibilities.
- PTT has integrated CG with the organization's vision, missions, and core values by setting a goal for PTT as a company with sustainable growth strategy, a high-performance organization with Corporate Social Responsibility (CSR), and with proper benefits to the stakeholders on the Corporate Governance (CG) basis.

(2) Code of Conduct

PTT written policy and the Code of Conduct are in place for integrity and ethics. In the handbook, the Corporate Governance Committee defined the code based on international standards. Violators of the code are subject to disciplinary action.

The essential aspects of the code are included below:

1. Respect the law and the Universal Declaration of Human Rights principles
2. Anti-Money Laundering
3. Stay politically neutral
4. Stay free of vested interests and conflicts of interest
5. Maintain confidentiality and refrain from using inside information for self-gains
6. Respond to customers' needs and show responsibility to consumers
7. Compete freely and fairly
8. Use a transparent procurement system and treat business partners fairly
9. Show responsibility to communities and society
10. Support employees' rights and establish employee engagement
11. Strictly, transparently, and equitably honor loan contracts
12. Have an efficient internal control system and an internal audit system
13. Have a guideline for accepting and giving gifts, assets, or other benefits
14. Maintain safety, promote health, and preserve the environment
15. Respect intellectual properties and properly apply information technology.

(3) Conflicts of Interest

PTT requires information disclosure to prevent conflicts of interest and illegal, improper activities. Under the Board's policy, business decisions made by the management and employees must be solely for PTT's best interests. All employees must not only avoid engaging in financial and other relationships with external parties that would lead to financial losses for PTT or a conflict in loyalty or

interests, but also not compromise the efficiency of business operations. Any of them with interests or related businesses, which may require PTT's review and decisions, must report their relationships and connection with possible conflicts of interest. PTT disallows such connected persons from exercising their authority for and involvement in such transactions.

(4) Reporting Connected Transactions with PTT

PTT has required the directors, management, and all employees to disclose potential conflicts of interest through a specific disclosure form. Any approval of that items must not contain special conditions or specifications that are out of the ordinary, which forms part of PTT internal controls. PTT's Office of Corporate Audit and the Audit Committee have been entrusted with the monitoring and resolution of issues related to conflicts of interest. This year the directors, management, and all employees were required to fill a form for conflicts of interest at the beginning of the year. No such cases of significance have arisen. The disclosure form confirms their acknowledgment that violation of ethics and the code of conduct in PTT's business operations is subject to disciplinary measures varying with the seriousness of the actions.

(5) Reporting Vested Interests of Directors, the Management, and Related Parties

In the first quarter of the year, PTT required reports of the vested interests from directors, the management, and related parties as basic information to manage vested interests for directors and senior management. The directors and the management are required to report such matters yearly with every change. The Corporate Secretary is to compile and submit the copy to the Board Chairman and the Chairman of the Audit Committee to check and manage conflicts of interest. This year, however, no such cases have arisen.

(6) Reporting Changes in Share Ownerships (Portfolios)

As part of the oversight of internal information measures, all PTT directors and management, including their spouses and children not yet of legal age, must report any changes in their PTT share ownership to SEC under Article 59 of the Securities and Exchange Act B.E. 2535 (1992) within three days from the dates of sale, purchase, disposal, or receipt of such shares. PTT defines the policy of disclosing or reporting the sale, purchase, disposal, or receipt of such shares, changes in share ownerships of the directors and the management to the monthly Board meeting, contained in advance as a regular agenda item.

One week before the closing of the quarterly and yearly financial statements, the Office of the President and Corporate Secretary issues a letter to the directors, executives, or units with privilege of internal information, forbidding them to disclose such information to external parties or unrelated parties, and to buy or sell PTT shares within 45 days (for quarterly statements) and 60 days (for the annual statements) of the last effective date of the financial statements to the notification date of the financial statements to SET, ahead of the public dissemination of the statements so as to prevent insider trading. All directors and the management have strictly observed this policy. Notifications were served on four occasions to the directors and executives, that is, no sale, purchase, or transfer of PTT's shares:

1. Between January 1 and February 29
(fiscal year 2015)
2. Between April 1 and May 16
(fiscal year 2016, first quarter)
3. Between July 1 and August 15
(fiscal year 2016, second quarter)
4. Between October 1 and November 14
(fiscal year 2016, third quarter).

A policy was set to avoid share trading of PTT Group companies during other periods. If in need, such share trading must give a notification to the Corporate Secretary at least two days.

Directors' Securities Portfolio, 2015 – 2016

| No. | Name | Shares | | | Remarks |
|-----|-------------------------------------|---------------|---------------|------------------------|--|
| | | Dec. 31, 2015 | Dec. 31, 2016 | Change during the year | |
| 1. | Mr. Piyasvasti Amranand | - | - | - | (No PTT share held) |
| | Spouse and children under legal age | - | - | - | - |
| 2. | Mr. Kittipong Kittayarak | - | - | - | (No PTT share held) |
| | Spouse and children under legal age | - | - | - | - |
| 3. | AM Boonsuib Prasit | - | - | - | (No PTT share held) |
| | Spouse and children under legal age | - | - | - | - |
| 4. | Mr. Prasert Bunsumpun | - | - | - | - |
| | Spouse | 130,800 | 130,800 | - | (No trading transaction of PTT shares in 2016) |
| | Children under legal age | - | - | - | - |
| 5. | Gen. Chatchalerm Chalernsukh | - | - | - | (No PTT share held) |
| | Spouse and children under legal age | - | - | - | - |
| 6. | Mr. Chanvit Amatamatucharti | - | - | - | (No PTT share held) |
| | Spouse and children under legal age | - | - | - | - |
| 7. | Ms. Nuntawan Sakuntanaga | - | - | - | (No PTT share held) |
| | Spouse and children under legal age | - | - | - | - |

| No. | Name | Shares | | | Remarks |
|-----|-------------------------------------|---------------|---------------|------------------------|---|
| | | Dec. 31, 2015 | Dec. 31, 2016 | Change during the year | |
| 8. | Mr. Vichai Assarasakorn | - | - | - | (No PTT share held) |
| | Spouse and children under legal age | - | - | - | - |
| 9. | Mr. Somsak Chotrattanasiri | - | - | - | (No PTT share held) |
| | Spouse and children under legal age | - | - | - | - |
| 10. | Mr. Somchai Sujjapongse | - | - | - | (No PTT share held) |
| | Spouse and children under legal age | - | - | - | - |
| 11. | Mr. Don Wasantapruek | - | - | - | (No PTT share held) |
| | Spouse and children under legal age | - | - | - | - |
| 12. | Mr. Thon Thamrongnawasawat | - | - | - | Appointed on November 18, 2016 (No PTT share held) |
| | Spouse and children under legal age | - | - | - | - |
| 13. | Mr. Thammayot Srichuai | - | - | - | Appointed on December 15, 2016 (No PTT share held) |
| | Spouse and children under legal age | - | - | - | - |
| 14. | Mr. Tevin Vongvanich | - | - | - | Shown in the Management's Ownership of Shares Table. |

Note:

No PTT share was held by directors' spouses and children under legal age, **except** for those of Director No. 4.

Securities Portfolios of Directors Who Completed Their Terms and Who Resigned, 2016

| No. | Name | Shares | | | Remarks |
|-----|-------------------------------------|---------------|---------------|------------------------|---|
| | | Dec. 31, 2015 | Dec. 31, 2016 | Change during the year | |
| 1. | Mr. Areepong Bhoocha-oom | - | N/A | N/A | Resigned on February 8, 2016 (No PTT share held) |
| | Spouse and children under legal age | - | - | - | - |
| 2. | Mr. Watcharakiti Watcharothai | - | N/A | N/A | Resigned on July 25, 2016 (No PTT share held) |
| | Spouse and children under legal age | - | - | - | - |
| 3. | Mr. Chavalit Pichalai | - | N/A | N/A | Resigned on October 28, 2016 (No PTT share held) |
| | Spouse and children under legal age | - | - | - | - |

Management's Ownership of Shares, 2015 – 2016

| No. | Name | Shares | | | Remarks |
|-----|-------------------------------------|---------------|---------------|------------------------|---|
| | | Dec. 31, 2015 | Dec. 31, 2016 | Change during the year | |
| 1. | Mr. Tevin Vongvanich | 25,000 | 25,000 | - | (No trading transaction of PTT shares in 2016) |
| | Spouse and children under legal age | - | - | - | - |
| 2. | Mr. Wirat Uanarumit | 25,500 | 15,500 | (10,000) | (Transactions of PTT shares in 2016: Sold 10,000 shares) |
| | Spouse and children under legal age | - | - | - | - |
| 3. | Mr. Sarun Rungkasiri | - | - | - | (No PTT share held) |
| | Spouse and children under legal age | - | - | - | - |
| 4. | Mr. Chavarit Punthong | - | - | - | (No PTT share held) |
| | Spouse and children under legal age | - | - | - | - |

| No. | Name | Shares | | | Remarks |
|-----|-------------------------------------|---------------|--------------------------------|------------------------|---|
| | | Dec. 31, 2015 | Dec. 31, 2016 | Change during the year | |
| 5. | Mrs. Nitima Thepvanangkul | 41,000 | 41,000 | - | (No trading transaction of PTT shares in 2016) |
| | Spouse and children under legal age | - | - | - | - |
| 6. | Ms. Sriwan Eamrungrroj | - | - | - | (No PTT share held) |
| | Spouse | 120,200 | 110,200 | (10,000) | Transactions of PTT shares in 2016: (Buy 4,000 shares and sold 14,000 shares) |
| | Children under legal age | - | - | - | - |
| 7. | Mr. Krit Imsang | N/A | 10,000 | - | * Appointed on February 1, 2016 (No trading transaction of PTT shares in 2016) |
| | Spouse and children under legal age | - | - | - | - |
| 8. | Mr. Noppadol Pinsupa | 13,600 | 13,600 | - | (No trading transaction of PTT shares in 2016) |
| | Spouse | 50,800 | 50,800 | - | (No trading transaction of PTT shares in 2016) |
| | Children under legal age | - | - | - | - |
| 9. | Mr. Auttapol Rerkpiboon | 22,500 | 22,500 | - | (No trading transaction of PTT shares in 2016) |
| | Spouse | 3,800 | 4,300 | 500 | (Transactions of PTT shares in 2016: Bought 500 shares) |
| | Children under legal age | - | - | - | - |
| 10. | Mr. Chansin Treenuchagron | - | - | - | (No PTT share held) |
| | Spouse and children under legal age | - | - | - | - |
| 11. | Ms. Boobpha Amornkiatkajorn | 101,900 | 70,000 | (31,900) | (Transactions of PTT shares in 2016: Sold 31,900 shares) |
| | Spouse and children under legal age | - | - | - | - |
| 12. | Mr. Wittawat Svasti-xuto* | N/A | 35,451 (as of Jan. 1, 2017) | N/A | * Appointed on January 1, 2017 |
| | Spouse and children under legal age | - | - | - | - |
| 13. | Mr. Soupot Laosuarpha* | N/A | 78,807 | N/A | * Appointed on August 1, 2016 (No trading transactions of PTT shares in 2016) |

| No. | Name | Shares | | | Remarks |
|-----|-------------------------------------|---------------|---------------|------------------------|--|
| | | Dec. 31, 2015 | Dec. 31, 2016 | Change during the year | |
| 14. | Ms. Nitaya Direksathapon* | N/A | 5,000 | N/A | * Appointed on August 1, 2016 (No trading transactions of PTT shares in 2016) |
| 15. | Mr. Somporn Vongvuthipornchai | - | - | - | (No PTT share held) |
| | Spouse | 10,000 | 10,000 | - | (No trading transaction of PTT shares in 2016) |
| | Children under legal age | - | - | - | - |
| 16. | Mr. Sukrit Surabotsopon | 2,000 | 2,000 | - | (No trading transaction of PTT shares in 2016) |
| | Spouse and children under legal age | - | - | - | - |
| 17. | Mr. Atikom Terbsiri | - | - | - | (No PTT share held) |
| | Spouse and children under legal age | - | - | - | - |
| 18. | Mr. Supattanapong Punmeechaow | - | - | - | (No PTT share held) |
| | Spouse and children under legal age | - | - | - | - |
| 19. | Mr. Sumrid Sumneing* | N/A | 7,000 | N/A | * Appointed on January 1, 2016 (No trading transactions of PTT shares in 2016) |
| | Spouse and children under legal age | - | - | - | - |
| 20. | Mr. Chienvit Udomwatwong* | N/A | 1,516 | N/A | * Appointed on October 1, 2016 (No trading transactions of PTT shares in 2016) |
| | Spouse and children under legal age | - | - | - | - |
| 21. | Ms. Wilaiwan Kanjanakanti* | N/A | 3,699 | N/A | * Appointed on November 1, 2016 (No trading transactions of PTT shares in 2016) |
| | Spouse and children under legal age | - | - | - | - |

Note:

No PTT share was held by executives' spouses and children under legal age, **except** those of No. 6, 8, 9 and 15.

Securities Portfolios of Executives Transferred/ Retired, 2016

| No. | Name | Shares | | | Remarks |
|-----|-------------------------------------|---------------|---------------|------------------------|--|
| | | Dec. 31, 2015 | Dec. 31, 2016 | Change during the year | |
| 1. | Ms. Pannalin Mahawongtikul | 28,812 | N/A | N/A | Seconded to PTTEP since January 1, 2016 (No trading transactions of PTT shares in 2016) |
| 2. | Mr. Pitipan Teparitarn | 4,334 | N/A | N/A | Retired on September 30, 2016 (No trading transactions of PTT shares in 2016) |
| | Spouse and children under legal age | - | - | - | - |
| 3. | Ms. Oravan Leelarasme | 48,402 | N/A | N/A | Appointed on June 1, 2016 Retired September 30, 2016 (No trading transactions of PTT shares in 2016) |
| | Spouse and children under legal age | - | - | - | - |

Note:

PTT has issued and offered 60,000,000 warrants to the President, the management, PTT employees, and employees of PTT Group seconded to PTT, consisting of two batches: PTT-W1 (40,000,000 units), offered in 2005, with the last exercise date on August 31, 2010, and PTT-W2 (20,000,000 units), offered in 2006, with the last exercise date on September 28, 2011. The warrants were all exercised, and no new ones have been issued.

(7) Reporting List of Assets and Debts to the Office of the National Anti-Corruption Commission (NACC)

Under Article 39 of the Anti-Corruption Act B.E. 2542 (1999), PTT's directors and senior management including directors and senior management in the companies where PTT holds more than 50% of shares, are required to submit a list of their own assets and debts including those of their spouses and children not yet of legal age, to the NACC each time they take up a position, every three years during their terms, and when they no longer hold their positions. To achieve this, PTT will issue a reminder each of the directors and senior management.

(8) Declaring Vested Interests at Meetings

At each Board meeting, the Chairman reminds directors to conform to the policy on conflicts of interest on all agenda items. It requires those with vested interests to declare such interests to the meeting in order to abstain from voting or giving any views. This year, a total of 11 notices were made to the Chairman out of 13 Board meetings.

(9) Review of Connected Transactions

The Audit Committee reviews related transactions, those with potential conflicts of interest, or with possible fraudulent practices that could harm PTT's businesses. The Audit Committee reports these transactions to the Board along with items of conflicts of interest which have been examined for conformance to SET's criteria. Such transactions are strictly disclosed in the reports and disclosed quarterly.

(10) Corporate Governance Promotional Activities

The Corporate Governance Committee promotes and screens CG matters for PTT to actively campaign for CG principles. A CG taskforce, headed by an executive vice president, has drawn up PTT's action plan for CG and anti-corruption along with annual goals. It was later approved by the Corporate Governance Committee and the Board for relevant units to observe as well as implement assorted matters under the policy and conducting campaigns to cultivate awareness among directors, management, employees, and related parties this year as described below:

- PTT constantly reviews and amends its values and corporate culture to suit and align with its vision and business context. Senior leaders show their commitment to the values and communicate with all staff across PTT through assorted channels. They also define promotional plans and activities for that values and culture, together with indicators for monitoring and assessment to lend effectiveness to internal communication, personnel skill sharing, and innovative environment at workplaces.
- PTT has defined its policy and management procedures for human resources in writing including recruiting, training, promotion, and compensation procedures. A competencies development policy is constantly provide to match employees' caliber with business needs and accommodates work expansion.
- PTT has set up a complaint management center, with Corporate Communications and Customer Relationship Management as the main responsible units, in charge of the management of external complaints and responses to queries together with internal complaints. Suitable periods have been defined for these purposes. Issues are compiled, managed, and regularly submitted to the management for comprehensive improvement and development of PTT.

- This year the Corporate Governance Committee held four meetings. The meeting frequency set at least quarterly to monitor CG, following up progress of the management of PTT's sustainability, and social responsibility and communication.
- A channel for directly communicating CG with shareholders is through quarterly newsletter called "PTT Bizway" in Thai and English, mailed to shareholders. It contains key information including the vision, missions, message from the President & CEO, performance outcomes, CG, and management for PTT's sustainability. PTT enclosed an attitude survey form for shareholders and received cooperation from readers. For the topic on satisfaction with PTT on CG, it received "very satisfied" to "most satisfied" assessment score of about 90%.
- Late this year, the CG taskforce conducted a survey through internal communication to assess PTT employees' mastery and communication of CG. In conclusion over 95.49% of them commanded good understanding of CG and the code of business conduct. It also developed CG E-learning on the intranet as a learning media on CG and the code of business conduct for employees. The plan is to assess employees' understanding to promote the cultivation of awareness and campaign for it throughout their performance under the code of business conduct.
- Created a CG Roadshow activity to enable employees in assorted business units and areas to listen and share CG and anti-corruption applications extensively. Activities consisted of exhibitions on CG, ethics, and code of business conduct, edutainment games, short films about anti-corruption, and a talk on corporate transparency and co-existence under CG principles. This year three CG Roadshows were held at PTT offices, namely Rayong GSP, Phra Khanong Office, and PTT RTI at Wang Noi. The satisfaction scores of the three roadshows were "good - very good", at the average of 93.53%.
- Created the 3rd CG Camp to allow representatives from different units to intensively observe and learn CG and anti-corruption practices to apply on their real-life work while championing the cause among colleagues. This forms part of "strengthening from the inside" under PTT's strategies. At the camp, a dharma dialogue was held on compliance with CG, a workshop on the approach to an organization of integrity, a drama simulating CG compliance by participants, and recreational activities interspersed with tips on CG, among others.
- For new employees, the CG principles are communicated through PTT orientation sessions. It comes with a test to assess their knowledge of the CG E-Learning system. This year, there were three batches, approximately 60 - 80 persons per time. All new employees receive a CG handbook. They had to study them and sign their names as acknowledgment before applying the CG principles and the code of business conduct as guidelines for their work.
- Besides promoting CG knowledge within the organization, PTT shared this knowledge with external parties by agreeing to requests for visits by assorted organizations/ institutions. PTT's top management were also invited to give talks or join seminars on the subject.
- Periodic promotional campaigns were conducted through various media within PTT, including exhibitions, a CG website packed with information, and two-way communication channels through e-mail: cghelpdesk@pttplc.com, video shows, and the CG column in the "PTT Spirit" magazine, all received positive responses. The Corporate Governance Committee distributed the Thai and English versions of Corporate Governance, Ethical Standards, and Code of Business Handbook to investors, international interested parties, and stakeholders for their reference. Details of these are also posted on PTT official website.

- In addition, PTT focused on CG among PTT Group to align with its own CG management standards. They agreed to jointly study and develop CG guidelines based on international best practices to standardize for PTT Group as a step toward future ranking. Implementation plans and proactive promotional strategies for CG were also established as follows:

R-E-A-C-T

- R = Responsibility**
- E = Equitable Treatment**
- A = Accountability**
- C = Creation of Long-term Value**
- T = Transparency**

Below is a description of activities promoting CG among PTT Group companies:

- Appointment of a PTT Group CG Steering Committee
- Staging of a PTT Group CG Day, a key annual activity designed to campaign, promote, and publicize CG practices among PTT Group companies, namely PTT, PTTEP, PTTGC, TOP, IRPC, and GPSC. It promoted awareness among executives and employees of CG application to their work. Guests of honor from outside continued to join the event including representatives from SET, SEC, IOD, Anti-corruption Network Foundation, business partners, Board of Directors, executives, and employees of PTT Group companies. Excellent cooperation was provided by PTT Group, with knowledge and unity shown by all. This year, PTTEP hosted the event, entitled “PTT Group CG Day 2016: See through the Future”, with a CEO dialogue from six companies under the “Looking through Lenses to PTT Group’s Future in Anti-corruption” topic. The theme of the event focused on the drive toward PTT Group’s transparency for secure and sustainable growth, with value given to all forms of anti-corruption in an earnest and continual way as well as external communication on the matter to collectively promote a transparent business culture for society and Thailand as a whole.

(11) Anti-corruption

- PTT set anti-corruption guidelines in its ethics and code of business conduct including the code of conduct for vested interests and conflicts of interest and that for acceptance and giving of gifts, assets, or other benefits. PTT is absolutely against bribery. In essence, improper practices could bring unease or could affect business decisions and ultimately deprive PTT of its interests. It also designates integrity and ethics as corporate values and PTT’s ethics standard for all directors, executives, and employees to observe in tandem with PTT’s regulations. Therefore, administration and business conduct may be transparent, straightforward, fair, and worthy of stakeholders’ confidence and trust.
- In 2010, PTT enlisted in the declaration of the intention to join Thailand Private Sector Collective Action Coalition Against Corruption (CAC), an endeavor of the Thai Institute of Directors (IOD) with the support of the government and the Office of the NACC. PTT was one of the first 27 companies to do so.
- In 2012, PTT joined the United Nations Global Compact (UNGC) to show its desire to apply the principles of human rights, labor rights, environmental preservation, and anti-corruption at the international level to its business conduct.
- PTT’s Board Meeting No. 6/2014 dated July 27, 2014, endorsed PTT and PTT Group anti-corruption policies for implementation across each organization. It requires the policy as a part of PTT’s Corporate Governance, Ethics Standards, and Code of Business Conduct Handbook and also PTT Group’s Anti-Corruption Policy as a part of the PTT Way of Conduct. PTT Group companies observe the same standards and management approaches.

- PTT Anti-Corruption Policy forbids employees to carry out or participate in corrupt practices, as well as all forms of bribery giving or acceptance (direct and indirect). They must seriously observe the Anti-Corruption Policy which covers various processes, including donation to charities, human resource administration, material procurement, and internal control.
- PTT communicates the Anti-Corruption Policy and guidelines to its subsidiaries, associates, and other PTT-controlled companies, business partners, and stakeholders, as well as the public, through assorted channels like letters, e-mails, website, PTT Intranet, seminars, and exhibitions. All stakeholders may acknowledge and conform to PTT guidelines.
- PTT establishes constant communication and training for its employees to develop true understanding about PTT anti-corruption measures, PTT's expectations, and punishment for violations including training for new employees on CG and anti-corruption through orientation sessions, ethics training courses, CG and anti-corruption training courses, and CG E-learning. It also arranges for executives and employees to join external training courses on anti-corruption including those of IOD.
- Conforming to CAC's certification process by showing evidences about its business policies, procedures, and internal control system, PTT duly secured the status of a CAC member on October 3, 2014.
- In 2015, PTT declared the "No-Gift Policy" for any festive periods. In 2016, it enforced practical Guidelines for Receiving and Offering Gifts, Hospitality, or Other Benefits Under PTT Group's Anti-Corruption Policy in line to establish a higher standard for business practices. PTT hopes all employees to perform as possibly best of their abilities without expecting benefits. This was how PTT underscored compliance with CG and anti-corruption policies. To this end, a letter was sent to all units, and signboards were put up on the premises of PTT.
- PTT organized a talk on "Risk Management and Internal Control to Prevent Corrupt Practices and Bribery" at the forum on cultivating sustainable for an organization of pride. The intention was to educate department heads upward on the approach to risk management and preventive control against corrupt practices and bribery together with an internal control system so as to forge confidence in work protocols.
- PTT staged a workshop on the assessment of procurement corruption risks along with Corporate Risk Management Department and Strategic Procurement and Administration Department to develop anti-corruption measures and drive all sites' compliance with lower risks.
- PTT aims to become part of a transparency network for a strong Thai society. It promoted and drove its business allies to declare their own intentions to join CAC to lower corruption risks across their supply chains and play a role in transparency activities and anti-corruption with external agencies, both public and private.

- Monitoring of performance:
 - The Board ensures that PTT commands an efficient system in support of anti-corruption. This is to ensure that the management recognizes and values anti-corruption and cultivates it as a corporate culture.
 - The Audit Committee supervises internal control, financial reporting, and other procedures related to anti-corruption measures, steers conformance to anti-corruption measures, and reviews applicable measures and internal control. This is to ensure that the measures are adequate and effective. The committee reviews risk assessment and provides recommendations to the Board about suggested practices to mitigate that matters. Executives must implement such recommendations. The committee also regularly reports internal-audit findings regarding anti-corruption measures to the Board and provided good practices to the Board and the executives.
 - The Corporate Governance Committee annually defines and reviews the Anti-Corruption Policy, providing recommendations and guidelines, monitors, and assesses anti-corruption performance.
 - The Enterprise Risk Management Committee steers and advocates risk management practices related to anti-corruption by assessing corruption risks and reviewing anti-corruption measures for adequacy and suitability.
 - Executives establish risk assessment for business procedures that may lead to corrupt practices, review the suitability of processes and measures, and exemplify proper behavior as well as communicating it to among employees and related parties.
- PTT internal control can reduce and curb practical risks through an establishment of a control environment that promotes integrity to all employees, risk assessment, and control activities that are adequate and suitable, particularly those unacceptable to PTT including corruption risks.
- PTT establishes procedures to maintain auditable documents and records to confirm the accuracy and suitability of financial reports. The internal control of accounting processes and information storage is audited to verify the effectiveness. Also, it ensures of anti-corruption measures and processes. Also it ensures that the entry of financial items is well-evidenced for audit.
- The Office of Corporate Audit examines items of potential conflicts of interest, the likelihood of corruption, and corporate efficiency for managing risks arising from corporate corruption and those at operating levels. The office also reviews business ethics principles and the code of business conduct for executives and employees. It reviews and reports to the Audit Committee and top executives immediately when there are encountering items or actions that could harm PTT's performance outcomes including corruption.
- Measures, scope, and tools for whistleblower protection
 - PTT human resource administration process reflects its determination for anti-corruption measures. Although refusal to take part in corruption may deprive PTT of business opportunities, PTT policy is not to demote, punish, or harm those that do so.

- PTT employees should not ignore actions in potential conflict with anti-corruption measures. PTT has established channels for whistleblowing and protection of whistleblowers or those that need advice about conformance to anti-corruption measures.
- PTT has established a requirement concerning on complaint-making and whistleblowing to define criteria and guidelines for complaint-making and whistleblowing that are suitable and uniform throughout the corporation. In place are protective measures and fair treatment of whistleblowers or those that provide relevant information. Whistleblowing serves as an alerting tool for the organization and a channel for suppressing corrupt practices, since it could resolve problems promptly before they worsen and harm the image and financial standing of the corporation. All employees can become whistleblowers by publicizing irregularities for the benefit of PTT's transparency, CG, and sustainability.
- Punishment
 - Since PTT requires that all employees must acknowledge the CG Handbook to show their commitment to good practices as their guidelines, the handbook serves as discipline that all must strictly observe.
- PTT has established a suitable and fair process for punishing violators of anti-corruption measures. Any directly or indirectly violation of this policy calls for disciplinary review under PTT regulations. It consists of explicit fact-finding, investigation, punishment, and appeal. They could also lead to punishment by law. Employees must therefore master and strictly conform to the Anti-Corruption Policy in every step of their work.

2. Risk Assessment

PTT recognizes the significance of risk management under changes that impact its businesses because of internal and external factors. Viewing risk management as a key component of every business process which must be linked with one another, PTT therefore defined a policy of corporate risk management that all must conform to and undertake at the operating level. As for corporate risks, management is systematically undertaken by PTT's management committees. Operation risks fall under the oversight of respective executives. An Enterprise Risk Management Committee was set up by the Board to steer and support corporate risk management in line with business strategies and goals, as well as changing circumstances. It provides recommendations on guidelines for monitoring and assessment to the Enterprise and Risk Management Plan Committee to manage overall risks for maximum efficiency. It is the responsibility of all units to manage and control risks to manageable levels, as clearly stated in the functional job descriptions of all units.

3. Control Activities

The Management Committee is authorized to review reports, financial and non-financial, of all business groups and corporate overviews, and regularly reviews all reports to ensure conformance to regulations and job manuals. PTT has defined policies and procedures in writing, including those for performance assessment for all employees. It relies on KPIs to make control of management activities suitable, adequate, and accountable. Portions of businesses have been identified for key risks, and mechanisms defined to control and minimize errors. Regular performance reviews by the management are in place, including financial, procurement, and general administrative transactions. Systematic delegation of duties to personnel groups

ensures checks and balances. Authority is duly and totally segregated for approval, information processing, transaction recording, receipt and disbursement of cash, reviews and inspection, and stewardship of properties. In place is an internal control system for finance and accounting, dealing with cash collection, cash retention, receipt and disbursement, bank deposits, and cash advances. These follow rules with complete, accurate, and regular recording. Systematic storage of accounting documents, both documents and information, is in place to comply with the law.

In procurement, PTT follows rules and requirements on materials and supplies matters. They clearly define responsible parties including the authority, approval limits, supply need assessment, inspection, control and storage of supplies, and property counting. As for human resource administration, PTT has instituted a human resource administration system, complete with adequate monitoring and assessment, covering recruitment, determination of compensation, duties, personnel development, performance, and communication. Employees may be competent and PTT human resource administration may be suitable and efficient.

In case of PTT entering into transactions with major shareholders, directors, the management, or related parties, PTT will apply strict measures to ensure that each transaction goes through the required approval procedures every time and for every item. Parties of vested interests will not take part in the approval of an item. PTT also closely monitors subsequent actions.

In addition, PTT values Security, Safety, Health, and Environment (SSHE). This is likened to a vital shield against losses to its businesses so that the corporation may grow smoothly and sustainably while extending corporate performance in all aspects of excellence for vision and goal attainment. The Board looks after, monitors, and provides policies as well as recommendations on SSHE. PTT then applies as its control activities through the PTT MC, led by the President & CEO, PTT Group QSHE Policy Committee, and PTT QSHE Committee, which screen

and steer management practices at the operating level for PTT Group and PTT. These centralized the SSHE and Quality Management Units. This year PTT required that a “SSHE Moment” should always be the first agenda item of each Board meeting. A presentation on the main SSHE KPI performances should be given to the PTT Management Committee for review, direction, and comment at least once a month. Details appear under “SSHE: Loss Prevention for Thai Society’s Sustainability” in this report and the Corporate Sustainability Report 2016.

4. Information & Communication

Regarding to the vision of the Board, PTT and PTT Group have jointly established PTT ICT Solutions Co., Ltd. (PTTICT), to centralize IT services for the group, a cost-saving idea that reduces infrastructural spending and IT redundancies for each company while adding bargaining power for the group. Recently, PTTICT has performed its roles consistently well and has become PTT Group’s flagship for IT operations over the past 10 years.

In 2016, the Board supported mapping out an Information Master Plan in line with the government’s Thailand 4.0 Policy by developing a Digitalization Roadmap, creating innovations to raise operating efficiency, lowering operating costs and expenses for ICT business competition by focusing on responses to customers’ needs. This includes the introduction of Big Data management technology to compile and perform “Smart Analytics” as well as present and manage campaigns that match needs, and undertaking “Customer Segmentation” for efficiency and cut marketing expenses. To give delivery of petroleum products and biofuels maximum efficiency, PTT developed the “Replenishment & Inventory Management” for “Centralized Inventory Management”. It promotes cooperation and competitive edge for PTT Group companies by integrating processes of sale and delivery of petroleum products with merchandise orders under the same systems and fulfilling customers’ satisfaction.

To enable the supervision and management of PTT's performance - which involves investment in more than 100 PTT Group companies - to achieve goals, manage risks efficiently, command transparency and auditability, PTT mounted key projects, including a "Finance & Accounting Shared Service Project" to define the directions and strategies of finance and accounting administration. Then, PTT Group's finance and accounting services may be more flexible and save costs. This benefits the group's competitiveness and business decisions. This also forges corporate governance and credibility among related parties, both inside and outside the corporation, thus complying with sound internal control. PTT, therefore, developed a "Continuous Control Monitoring and Auditing System (CCMS)" as a tool to review the effectiveness and monitor control processes including lowering risks and evolve cyclical audits into continuous audits.

The Board recognizes and values system preparedness on ICT infrastructural system for operational excellence efficiency. This is achieved by replacing fiber-optic transmission equipment commonly used along PTT's gas transmission pipelines for higher capacity and accommodation of the internet technology connected with future equipment and tools. This is called "Digital Industrial Internet of Things (IIoT)" in tandem with the improvement of IT security for modernity and efficient preventive ability against external threats. PTT Group invested in the installation of a novel IT security system, the so-called "Advanced Persistent Threats (APT)" which wards off computer crimes. This type is one of the biggest threats today. The ultimate result is that corporate data will not leak. Efforts were made to extend certification of the "Information Security Management System" to embrace all key equipment of computer centers "Platform as a Service (PasS)" which certified for ISO/IEC 27001:2013 is in place. The space inside the master network computer room is also certified for the ISO 14644-1 Class 8 for its clean-room properties. The overall building has secured Green Building (Gold) certification from the LEED Institute of the US. In other words, PTT Computer Center was the first in Thailand to achieve a certification standard on a par with international service provider (Co-location Service Provider).

5. Monitoring & Evaluation

• Internal Control System

The Office of Corporate Audit is an independent unit which directly reports to the Audit Committee. It fosters assurance and provides consultation to ensure that business processes are properly equipped with CG, risk management, and internal controls in supporting of PTT's objectives.

The office audits annual operating plans and three-year audit plans in line with PTT's business strategic directions and named as risk-based approach (key corporate risks), encompassing PTT Group's businesses, both domestic and international. It reports findings to the Audit Committee for consideration and forwarding to the Board for acknowledgment quarterly Regular monitoring is undertaken for actions in response to the office's recommendations. In its course of work, the office freely expresses its opinions. No conflicts have arisen between audited units and the office that cannot be resolved.

• Control Self-Assessment (CSA)

PTT monitors internal controls and assesses at least annually by defining this task as a part of the routine procedures of executives, supervisors, and relevant parties. It also instituted Control Self-Assessment (CSA) within PTT in two forms:

- Corporate assessment: An individual internal control assessment form for department heads upward under PTT structure as well as executives on secondment at PTT Group companies.
- Process assessment: Workshops are held to assess internal control at the activity level with a focus on process control. Assessment outcomes and plans to improve internal controls must have the buy-in of work process owners and monitoring by superiors.

Investment Control and Internal Control Department compiles data and summarizes data analyses in self-assessment reports. The reports cover the entire PTT for the Corporate Plan and Risk Management Committee to screen, comment, and provide guidelines for responsible units to proceed with corrective actions every year. The Office of Corporate Audit conducts reviews to ensure that the existing internal controls are adequate on handling risk management and are consistently conformed to and observed. The Audit Committee reviews the findings of the internal audit annually. If any areas needed improvement are found, PTT has instituted procedures to ensure that areas receive attention and immediate corrective actions. As for the internal control assessment of finance and accounting, the audit and review are usually undertaken by the Office of the Auditor-General (the external auditor), with findings submitted to the Audit Committee's consideration quarterly and annually.

In monitoring and assessing internal controls, PTT conforms to the guidelines for report preparation issued by the Auditing Commission Regulation (Clause 6). It was concluded that the latest assessment was "good". All business groups also monthly report their performances and have them regularly measured against KPIs.

This year, Investment Control and Internal Control Department under the Corporate Strategy Group, which was assigned to look after PTT's internal control assessment, collected data and developed an information system for a list of key controls. The effort consisted of data on task description (FD), appointment orders of committees, roles of the Board, rules of the State Audit Commission, five-point COSO Internal Integrated Framework, namely (1) control environment, (2) risk assessment, (3) control activities, (4) information & communication, and (5) monitoring, and anti-corruption measures in response to CAC's questions. The purposes were to refine the assessment form for internal control for vice presidents upward under PTT's corporate structure and those on secondment with PTT Group companies to respond with a scope covering key process activities and to develop a database for key controls for 29 core processes. The response format was also developed as an e-CSA (Electronic) for executives to assess and access assessment reports through the intranet.

In 2016, assessment questions were modified with a focus on 17 principles under the COSO standard framework. In place is process-level assessment for procurement, budget administration, and risk management processes. Consultation was held with process owners to jointly and personally review the adequacy of that questions for process-level control which contributed to the awareness and promotion of work alignment of the entire corporation.

This year, the Office of Corporate Audit reviewed the outcomes of internal control and reported to the Audit Committee. It indicated no significant problems or defects, a view shared by the external auditor. In summary, PTT internal control system was adequate and effective from a business standpoint.

Audit Fee

PTT, its subsidiaries, and joint ventures together paid audit fees amounting to THB 141,391,524 (One hundred forty-one million three hundred ninety one thousand and five hundred twenty four Baht) to the offices to which the external auditors reported for the completed accounting period. They also paid THB 13,322,301 (Thirteen million three hundred twenty two thousand and three hundred one Baht) in non-audit fees including a professional fee for the Updated Offering Memorandum of the Global Medium Term Notes Programmes, a professional fee for certifying financial statements submitted to the Revenue Department, and other certification fees in the past accounting year.

Compliance with Corporate Governance in Other Areas

According to a survey on PTT's CG conducted by the Thai Institute of Directors (IOD), the overall score given to PTT on the CG principles for listed companies in 2016 was "excellent". On average, PTT earned a higher overall score and individual category scores than the field of 601 companies, higher than the average score of SET 50 companies. The survey result was based on PTT's public information. This year, PTT has good practical guidelines apart from the survey criteria which can serve as good practices for other listed companies such as:

- The current Chairman of the Board, an independent director, exercises freedom in assigning policies and guidance for PTT management.
- PTT requires that independent directors make up at least half of its directors.
- Because under the Budget Procedures Act B.E. 2502 (1959), PTT is regarded as a state enterprise, so the Audit Committee endorsed the appointment of the Office of the Auditor-General of Thailand (a credible, neutral agency) as PTT's external auditor. The committee has secured the Board's endorsement for review and approval by the shareholders who will appoint and approve its audit fees.
- PTT prepares an agenda-based meeting format for its units to increase performance review efficiency, in the topics of QSHE/ SPIRIT/ CSR/ CG Talk as channels to communicate CG principles and encourage reminders of the campaign on the awareness of CG-based work.
- PTT has defined guidelines to systematically promote the SPIRIT core values, linking assorted mechanisms in the corporation by stressing concrete, sustainable implementation. A development of SPIRIT Norm Checklist promotes a work ambience that underscores or reminds employees to be smart and conscientious in line with SPIRIT. Executives play a critical role in serving as role models and in coaching such as, consistently acting as role models, communicating clearly, closely mentoring employees, and communication of good CG, also one of PTT's core values.
- Communication of the core values to PTT Group companies through the PTT Group policies. It also defines SPIRIT as one of the governance approaches for PTT Group companies (PTT Way of Conduct).

- PTT requires PTT Group Anti-Corruption Policy to be part of the PTT Way of Conduct, with tangible KPIs designed to drive the management of PTT Group toward the same standard, management approach, and direction. The aim is to create synergy in line with investment objectives and to drive the policy to systematic implementation, ready for upcoming assessment. In 2016, PTT organized workshops for representatives of PTT Group to undertake gap assessment and gap closure plans by way of self-assessment under the CAC project to prime PTT Group companies for systematically entering the certification process for CAC membership.

Throughout 2016, PTT observed CG, though it may not have fully covered the criteria of the Corporate Governance Report of Thai Listed Companies and ASEAN CG Scorecard in the following aspects:

- **Board composition of 5 - 12 directors**

PTT Regulations (Articles of Association) call for 5 - 15 directors. Today it has a total of 14 directors which agrees with the requirement for petroleum businesses that needs experts from a variety of professions. Today, the Board has appointed five committees to screen key matters, namely the Audit Committee, the Nominating Committee, the Remuneration Committee, the Corporate Governance Committee, and the Enterprise Risk Management Committee.

- **Director election through cumulative voting**

PTT Regulations call for director election to be decided by a majority of votes. Each shareholder carries votes equal to his or her number of shares. PTT has consistently devised other ways to preserve the rights of minor shareholders including its encouragement for them to exercise their right to nominate additional agenda items or nominate directors in advance.

*(The number of meetings of the committees is shown under **Meetings of PTT Committees.**)*



Internal Control and Risk Management

PTT assessment for effectiveness of internal control is in the form of Control Self-Assessment of two types.

First, corporate assessment by preparing individual Control Self-Assessment forms for executives at the management level upward, according to PTT's corporate structure, and those who are seconded to PTT Group companies, covering the duties and responsibilities as referred to the internal-control guidelines of The Committee of Sponsoring Organizations of the Treadway Commission (COSO), which devised the major compositions of internal controls:

- (1) control environment
- (2) risk assessment
- (3) control activities
- (4) information & communication and
- (5) monitoring activities

Second, process-level assessment, achieved through self-assessment at a workshop to ensure that PTT's overall business achieves the objectives of internal control in business efficiency; resource consumption; stewardship of properties; prevention or reduction of errors, damage, losses, and waste; credibility of financial, accounting, and other reports; compliance with laws, regulations, Cabinet resolutions, and PTT's policies and regulations. Assessment is also conducted against the scope of corporate governance and anti-corruption measures under the CAC checklist.



Reviewing the effectiveness of internal controls, the Office of Corporate Audit reports the findings to the Audit Committee and the Board, which then assesses the system by perusing data from the management on the implementation of guidelines/recommendations to improve internal controls. In summary, in assessing PTT's internal control against the five aforementioned compositions, the Board concluded that PTT's internal control system is adequate and proper. Finally, PTT has provided enough employees to efficiently implement the system.

Head of the Office of Corporate Audit

At PTT Management Committee Meeting No. 21/2551 (2008) of September 22, 2008, the Management Committee appointed Ms. Nitaya Direksathaporn as Executive Vice President, Office of Corporate Audit, effective from October 1, 2008, citing her in-depth mastery of PTT's business. Also experienced in PTT's accounting, financial matters, and financial risk management, at the business and overall levels, she was regarded as suitable for the position. The Audit Committee approved the appointment, transfer, performance assessment, and annual merit pay increase of this position.

Compliance Mechanism

PTT defines the responsibilities of the following units to ensure corporate regulations compliance as follows:

- **Office of the President and Corporate Secretary** ensures that the PTT Group companies/ the Board of Directors/ the Management Committee/ executives/ units conform to the rules on State Enterprises and listed companies, together with applicable regulations. It also serves as an information center which tracks outside rules and regulations as well as provides knowledge and advice on external regulations regarding to State Enterprises and listed companies by interpreting and summarizing them so that relevant parties can correctly conform.

- **Office of Corporate Legal** supervises business legislation, laws on listed companies, laws on workplace environment/ safety, energy laws, Administrative Court cases, and international laws to ensure that PTT's business operations correctly comply with the other laws and regulations of the State. In addition, the Office of Corporate Legal also counsels other units/ PTT Group companies so that their operations can comply with the law, especially new business transactions (domestic and overseas) to maintain flexibility of business operations.

- **Office of Corporate Audit** assesses the efficiency and adequacy of the internal control system and supervises the operation of PTT and its subsidiaries.

Profile



Ms. Nitaya Direksathaporn

Head of the Office of Corporate Audit

Age 59

Education

- Bachelor of Accounting (Second-Class Honors), Chulalongkorn University
- Master of Business Administration (Finance), National Institute Development Administration (NIDA)

Training

- Senior Executive Program, Sasin Graduate Institute of Business Administration
- Finance for Senior Executives, Harvard Business School
- NIDA-Wharton Executive Leadership Program, National Institute Development Administration (NIDA)
- Director Accreditation Program (DAP 91/2011), IOD
- Senior Judicial Administration Executives, Class 3, Office of the Administrative Court

Career experience

- | | |
|----------------|--|
| 1993 - 2000 | : Vice President, Accounting Department |
| 2001 - 2006 | : Vice President, Financial Risk Management on Finance and Credit Policy Department, PTT |
| 2009 - 2016 | : Executive Vice President, Office of Corporate Audit, PTT |
| 2016 - Present | : Senior Executive Vice President, Office of Corporate Audit, PTT |

Relevant important position

- None

Relationship with the management

- None



PTT Board of Directors



1. Mr. Piyasvasti Amranand
Independent Director/ Chairman
2. Mr. Kittipong Kittayarak
Independent Director/ Chairman of Audit Committee
3. Air Marshal Boonsuib Prasit
Independent Director/ Chairman of the Nominating Committee
4. Mr. Prasert Bunsumpun
Independent Director/ Chairman of the Remuneration Committee/
Member of the Enterprise Risk Management Committee
5. Gen. Chatchalerm Chalermsook
Independent Director/ Chairman of the Corporate Governance Committee
6. Mr. Chanvit Amatamatuchart
Independent Director/ Member of the Nominating Committee/
Chairman of the Enterprise Risk Management Committee
7. Mrs. Nuntawan Sakuntanaga
Independent Director/ Member of the Audit Committee

8. Mr. Vichai Assarasakorn
Independent Director/ Member of the Audit Committee
9. Mr. Thon Thamrongnawasawat
Independent Director/ Member of Nominating Committee,
Member of the Corporate Governance Committee
10. Mr. Somsak Chotrattanasiri
Independent Director/ Member of the Remuneration Committee
11. Mr. Somchai Sujjapongse
Director/ Member of the Remuneration Committee
12. Mr. Don Wasantapruet
Independent Director/ Member of the Corporate Governance Committee
13. Mr. Thammayot Srichuai
Director/ Member of the Enterprise Risk Management Committee
14. Mr. Tevin Vongvanich
Director/ Secretary to the Board/ President and Chief Executive Officer



PTT Board of Directors

* As of January 1, 2017

1

Mr. Piyasvasti Amranand Age 63
Independent Director/
Chairman

(%) **Share Possession:** None

Appointed

- July 1, 2014 (Chairman since July 4, 2014);
April 11, 2016 (re-elected)

Education

- Bachelor's Degree (First Class Honors) (Mathematics),
University of Oxford, UK
- Master's Degree (Economics), London School of Economics
and Political Science, University of London, UK
- Ph.D. (Economics), London School of Economics
and Political Science, University of London, UK

Certifications

- Director Accreditation Program (DAP 35/2005),
Thai Institute of Directors Association (IOD)
- Certificate in Top Executives in the Energy Education Program
(Class of 6th), Thailand Energy Academy (TEA)
- Seminar "Role and Function of Board of Directors of
State Enterprise", State Enterprise Policy Office (June 5, 2015)
- Seminar "Incorporation of State Investment Corporation"
(July 13, 2015)
- Seminar "Briefing on International Anti-Corruption...
International Cases and Practices", IOD (October 14, 2015)
- Seminar Thailand's 6th National Conference on
Collective Action Against Corruption
"Anti-Corruption in Thailand: Sustaining the Momentum" IOD
(October 16, 2015)
- Seminar Chairman Forum "Corporate Governance
VS Corporate Performance: Duty or Choice?" IOD
(May 13, 2016)
- Seminar Anti-Corruption: Leadership Role of the Board
in Driven the Organization toward the Draft of the Development
of Corporate Governance and Enterprise Management Act...
and Good Corporate Governance (October 17, 2016)
- PTT Board Briefing

Work Experiences

- 2006 - 2008 : Minister, Ministry of Energy
- 2008 - 2009 : Chief Advisor to Chief Executive Officer,
Kasikornbank Public Company Limited
- 2009 - 2012 : President, Thai Airways International
Public Company Limited

Present

: Independent Director/ Chairman,
PTT Public Company Limited
Independent Director/
Chairman of the Audit Committee,
Kasikornbank Public Company Limited
Independent Director/
Chairman of the Audit Committee,
Pruksa Real Estate Public Company Limited
Independent Director/
Chairman of the Audit Committee,
Pruksa Holding Public Company Limited
Chairman,
Energy for Environment Foundation

Relevant Important Positions in Listed Company – The Stock Exchange of Thailand

- Independent Director/ Chairman, PTT Public Company Limited
- Independent Director/ Chairman of the Audit Committee,
Kasikornbank Public Company Limited
- Independent Director/ Chairman of the Audit Committee,
Pruksa Real Estate Public Company Limited
- Independent Director/ Chairman of the Audit Committee,
Pruksa Holding Company Limited

Relevant Important Positions in Non-listed Company/ Other Organizations

- Chairman, Energy for Environment Foundation
- Director, Thai Heart Foundation under Royal Patronage

Relation among Family with other Directors and Executives

- None

2

Mr. Kittipong Kittayarak Age 58
Independent Director/
Chairman of Audit Committee

(%) **Share Possession:** None

Appointed

- July 1, 2014

Education

- Bachelor of Laws (Honor), Chulalongkorn University, Thailand
- Master of Laws (LL.M.), Cornell University, USA
(OCSC Scholarship)
- Master of Laws (LL.M.), Harvard University, USA
(Fulbright Scholarship)
- Doctor of the Science of Laws (J.S.D.), Stanford University, USA
(Fulbright Scholarship)

Certifications

- Director Accreditation Program (DAP 112/2014), Advance Audit Committee Program (AACP 18/2015), Thai Institute of Directors Association (IOD)
- Barrister-at-Law, Institute of Legal Education Thai Bar Association
- Politics and Government in Democracy for Executives (Class of 5th), King Prajadhipok's Institute
- Diploma, The National Defence Course (Class of 49th), National Defence College
- Diploma, (Class of 8th), Capital Market Academy (CMA)
- Certificate in Top Executives in the Energy Education Program (Class of 1st), Thailand Energy Academy (TEA)
- Thailand's 5th National Conference on Collective Action Against Corruption (Tackling Corruption through Public-Private Collaboration) (October 16, 2014)
- Seminar “Role and Function of Board of Directors of State Enterprise”, State Enterprise Policy Office (June 5, 2015)
- Seminar Strengthen Good Governance of Directors of Public Enterprises, State Enterprise Policy Office (September 30, 2016)
- Seminar PTT Group AC Forum 2015
- PTT Board Briefing

Work Experiences

| | |
|----------------|---|
| 2005 - 2008 | : Deputy Permanent Secretary, Ministry of Justice |
| 2008 - 2014 | : Permanent Secretary, Ministry of Justice |
| 2014 - 2015 | : Advisor to the prime minister |
| 2015 - Present | : Executive Director, Thailand Institute of Justice (TIJ) |

Relevant Important Positions in Listed Company – The Stock Exchange of Thailand

- Independent Director/ Chairman of the Audit Committee, PTT Public Company Limited
- Independent Director/ Chairman of the Audit Committee/ Member of the Compliance Committee, Krung Thai Bank Public Company Limited
- Independent Director/ Member of the Audit Committee, Dusit Thani Public Company Limited

Relevant Important Positions in Non-listed Company/ Other Organizations

- Member of the Board of Committee, Thai Bar under the Royal Patronage
- Chairman, The Council of Bangkok University
- Director, The Council of Mahidol University

- Honorary Committee, National Commission for Justice Administration Development
- Honorary Committee, Office of The Narcotics Control Board
- Member of the Executive Committee, ASIA Crime Prevention Foundation (ACPE)

Relation among Family with other Directors and Executives

- None

3

Air Marshal Boonsuib Prasit Age 63
 Independent Director
 Chairman of the Nominating Committee

(%) Share Possession: None

Appointed

- September 4, 2014

Education

- Armed Forces Academies Preparatory School (Class of 13th)
- Royal Thai Air Force Academy (Class of 20th)
- Squadron Officers (Class of 56th)
- Air Command and Staff College (Class of 33rd)
- Air War College (Class of 36th)

Certifications

- Director Accreditation Program (DAP 117/2015), Role of the Nomination & Governance Committee Program (RNG 7/2015), Thai Institute of Directors Association (IOD)
- Certificate in Top Executives in the Energy Education Program (Class of 8th) (2016), Thailand Energy Academy (TEA)
- Thailand's 5th National Conference on Collective Action Against Corruption (Tackling Corruption through Public-Private Collaboration) (October 16, 2014)
- Seminar “Incorporation of State Investment Corporation” (July 13, 2015)
- PTT Board Briefing

Work Experiences

| | |
|-------------|--|
| 2008 - 2011 | : Chief of Staff, Directorate of Aeronautical Engineering, Royal Thai Air Force |
| 2011 - 2013 | : Deputy Director, Directorate of Aeronautical Engineering, Royal Thai Air Force |
| 2013 | : Special Expert, Royal Thai Air Force |
| 2013 - 2014 | : Director, Directorate of Aeronautical Engineering, Royal Thai Air Force |

Relevant Important Positions in Listed Company – The Stock Exchange of Thailand

- Independent Director, Chairman of the Nominating Committee, PTT Public Company Limited

Relevant Important Positions in Non-listed Company/ Other Organizations

- None

Relation among Family with other Directors and Executives

- None

4

Mr. Prasert Bunsumpun Age 64
Independent Director/
Chairman of the Remuneration Committee/
Member of the Enterprise Risk Management Committee

(%) Share Possession: 0.004579
(Own 0; Spouse 0.004579)

Appointed

- April 11, 2013; April 11, 2016 (re-elected)

Education

- Bachelor in Engineering (Civil Engineering), Chulalongkorn University, Thailand
- MBA, Utah State University, USA
- Honorary Doctoral in Engineering, Chulalongkorn University, Thailand
- Honorary Doctoral in Management, National Institute of Development Administration (NIDA), Thailand
- Honorary Doctoral in Management Science, Petchaburi Rajabhat University, Thailand
- Honorary Doctoral in Management, Maharakarm University, Thailand
- Honorary Doctoral in Social Innovation Management, Suan Sunandha Rajabhat University, Thailand

Certifications

- Director Accreditation Program (DAP 26/2004), The Role of Chairman (RCP 28/2012), Thai Institute of Directors Association (IOD)
- Certificate in Advanced Management Program (AMP 155), Harvard Business School, USA
- Diploma, The Joint State-Private Sector Course (Class of 10th), National Defence College

- Politics and Government in Democracy for Executives (Class of 6th), King Prajadhipok's Institute
- Top Executive Program (Class of 3rd), Capital Market Academy (CMA)
- Certificate in Top Executives in the Energy Education Program (Class of 3rd), Thailand Energy Academy (TEA)
- Seminar Anti-Corruption: Leadership Role of the Board in Driven the Organization toward the Draft of the Development of Corporate Governance and Enterprise Management Act... and Good Corporate Governance (October 17, 2016)

Work Experiences

2003 - 2011 : President and CEO,
PTT Public Company Limited
Present : Chairman, Thailand Business Council
for Sustainable Development (TBCSD)

Relevant Important Positions in Listed Company – The Stock Exchange of Thailand

- Independent Director/
Chairman of the Remuneration Committee/
Member of the Enterprise Risk Management Committee,
PTT Public Company Limited
- Independent Director/ Chairman,
PTT Global Chemical Public Company Limited
- Independent Director,
Intouch Holdings Public Company Limited
- Chairman/ Chairman of the Executive Board of Director,
Thorensen Thai Agencies Public Company Limited
- Independent Director/ Chairman of Executive Committee,
Thaicom Public Company Limited

Relevant Important Positions in Non-listed Company/ Other Organizations

- Chairman/ Chairman of the Executive Board of Director,
Mermaid Maritime Public Company Limited
- Member of the National Legislative Assembly (NLA)
- Chairman, Thailand Business Council for Sustainable
Development (TBCSD)
- Qualified Committee, Chulalongkorn University Council

Relation among Family with other Directors and Executives

- None

5

Gen. Chatchalerm Chalermsookh Age 61
Independent Director/
Chairman of the Corporate Governance Committee

(%) Share Possession: None

Appointed

- September 4, 2014; April 11, 2016 (re-elected)

Education

- Bachelor of Science Program,
Chulachomklao Royal Military Academy, Thailand
- Master of Arts (Military),
Command and General Staff College, Thailand

Certifications

- Director Accreditation Program (DAP 129/2016),
Thai Institute of Directors Association (IOD)
- Seminar Strengthen Good Governance of Directors of
Public Enterprises, State Enterprise Policy Office
(September 30, 2016)
- PTT Board Briefing

Work Experiences

| | |
|------------------------------|---|
| 2012 | : Assistant Chief of Staff for Intelligence, Royal Thai Army |
| 2013 | : Deputy Chief of Staff, Royal Thai Army |
| 2014 - September 30, 2015 | : Chief of Staff, Royal Thai Army |
| Present | : Chairman, MCOT Public Company Limited Chairman, Rubber Authority of Thailand |

Relevant Important Positions in Listed Company – The Stock Exchange of Thailand

- Independent Director/ Chairman of the Corporate
Governance Committee, PTT Public Company Limited
- Independent Director/ Chairman,
MCOT Public Company Limited

Relevant Important Positions in Non-listed Company/ Other Organizations

- Member of the National Legislative Assembly (NLA)
- Chairman, Rubber Authority of Thailand

Relation among Family with other Directors and Executives

- None

6

Mr. Chanvit Amatamatucharti Age 60
Independent Director/
Member of the Nominating Committee/
Chairman of the Enterprise Risk Management Committee

(%) Share Possession: None

Appointed

- September 4, 2014; April 9, 2015 (re-elected)

Education

- Master of Arts (Economics), Chiang Mai University, Thailand
- Master of Economics Program (Development Economics),
National Institute of Development Administration, Thailand

Certifications

- Director Certification Program (DCP 109/2008),
Audit Committee Program (ACP 39/2012),
Thai Institute of Directors Association (IOD)
- Diploma, The National Defence Course (Class of 50th),
National Defence College
- Advanced Certificate Course in Public Economics Management
for Executives (Class of 5th) King Prajadhipok's Institute
- "Middle Management",
Office of The Civil Service Commission (OCSC)
- Top Executive Program in Commerce and Trade (TEPCoT)
(Class of 4th), Commerce Academy
- Top Executives Program (Class of 18th),
Capital Market Academy (CMA)
- Certificate in Top Executives in the Energy Education Program
(Class of 3rd), Thailand Energy Academy (TEA)
- Seminar Strengthen Good Governance of Directors of
Public Enterprises, State Enterprise Policy Office
(September 30, 2016)
- Seminar Anti-Corruption: Leadership Role of the Board
in Driven the Organization toward the Draft of
the Development of Corporate Governance
and Enterprise Management Act...
and Good Corporate Governance (October 17, 2016)
- PTT Board Briefing

Work Experiences

| | |
|-------------|--|
| 2007 - 2010 | : Senior Advisor, Office of National Economic and Social Development Board (NESDB) |
| 2010 - 2016 | : Deputy Secretary General, NESDB |

Present : Director of the Energy for Environment Center/
Managing Director, The Sirindhorn
International Environmental Park

Relevant Important Positions in Listed Company –
The Stock Exchange of Thailand

- Independent Director/ Member of the Nominating Committee/
Chairman of the Enterprise Risk Management Committee,
PTT Public Company Limited
- Independent Director, WHA Corporation Public Company Limited

Relevant Important Positions in Non-listed Company/
Other Organizations

- Director, Expressway Authority of Thailand
- Member of Sub-Committee,
The Office of the Public Sector Development Commission
focusing on Financial and Fiscal

Relation among Family with other Directors and Executives

- None

7

Mrs. Nuntawan Sakuntanaga Age 58
Independent Director,
Member of the Audit Committee

(%) Share Possession: None

Appointed

- July 1, 2014; April 9, 2015 (re-elected)

Education

- Bachelor of Accounting, in Finance and Banking,
Chulalongkorn University, Thailand
- Master of Business Administration in Marketing
and International Business,
University of Wisconsin at Madison (Wisconsin, USA)

Certifications

- Director Certification Program (DCP 166/2012),
Audit Committee Program (ACP 43/2013),
Financial Statements for Directors (FSD 31/2016)
Thai Institute of Directors Association (IOD)
- Management Development Program, Mt. Eliza, Melbourne,
Australia (1989)
- Certificate, The Civil Service Executive Program for
Senior Civil Servants (Class 38/2003),
Office of the Civil Service Commission
- Diploma, The National Defence Course (Class of 49th)
(2006 - 2007), National Defence College

- Leaders in Development Program-Managing Political
& Economic Reform, Kennedy School of Government,
Harvard University, Boston, USA, 2008
- Top Executive Program in Commerce and Trade (TEPCoT)
(Class of 2nd), Commerce Academy
- Top Executive Program (Class 14/2012),
Capital Market Academy (CMA)
- Corporate Governance Program for Directors and Executives
of State Enterprises and Public Organization
(Class 12/2013), Public Director Institute (PDI)
- Certificate in Top Executives in the Energy Education Program
(Class 5/2014), Thailand Energy Academy (TEA)
- Seminar PTT Group AC Forum 2015
- Briefing on International Anti-Corruption...
International Cases and Practices, IOD (October 14, 2015)
- Seminar “Global Financial Market Outlook 2016”,
IOD (November 17, 2015)
- PTT Board Briefing

Work Experiences

- October 2008 : Deputy Permanent Secretary,
Ministry of Commerce
- May 2009 : Director General, Department of
Trade Negotiations, Ministry of Commerce
- September 2010 : Director General, Department of
Export Promotion, Ministry of Commerce
- September 2012 : Director General, Department of
International Trade Promotion,
Ministry of Commerce
- October 2012 : Deputy Permanent Secretary,
Ministry of Commerce
- October 2013 : Director General, Department of
International Trade Promotion,
Ministry of Commerce
- October 2015 : Director General, Department of
Intellectual Property, Ministry of Commerce
- October 2016 - : Director General, Department of
Internal Trade, Ministry of Commerce
- Present

Relevant Important Positions in Listed Company –
The Stock Exchange of Thailand

- Independent Director/ Member of the Audit Committee,
PTT Public Company Limited

Relevant Important Positions in Non-listed Company/
Other Organizations

- Advisor of Thailand’s National Shippers Council
- Advisor of Thai-Japan Association
- Director, Member of Audit Committee,
Dairy Farming Promotion Organization of Thailand

- Director, Central Committee on Prices of Goods and Services
- Director, Office of Trade Competition Commission, Department of Internal Trade of Thailand
- Director, Office of Weights and Measures Commission
- Director, Office of Warehouse, Silo, and Cold Storage Commission
- Director, Office of The Anti-Dumping Commission

Relation among Family with other Directors and Executives

- None

8

Mr. Vichai Assarasakorn Age 56
Independent Director/
Member of the Audit Committee

(%) Share Possession: None

Appointed

- September 4, 2014

Education

- Bachelor of Engineering, New South Wales University, Australia

Certifications

- Directors Certification Program (DCP 215/2016), Thai Institute of Directors Association (IOD)
- Top Executive Program (Class of 12th), Capital Market Academy (CMA)
- Diploma, The Joint State-Private Sector Course (Class of 22nd), National Defence College
- Thailand's 5th National Conference on Collective Action Against Corruption (Tackling Corruption through Public-Private Collaboration) (October 16, 2014)
- Seminar "Role and Function of Board of Directors of State Enterprise", State Enterprise Policy Office (June 5, 2015)
- Seminar "Re-energizing Growth through Better Governance", IOD (June 18, 2015)
- Seminar "Incorporation of State Investment Corporation" (July 13, 2015)
- Certificate in Top Executives in the Energy Education Program (Class of 7th) (2015), Thailand Energy Academy (TEA)
- Seminar PTT Group AC Forum 2015
- Briefing on International Anti-Corruption... International Cases and Practices, IOD (October 14, 2015)
- CG Forum 4/2015 - Thailand CG Forum "Governance as a Driving Force for Business Sustainability", SET SEC and IOD (October 28, 2015)

- Seminar Anti-Corruption: Leadership Role of the Board in Driven the Organization toward the Draft of the Development of Corporate Governance and Enterprise Management Act... and Good Corporate Governance (October 17, 2016)
- PTT Board Briefing

Work Experiences

- 1995 - Present : Director, ShiangHeng International Company Limited
- 2001 - October 2014 : Secretary-General, Anti-Corruption Organization of Thailand
- October 2014 - Present : Vice President, Anti-Corruption Organization of Thailand
- March 2013 - Present : Vice Chairman, The Thai Chamber of Commerce
- 2014 - Present : Qualified Director, Financial Institutions Policy Committee, Bank of Thailand
- 2015 - Present : Director, Assets Scrutiny Committee
- 2016 - Present : Chairman of the Sub-committee for the Private Sector Mobilization of the National Anti-Corruption

Relevant Important Positions in Listed Company – The Stock Exchange of Thailand

- Independent Director, Member of the Audit Committee, PTT Public Company Limited

Relevant Important Positions in Non-listed Company/ Other Organizations

- Director, The Support Arts and Crafts International Centre of Thailand (Public Organization)

Relation among Family with other Directors and Executives

- None

9

Mr. Thon Thamrongnawasawat Age 50
Independent Director, Member of Nominating Committee,
Member of the Corporate Governance Committee

(%) Share Possession: None

Appointed

- November 18, 2016

Education

- Bachelor of Science, Marine Science, Chulalongkorn University
- Master of Science, Marine Science, Chulalongkorn University
- Ph.D., Marine Biology and Ecology, Jamescook University, Australia

Certification

- Certificate in Top Executives in the Energy Education Program (Class of 9th), Thailand Energy Academy (TEA) (in progress)

Work Experiences

- October 6, 2012 - September 6, 2013 : Member of the National Reform Council
- October 2012 - September 2013 : Member of the Committee on Environment and Natural Resources
- October 2012 - September 2013 : Member of Energy Reform and Internal Affair of the National Reform Council
- July 5, 2016 - Present : Honorary Board Member, Marine and Coastal Resources Policy
- Present : Deputy Dean of the Fisheries Faculty, Kasetsart University

Relevant Important Positions in Listed Company – The Stock Exchange of Thailand

- Independent Director/ Member of the Nominating Committee/ Member of Corporate Governance Committee, PTT Public Company Limited

Relevant Important Positions in Non-listed Company/ Other Organizations

- None

Relation among Family with other Directors and Executives

- None

10

Mr. Somsak Chotrattanasiri Age 59
Independent Director/
Member of the Remuneration Committee

(%) Share Possession: None

Appointed

- April 22, 2015

Education

- Bachelor of Arts (Political Science), Kasetsart University, Thailand
- Master of Public Administration (MPA), National Institute of Development Administration, Thailand

Certifications

- Director Certification Program (DCP 113/2009), Audit Committee Program (ACP 33/2011), Thai Institute of Directors Association (IOD)
- Diploma, The National Defence Course (2006), National Defence College
- Senior Executives on Justice Administration Batch (Class of 14th), National Justice Academy
- Seminar Thailand's 6th National Conference on Collective Action Against Corruption “Anti-Corruption in Thailand: Sustaining the Momentum”, IOD (October 16, 2015)
- PTT Board Briefing

Work Experiences

- 2009 - 2010 : Advisor, Bureau of the Budget
- 2010 - 2013 : Deputy Director Bureau of the Budget
- 2013 - Present : Director Bureau of the Budget

Relevant Important Positions in Listed Company – The Stock Exchange of Thailand

- Independent Director/ Member of Nominating Committee, PTT Public Company Limited

Relevant Important Positions in Non-listed Company/ Other Organizations

- Director, Expressway Authority of Thailand
- Director, Geo-Informatics and Space Technology Development Agency (Public Organization) (GISTDA)
- Director, Office of Knowledge Management and Development (Public Organization)
- Member of the National Legislative Assembly (NLA)
- Director, The Government Lottery Office
- Director, Office of National Economic and Social Development Board (NESDB)

Relation among Family with other Directors and Executives

- None

11

Mr. Somchai Sujjapongse Age 55
Director/
Member of the Remuneration Committee

(%) Share Possession: None

Appointed

- November 1, 2015; April 11, 2016 (re-elected)

Education

- Bachelor of Arts (Economics) (Hons.), Chulalongkorn University, Thailand
- Master of Arts (Economics), The Ohio State University, USA
- Ph.D. (Economics), The Ohio State University, USA

Certifications

- Director Certification Program (DCP 75/2006), Thai Institute of Director (IOD)
- Certificate, The Civil Service Executive Program for Senior Civil Servants (Visionary Leadership, Class 44/2005), Office of the Civil Service Commission
- Top Executive Program (Class 2/ 2006), Capital Market Academy (CMA)
- Diploma, The Joint State-Private Sector Course (Class of 20th) (2007 - 2008), National Defence College
- Top Executive Program in Commerce and Trade (TEPCoT) (Class 2/2009), Commerce Academy
- Corporate Governance for Directors and Senior Executives of State Enterprises and Public Organizations 2011, Public Director Institute (PDI), King Prajadhipok's Institute
- Certificate in Top Executives in the Energy Education Program (Class 3/2013), Thailand Energy Academy (TEA)
- Seminar Strengthen Good Governance of Directors of Public Enterprises, State Enterprise Policy Office (September 30, 2016)

Work Experiences

| | |
|----------------|--|
| 2009 - 2010 | : Director-General, Thai Customs Department, Ministry of Finance |
| 2010 - 2011 | : Director, State Enterprise Policy Office, Ministry of Finance |
| 2011 - 2014 | : Director, Fiscal Policy Office, Ministry of Finance |
| 2014 - 2015 | : Director-General, Thai Customs Department, Ministry of Finance |
| 2015 - Present | : Permanent Secretary, Ministry of Finance |

Relevant Important Positions in Listed Company – The Stock Exchange of Thailand

- Director/ Member of the Remuneration Committee, PTT Public Company Limited
- Director/ Chairman, Krung Thai Bank Public Company Limited
- Director, Thai Airways International Public Company Limited

Relevant Important Positions in Non-listed Company/ Other Organizations

- None

Relation among Family with other Directors and Executives

- None

12

Mr. Don Wasantapruerk Age 58

Independent Director/

Member of the Corporate Governance Committee

(%) Share Possession: None

Appointed

- July 26, 2014; April 11, 2016 (re-elected)

Education

- Bachelor of Industrial Engineering, University of New South Wales, Sydney, Australia
- Master of Industrial Engineering, University of New South Wales, Sydney, Australia

Certifications

- Director Accreditation Program (DAP 117/2015), Role of the Nomination & Governance Committee Program (RNG 7/2015), Thai Institute of Directors Association (IOD)
- Thailand's 5th National Conference on Collective Action Against Corruption (Tackling Corruption through Public-Private Collaboration) (October 16, 2014)
- Certificate in Top Executives in the Energy Education Program (Class 6/2015), Thailand Energy Academy (TEA)
- Seminar "Incorporation of State Investment Corporation" (July 13, 2015)
- Briefing on International Anti-Corruption... International Cases and Practices, IOD (October 14, 2015)
- Seminar Anti-Corruption: Leadership Role of the Board in Driven the Organization toward the Draft of the Development of Corporate Governance and Enterprise Management Act... and Good Corporate Governance (October 17, 2016)
- PTT Board Briefing

Work Experiences

| | |
|----------------|-----------------|
| 2009 - Present | : Self-employed |
|----------------|-----------------|

Relevant Important Positions in Listed Company – The Stock Exchange of Thailand

- Independent Director, Member of the Corporate Governance Committee, PTT Public Company Limited
- Independent Director, Member of the Corporate Governance Committee, PTT Global Chemical Public Company Limited

Relevant Important Positions in Non-listed Company/ Other Organizations

- None

Relation among Family with other Directors and Executives

- None

13

Mr. Thammayot Srichuai Age 58
Director/ Member of the Enterprise
Risk Management Committee

(%) Share Possession: None

Appointed

- December 15, 2016

Education

- Electrical Power Engineering,
Rajamangala University of Technology
(Rajamangala Institute of Technology)

Certifications

- Corporate Governance for Executives Program (CGE 5/2015),
Thai Institute of Directors Association (IOD)
- Power Curriculum Program for Executives (Class 1),
Ministry of Energy
- Command and General Program (Class 47), Joint Staff College,
National Defense Studies Institute
- Senior Executive, Office of the Civil Service Commission
(Class 56)
- National Defense Course (Class 52), National Defense College

Work Experiences

| | |
|-------------------------------------|---|
| 2007 - 2014 | : Deputy Director General Department of Alternative Energy Development and Efficiency, Ministry of Energy |
| October 1, 2014 - September 2016 | : Director General Department of Alternative Energy Development and Efficiency, Ministry of Energy |
| October 2016 - Present | : Deputy Permanent Secretary, Ministry of Energy |

Relevant Important Positions in Listed Company – The Stock Exchange of Thailand

- Director, Member of the Enterprise
Risk Management Committee, PTT Public Company Limited
- Director, BCPG Public Company Limited

Relevant Important Positions in Non-listed Company/ Other Organizations

- None

Relation among Family with other Directors and Executives

- None

14

Mr. Tevin Vongvanich Age 58
Director/ Secretary to the Board/
President and Chief Executive Officer

(%) Share Possession: 0.000875
(Own 0.000875; Spouse 0)

Appointed

- September 10, 2015

Education

- Bachelor of Engineering (Chemical Engineering) (Hons.),
Chulalongkorn University, Thailand
- Master of Science (Chemical Engineering), Rice University, USA
- Master of Science (Petroleum Engineering),
University of Houston, USA

Certifications

- Directors Certification Program (DCP 21/2002),
Financial Statements for Directors (FSD 6/2009),
Finance for Non-Finance Director (FN),
Role of the Compensation Committee (RCC 13/2011),
Anti-Corruption for Executive Program (ACEP 15/2015),
Thai Institute of Directors Association (IOD)
- Program for Global Leadership (PGL),
Harvard Business School, USA
- Democratic Politics and Governance for High-Level
Administrators Program, (Class of 10th),
King Prajadhipok's Institute
- Senior Executive Program (SEP) (Class of 7th),
Sasin Graduate Institute of Business Administration,
Chulalongkorn University
- Top Executives Program (Class of 6th), Capital Market Academy
- Diploma, The Joint State-Private Sector Course (Class of 22nd),
National Defence College
- Senior Executives on Justice Administration Batch
(Class of 16th), National Justice Academy
- Certificate in Top Executives in the Energy Education Program
(Class 3/2013), Thailand Energy Academy (TEA)
- Corporate Governance for Directors
and Senior Executives of State Enterprises
and Public Organizations (Class of 7th),
Public Director Institute (PDI), King Prajadhipok's Institute
- Seminar "Briefing on International Anti-Corruption...
International Cases and Practices", IOD (October 14, 2015)
- Seminar Thailand's 6th National Conference on Collective Action
Against Corruption "Anti-Corruption in Thailand:
Sustaining the Momentum", IOD (October 16, 2015)

- CG Forum 4/2015 - Thailand CG Forum
“Governance as a Driving Force for Business Sustainability”,
SET SEC and IOD (October 28, 2015)
- Seminar “Global Financial Market Outlook 2016”, IOD
(November 17, 2015)
- Seminar Strengthen Good Governance of Directors of
Public Enterprises, State Enterprise Policy Office
(September 30, 2016)
- Seminar Anti-Corruption: Leadership Role of
the Board in Driven the Organization toward the Draft
of the Development of Corporate Governance
and Enterprise Management Act...
and Good Corporate Governance (October 17, 2016)
- PTT Board Briefing

Work Experiences

| | |
|---------------------------------|---|
| 2008 - 2009 | : Senior Executive Vice President of Strategy and Development, PTT Public Company Limited (PTT) |
| July 2009 - December 2009 | : Chief Financial Officer Acting Senior Executive Vice President of Strategy and Development, PTT |
| January 2010 - April 2012 | : Chief Financial Officer, PTT Public Company Limited |
| 2012 - September 9, 2015 | : Senior Executive Vice President, PTT, working on a Secondment as President and Chief Executive Officer, PTT Exploration and Production Public Company Limited |
| September 10, 2015 - Present | : President and Chief Executive Officer, PTT |

Relevant Important Positions in Listed Company – The Stock Exchange of Thailand

- Director/ Secretary to the Board/
President and Chief Executive Officer,
PTT Public Company Limited
- Director,
PTT Exploration and Production Public Company Limited
- Director/ Chairman, IRPC Public Company Limited

Relevant Important Positions in Non-listed Company/ Other Organizations

- Honorary Advisor,
Environment Engineering Association of Thailand
- Chairman, Chulalongkorn University Alumni Association
under the Patronage of His Majesty the King

- Committee, Chulalongkorn University Council
- Chairman, Information and Public Communication
Management Sub-committee,
National Committee on Competitive Advantage (NCC)
- Honorary Board Member,
National Committee on Competitive Advantage (NCC)
- Director, Power of Innovation Foundation (PIN)
and Power of Learning Foundation (PLEARN)
- Honorary Advisor, Energy Committee,
The National Legislative Assembly
- Chairman, TMA Center for Competitiveness Thailand
Management Association
- Board of Trustees, Thailand Management Association
- Honorary Board Member,
National Science and Technology Development Agency
- Director, Thailand - United States Educational Foundation
(TUSEF/ Fulbright Thailand) and Ruamchit-Normklao
under Royal Patronage
- Honorary Board Member (Business Management),
Office of the Public Sector Development Commission
- Chairman of Sub-Committee,
The Office of the Public Sector Development Commission
focusing on Financial and Fiscal
- Honorary Advisor, the 84th Queen Birthday Anniversary Project

Relation among Family with other Directors and Executives

- None



1. Mr. Tevin Vongvanich
Director/ Secretary to the Board/ President and Chief Executive Officer
2. Mr. Wirat Uanarumit
Chief Operating Officer, Upstream Petroleum and Gas Business Group
3. Mr. Sarun Rungkasiri
Chief Operating Officer, Downstream Petroleum Business Group
4. Mr. Chavalit Punthong
Chief Operating Officer, Infrastructure and Sustainability Management Business Group
5. Mrs. Nitima Thepvanangkul
Chief Financial Officer
6. Mr. Kris Imsang
Senior Executive Vice President, Human Resources & Organization Excellence
7. Mrs. Sriwan Eamrunroj
Senior Executive Vice President, Corporate Strategy
8. Mr. Noppadol Pinsupa
Senior Executive Vice President, Gas Business Unit
9. Mr. Auttapol Rerkpiboon
Senior Executive Vice President, Oil Business Unit

10. Mr. Chansin Treenuchagron
Senior Executive Vice President, Downstream Business Group Alignment
11. Mrs. Boobpha Amornkiatkajorn
Senior Executive Vice President, International Trading Business Unit
12. Mr. Wittawat Svasti-xuto
Senior Executive Vice President, Sustainability Management and Project Engineering
13. Mr. Supot Laosuarpha
Senior Executive Vice President
and Taking a Position of Executive Vice President, Office of Corporate Legal
14. Miss Nitaya Direksathapon
Senior Executive Vice President
and Taking a Position of Executive Vice President, Office of Corporate Audit
15. Mr. Somporn Vongvuthipornchai
President and Chief Executive Officer,
PTT Exploration and Production Public Company Limited
16. Mr. Supattanapong Punmeechaow
President and Chief Executive Officer, PTT Global Chemical Public Company Limited
17. Mr. Atikom Terbsiri
President and Chief Executive Officer, Thai Oil Public Company Limited
18. Mr. Sukrit Surabotsopon
President, IRPC Public Company Limited



PTT Executives

* As of January 1, 2017

1

Mr. Tevin Vongvanich Age 58
Director/ Secretary to the Board/
President and Chief Executive Officer

(%) **Share Possession:** 0.000875
(Own 0.000875; Spouse 0)

Appointed

- September 10, 2015

Education

- Bachelor of Engineering (Chemical Engineering) (Hons.), Chulalongkorn University, Thailand
- Master of Science (Chemical Engineering), Rice University, USA
- Master of Science (Petroleum Engineering), University of Houston, USA

Certifications

- Directors Certification Program (DCP 21/2002), Financial Statements for Directors (FSD 6/2009), Finance for Non-Finance Director (FN), Role of the Compensation Committee (RCC 13/2011), Anti-Corruption for Executive Program (ACEP 15/2015), Thai Institute of Directors Association (IOD)
- Program for Global Leadership (PGL), Harvard Business School, USA
- Democratic Politics and Governance for High-Level Administrators Program, (Class of 10th), King Prajadhipok's Institute
- Senior Executive Program (SEP) (Class of 7th), Sasin Graduate Institute of Business Administration, Chulalongkorn University
- Top Executives Program (Class of 6th), Capital Market Academy
- Diploma, The Joint State-Private Sector Course (Class of 22nd), National Defence College
- Senior Executives on Justice Administration Batch (Class of 16th), National Justice Academy
- Certificate in Top Executives in the Energy Education Program (Class 3/2013), Thailand Energy Academy (TEA)
- Corporate Governance for Directors and Senior Executives of State Enterprises and Public Organizations (Class of 7th), Public Director Institute (PDI), King Prajadhipok's Institute
- Seminar "Briefing on International Anti-Corruption... International Cases and Practices", IOD (October 14, 2015)

- Seminar Thailand's 6th National Conference on Collective Action Against Corruption "Anti-Corruption in Thailand: Sustaining the Momentum", IOD (October 16, 2015)
- CG Forum 4/2015 - Thailand CG Forum "Governance as a Driving Force for Business Sustainability", SET SEC and IOD (October 28, 2015)
- Seminar "Global Financial Market Outlook 2016", IOD (November 17, 2015)
- Seminar Strengthen Good Governance of Directors of Public Enterprises, State Enterprise Policy Office (September 30, 2016)
- Seminar Anti-Corruption: Leadership Role of the Board in Driven the Organization toward the Draft of the Development of Corporate Governance and Enterprise Management Act... and Good Corporate Governance (October 17, 2016)
- PTT Board Briefing

Work Experiences

| | |
|------------------------------|---|
| 2008 - 2009 | : Senior Executive Vice President of Strategy and Development, PTT Public Company Limited (PTT) |
| July 2009 - December 2009 | : Chief Financial Officer Acting Senior Executive Vice President of Strategy and Development, PTT |
| January 2010 - April 2012 | : Chief Financial Officer, PTT |
| 2012 - September 9, 2015 | : Senior Executive Vice President, PTT, working on a secondment as President and Chief Executive Officer, PTT Exploration and Production Public Company Limited |
| September 10, 2015 - Present | : President and Chief Executive Officer, PTT |

Relevant Important Positions in Listed Company – The Stock Exchange of Thailand

- Director/ Secretary to the Board/ President and Chief Executive Officer, PTT Public Company Limited
- Director, PTT Exploration and Production Public Company Limited
- Director/ Chairman, IRPC Public Company Limited

Relevant Important Positions in Non-listed Company/ Other Organizations

- Honorary Advisor,
Environment Engineering Association of Thailand
- Chairman, Chulalongkorn University Alumni Association
under the Patronage of His Majesty the King
- Committee, Chulalongkorn University Council
- Chairman, Information and Public Communication
Management Sub-committee,
National Committee on Competitive Advantage (NCC)
- Honorary Board Member,
National Committee on Competitive Advantage (NCC)
- Director, Power of Innovation Foundation (PIN)
and Power of Learning Foundation (PLEARN)
- Honorary Advisor, Energy Committee,
The National Legislative Assembly
- Chairman, TMA Center for Competitiveness Thailand
Management Association
- Board of Trustees, Thailand Management Association
- Honorary Board Member,
National Science and Technology Development Agency
- Director, Thailand - United States Educational Foundation
(TUSEF/Fulbright Thailand) and Ruamchit-Normkiao
under Royal Patronage
- Honorary Board Member (Business Management),
Office of the Public Sector Development Commission
- Chairman of Sub-Committee,
The Office of the Public Sector Development Commission
focusing on Financial and Fiscal
- Honorary Advisor, the 84th Queen Birthday Anniversary Project

Relation among Family with other Directors and Executives

- None

2

Mr. Wirat Uanarumit Age 54
Chief Operating Officer,
Upstream Petroleum and Gas Business Group

(%) **Share Possession:** 0.000543
(Own 0.000543; Spouse 0)

Appointed

- October 1, 2016

Education

- Bachelor of Science in Electrical Engineering,
Chulalongkorn University, Thailand
- Master of Business Administration,
with emphasis in Financial Management,
Pennsylvania State University, Pennsylvania, USA

Certifications

- Director Certification Program (DCP 8/2001),
Directors Certification Program Update (DCPU 5/2015),
Audit Committee Program (ACP 38/2012),
Thai Institute of Directors Association (IOD)
- Member, Beta Gamma Sigma
(US National Scholastic Honour Society in Business)
- Advance Management Programme, INSEAD Business School,
Fontainebleau, France
- Advanced Management Program,
Harvard Business School, USA
- Top Executive Program (Class of 4th),
Capital Market Academy (CMA)
- Senior Executives on Justice Administration Batch
(Class of 16th), National Justice Academy
- Advanced Security Management Program (ASMP),
(Class of 2nd), National Defence College
- Executive Development Program (Class of 1st),
Thai Listed Companies Association (TLCA)
- Diploma, The Joint State - Private Sector Course,
National Defence College
- Executive Management with Business Development
and Investment (Class 2), Institute of Business
and Industrial Development (IBID)
- Democratic Politics and Governance for
High-Level Administrators Program, (Class of 20th),
King Prajadhipok's Institute

Work Experiences

| | |
|--------------------|-------------------------------------|
| 2005 - | : Executive Vice Present - Finance, |
| January 2011 | Thai Oil Public Company Limited |
| February 2011 - | : Senior Executive Vice President - |
| October 2011 | Corporate Accounting and Finance, |
| | IRPC Public Company Limited |
| October 2011 - | : Executive Vice President, |
| April 30, 2014 | Corporate Finance, PTT |
| May 1, 2014 - | : Chief Financial Officer, PTT |
| September 30, 2016 | |
| October 1, 2016 - | : Chief Operating Officer, |
| Present | Upstream Petroleum |
| | and Gas Business Group, PTT |

Relevant Important Positions in Listed Company – The Stock Exchange of Thailand

- Director/ Member of the Risk Management Committee, PTT Exploration and Production Public Company Limited

Relevant Important Positions in Non-listed Company/ Other Organizations

- Director, PTT Energy Resources Co., Ltd.
- Director, Sakari Resources. Ltd.
- Director/ Audit Committee, Thailand Management Association (TMA)
- Director, Chulalongkorn University Alumni Association (CUAA) 2015 - 2017
- Director under Thai-Chinese Railway Finance and Investment Sub-Committee, Thai-Chinese Railway Development Committee
- Advisory Committee, Promoting and Supporting Office of Industries, The Federation of Thai Industries
- Chairman, Thailand - Malaysia Business Council, The Federation of Thai Industries (FTI)
- Director, Joint Standing Committee on Commerce, Industry and Banking of Thailand (JSCIB-Thailand)
- Advisor to the President of the Association, Capital Market Academy (CMA)

Relation among Family with other Directors and Executives

- None

3

Mr. Sarun Rungkasiri Age 59

Chief Operations Officer,
Downstream Petroleum Business Group

(%) Share Possession: None

Appointed

- October 1, 2013

Education

- Bachelor of Engineering (Industrial Engineering), Chulalongkorn University, Thailand
- Master of Science in Management, Polytechnic Institute of New York, USA

Certifications

- Company Secretary Program (CSP 8/2004), Directors Certification Program (DCP 61/2005), Finance for Non-Finance Director (FN 19/2005), Thai Institute of Directors Association (IOD)
- Thirty Fourth Oxford Energy Seminar, St. Catherine's College, Oxford University, UK
- NIDA-Wharton Executive Leadership Program 2009, The Wharton School of the University of Pennsylvania, USA
- Diploma, The Joint State-Private Sector Course (Class of 23rd), National Defence College
- Top Executive in Industrial Development and Investment (Class of 1st) (2013)
- Certificate in Top Executives in the Energy Education Program (Class of 5th) (2014), Thailand Energy Academy (TEA)

Work Experiences

| | |
|----------------|--|
| 2008 - 2009 | : Executive Vice President, Corporate Communication & Social Responsibility, PTT |
| 2009 - 2010 | : Executive Vice President, Commercial & International Marketing, PTT |
| 2010 - 2011 | : Executive Vice President, Retail Marketing, PTT |
| 2011 - 2013 | : Senior Executive Vice President, Oil Business Unit, PTT |
| 2013 - Present | : Chief Operating Officer, Downstream Petroleum Business Group, PTT |

Relevant Important Positions in Listed Company – The Stock Exchange of Thailand

- Director/ Member of Risk Management Committee/ Member of the Nomination and Remuneration Committee, PTT Global Chemical Public Company Limited
- Director/ Chairman of the Risk Management Committee/ Member of the Nomination and Remuneration Committee, Thai Oil Public Company Limited

Relevant Important Positions in Non-listed Company/ Other Organizations

- Chairman, PTT Asahi Company Limited
- Club President, PTT Rayong Football Club
- Chairman, Chulalongkorn University Engineering Alumni Association
- Vice Chairman, Sustainable Energy Foundation

Relation among Family with other Directors and Executives

- None

4

Mr. Chavalit Punthong Age 60

Chief Operating Officer, Infrastructure and Sustainability Management Business Group

(%) Share Possession: None

Appointed

- January 1, 2016

Education

- Bachelor of Engineering (Mechanical Engineering), Kasetsart University, Thailand
- Master of Business Administration, Central Missouri State University, USA

Certifications

- Director Certification Program (DCP 177/2556), Thai Institute of Director (IOD)
- Top Executive Program (CMA 18/2014), Capital Market Academy
- Senior Executive Program (SEP), Sasin Graduate Institute of Business Administration of Chulalongkorn University
- PTT - GE Executive Leadership Program, GE Crotonville, USA
- Nida-Wharton Executive Leaders Program, The Wharton School of the University of Pennsylvania, USA

Work Experiences

| | |
|-------------|--|
| 2009 - 2010 | : Executive Vice President, Supply & Terminals Operation, PTT |
| 2010 - 2011 | : Executive Vice President, Commercial & International Marketing, PTT |
| 2011 - 2013 | : Executive Vice President, Retail Marketing, PTT |
| 2013 - 2014 | : Executive Vice President, Acting Senior Executive Vice President, Oil Business Unit, PTT |

| | |
|-------------------------------------|---|
| 2014 - September 30, 2015 | : Senior Executive Vice President, Oil Business Unit, PTT |
| October 1, 2015 - December 31, 2015 | : Chief Operating Officer Infrastructure, PTT |
| January 1, 2016 - Present | : Chief Operating Officer, Infrastructure and Sustainability Management Business Group, PTT |

Relevant Important Positions in Listed Company – The Stock Exchange of Thailand

- Director, IRPC Public Company Limited
- Director/ Member of the Risk Management Committee, Global Power Synergy Public Company Limited

Relevant Important Positions in Non-listed Company/ Other Organizations

- None

Relation among Family with other Directors and Executives

- None

5

Mrs. Nitima Thepvanangkul Age 59

Chief Financial Officer

(%) Share Possession: 0.001435
(Own 0.001435; Spouse 0)

Appointed

- October 1, 2016

Education

- Bachelor of Accounting, Chulalongkorn University, Thailand
- Master of Economics Program (Finance) (Hons.), National Institute of Development Administration (NIDA), Thailand

Certifications

- Director Certification Program (DCP 126/2009), Risk Management Committee Program (RMP 3/2014), Anti-Corruption: The Protocol Guide (ACPG 18/2015), Ethical Leadership Program (ELP 3/2016) Thai Institute of Directors Association (IOD)
- NIDA-Wharton Executive Leadership Program, The Wharton School, University of Pennsylvania, USA
- PTT Executive Leadership Program, GE Crotonville, USA

Work Experiences

- 2011 - 2014 : Executive Vice President, PTT, working on a Secondment as Senior Executive Vice President - Corporate Accounting and Finance, Thai Oil Public Company Limited
- 2014 - 2016 : Executive Vice President, Corporate Accounting and Finance, PTT
- 2016 - September 30, 2016 : Executive Vice President, Financial Policy and Corporate Accounting, PTT
- October 1, 2016 - Present : Acting Chief Financial Officer, PTT

Relevant Important Positions in Listed Company – The Stock Exchange of Thailand

- Director, Thai Oil Public Company Limited

Relevant Important Positions in Non-listed Company/ Other Organizations

- Chairman, PTT International Trading Private Company Limited
- Director, PTT Energy Resources Company Limited

Relation among Family with other Directors and Executives

- None

6

Mr. Kris Imsang Age 51
Senior Executive Vice President,
Human Resources & Organization Excellence

(%) Share Possession: 0.000350
(Own 0.000350; Spouse 0)

Appointed

- February 1, 2016

Education

- Bachelor of Engineering (Civil Engineering), Chulalongkorn University, Thailand

Certifications

- Director Certification Program (DCP 139/2010), Thai Institute of Directors Association (IOD)
- Leadership Development Program (Class of 2nd), PTT
- Certificate in Top Executives in the Poom Palung Pandin Program (Class of 3rd), Chulalongkorn University

Work Experiences

- 2009 - 2011 : Vice President, Leadership & Talent Management, PTT
- 2012 - 2013 : Executive Vice President, Lubricant Business, PTT

- 2013 - 2015 : Executive Vice President, Petroleum Terminal Operations, PTT
- 2015 - January 1, 2016 : Executive Vice President, Retail Marketing, PTT
- February 1, 2016 - Present : Senior Executive Vice President, Human Resources & Organization Excellence, PTT

Relevant Important Positions in Listed Company – The Stock Exchange of Thailand

- None

Relevant Important Positions in Non-listed Company/ Other Organizations

- Chairman, Energy Complex Company Limited
- Chairman, Sport Services Alliance Company Limited
- Chairman, PTT ICT Solutions Company Limited
- Deputy Secretary General, Chulalongkorn University Alumni Association (CUAA)
- Assistant to Secretary General, Chulalongkorn University Engineering Alumni Association

Relation among Family with other Directors and Executives

- None

7

Mrs. Sriwan Eamrungrroj Age 59
Senior Executive Vice President,
Corporate Strategy

(%) Share Possession: 0.003858
(Own 0; Spouse 0.003858)

Appointed

- October 1, 2015

Education

- Bachelor of Engineering (Mechanical Engineering) (Second Honor), Chulalongkorn University, Thailand
- Master of Business Administration, Thammasat University, Thailand

Certifications

- Director Certification Program (DCP 160/2012), The Board's Role in Mergers and Acquisitions (Class 1/2011), Thai Institute of Directors Association (IOD)
- Advance Management Program (AMP) (Class 183/2012), Harvard Business School, USA
- Strategic Marketing Management, Stanford Graduate School of Business, USA

- Seminar “Briefing on International Anti-Corruption... International Cases and Practices”, IOD (October 14, 2015)
- Certificate in Top Executives in the Energy Education Program (Class of 8th) (2016), Thailand Energy Academy (TEA)

Work Experiences

- 2009 - 2011 : Executive Vice President,
Corporate Strategy, PTT
- 2011 - : Executive Vice President, PTT,
September 30, 2015 working on a secondment as
Executive Vice President,
Corporate Commercial and Marketing,
PTT Global Chemical
Public Company Limited (PTTGC)
- October 1, 2015 - : Senior Executive Vice President,
Present Corporate Strategy, PTT

Relevant Important Positions in Listed Company – The Stock Exchange of Thailand

- Director, Thai Oil Public Company Limited

Relevant Important Positions in Non-listed Company/ Other Organizations

- Chairman, PTT MCC Biochem Company Limited

Relation among Family with other Directors and Executives

- None



Mr. Noppadol Pinsupa Age 52
Senior Executive Vice President,
Gas Business Unit

(%) Share Possession: 0.002255
(Own 0.000476; Spouse 0.001779)

Appointed

- October 1, 2015

Education

- Bachelor of Engineering (Electrical),
Chulalongkorn University, Thailand
- Master of Engineering (Electrical),
Chulalongkorn University, Thailand

Certifications

- Director Certification Program (DCP) (Class of 146/2011),
Financial Statement for Director (FSD) (Class of 12/2011),
Thai Institute of Directors Association (IOD)
- Leadership Development Program III,
PTT Leadership and Learning Institute

- Breakthrough Program For Senior Executives,
International Leading Business School (IMD),
Lausanne, Switzerland
- Assessor Training Program, Thailand Quality Award (TQA)
- Financial Statement for Directors,
PTT Public Company Limited (PTT)
- Seminar “Briefing on International Anti-Corruption...
International Cases and Practices”, IOD (October 14, 2015)
- Mitsui-HBS Global Management Academy 2015, Japan, USA
- G-20Y Summit 2015, France
- Program for Senior Executive on Justice Administration Batch
(Class of 19th), Judicial Training Institute
- Top Executives Program (Class of 22/2016),
Capital Market Academy

Work Experiences

- 2010 - 2012 : Executive Vice President,
Natural Gas Distribution,
Gas Business Unit, PTT
- 2012 - 2014 : Executive Vice President,
Natural Gas for Vehicle, PTT
- October 1, 2014 - : Executive Vice President, PTT,
September 30, 2015 working on a secondment as President,
Global Power Synergy
Public Company Limited
- October 1, 2015 - : Senior Executive Vice President,
Present Gas Business Unit, PTT

Relevant Important Positions in Listed Company – The Stock Exchange of Thailand

- Director, Thai Oil Public Company Limited

Relevant Important Positions in Non-listed Company/ Other Organizations

- Chairman, PTT Natural Gas Distribution Company Limited
- Chairman, AMATA Natural Gas Distribution Company Limited
- Director, Ratchaburi Power Company Limited

Relation among Family with other Directors and Executives

- None

9

Mr. Auttapol Rerkpiboon Age 51
Senior Executive Vice President,
Oil Business Unit

(%) Share Possession: 0.000939
(Own 0.000788; Spouse 0.000151)

Appointed

- October 1, 2015

Education

- Bachelor of Engineering (Civil Engineering), Chulalongkorn University, Thailand
- Master of Economics Program, National Institute of Development Administration, Thailand
- Diploma of Petroleum Management, College of Petroleum Studies, Oxford, England (British Council Scholarship)

Certifications

- Director Certification Program (DCP 173/2013), Thai Institute of Directors (IOD)
- TLCA Executive Development Program (EDP) (Class of 1st) Thai Listed Companies Association (TLCA)
- Diploma, The Joint State-Private Sector Course (Class of 58th), National Defence College
- Politics and Governance in Democratic for Executives (Class of 14th), King Prajadhipok's Institute
- Top Executive Program (Class of 20th), Capital Market Academy (CMA)
- NIDA-Wharton Executive Leadership Program 2009, The Wharton School of the University of Pennsylvania, USA
- PTT Executive Leadership, General Electric, GE, New York, USA

Work Experiences

| | |
|--------------------------------------|---|
| 2010 - 2011 | : Executive Vice President, Corporate Communications & Social Responsibility, PTT |
| 2011 - 2014 | : Executive Vice President, Commercial & International Marketing, PTT |
| 2014 - September 30, 2014 | : Executive Vice President, Retail Marketing, PTT |
| October 1, 2014 - September 30, 2015 | : Senior Executive Vice President, Sustainability Management and Project Engineering, PTT |
| October 1, 2015 - Present | : Senior Executive Vice President, Oil Business Unit, PTT |

Relevant Important Positions in Listed Company – The Stock Exchange of Thailand

- Director/ Member of Corporate Governance Committee, PTT Global Chemical Public Company Limited

Relevant Important Positions in Non-listed Company/ Other Organizations

- Chairman, PTT Oil and Retail Business Company Limited
- Chairman, PTT Retail Management Company Limited
- Director, Sustainable Energy Foundation

Relation among Family with other Directors and Executives

- None

10

Mr. Chansin Treenuchagron Age 56
Senior Executive Vice President,
Downstream Business Group Alignment

(%) Share Possession: None

Appointed

- January 1, 2016

Education

- Bachelor of Economic, Thammasat University, Thailand
- Master of Economic, Chulalongkorn University, Thailand

Certifications

- Director Certification Program (DCP 85/2007), Financial Statements for Directors (FSD 12/2011), Director Accreditation Program (DAP 93/2011), Chartered Director Class (CDC 11/2015) Thai Institute of Directors Association (IOD)
- Executive Development Relation (Class of 1st), Directorate of Civil Affairs
- Air War College (Class of 35th, 2006)
- Senior Executive Program (SEP-20) (Class of 20th), Sasin Graduate Institute of Business Administration of Chulalongkorn University
- PTT Executive Leadership, General Electric, GE, New York, USA
- Advance Senior Executive Program (ASEP-5), Class 5/2010, KELLOGG & SASIN, Chicago, USA
- Advanced Certificate Course in Public Economics Management for Executives (Class of 10th), King Prajadhipok's Institute
- Leadership Excellence through Awareness and Practice (LEAP), INSEAD, France & Singapore
- Leadership Development Program III (LDP 3), PLLI, PTT Public Company Limited

- Diploma, The National Defence Course (Class 57/2014), National Defence College
- Seminar “Briefing on International Anti-Corruption... International Cases and Practices”, IOD (October 14, 2015)
- Certificate in Top Executives in the Energy Education Program (Class of 7th) (2015), Thailand Energy Academy (TEA)

Work Experiences

| | |
|------------------------------------|--|
| October 2011 - February 2013 | : Executive Vice President, PTT, working on a secondment at IRPC Public Company Limited (IRPC) as Senior Executive Vice President, Corporate Port and Asset Management Business Unit, IRPC |
| March, 2013 - September 2014 | : Executive Vice President, PTT, working on a secondment at IRPC Public Company Limited (IRPC) as Senior Executive Vice President, Corporate Commercial and Marketing, IRPC |
| October 2014 - September 30, 2015 | : Senior Executive Vice President, Corporate Strategy, PTT |
| October 1, 2015 - December 31,2015 | : Senior Executive Vice President, Petrochemicals & Refining Business Unit, PTT |
| January 1, 2016 - Present | : Senior Executive Vice President, Downstream Business Group Alignment, PTT |

Relevant Important Positions in Listed Company – The Stock Exchange of Thailand

- Director/ Member of the Risk Management Committee, IRPC Public Company Limited

Relevant Important Positions in Non-listed Company/ Other Organizations

- Chairman, PTT Polymer Logistics Company Limited
- Chairman, PTT Polymer Marketing Company Limited

Relation among Family with other Directors and Executives

- None

11

Mrs. Boobpha Amornkiatkajorn Age 58
Senior Executive Vice President,
International Trading Business Unit

(%) Share Possession: 0.002451
(Own 0.002451; Spouse 0)

Appointed

- October 1, 2014

Education

- Bachelor of Science (Economics) (Hons.), Kasetsart University, Thailand
- Master of Economics Program (Finance) (Hons.), National Institute of Development Administration (NIDA), Thailand

Certifications

- Director Certification Program (DCP 152/2011), Thai Institute of Directors (IOD)
- Senior Executive Program, (Class 2003), Sasin Graduate Institute of Business Administration of Chulalongkorn University
- Army War College (Class 2008), Institute of Army Academics
- Leadership Development Program - Center for Creative Leadership, Singapore
- Breakthrough Program for Senior Executive (BPSE) (Class 2012), IMD Institute, Switzerland
- Capital Market Academy Leader Program (CMA 21/2015), Capital Market Academy

Work Experiences

| | |
|---------------------------|---|
| 2002 - 2009 | : Vice President, Crude Oil Trading, PTT |
| 2010 - 2014 | : Executive Vice President, Downstream Business Group Alignment, PTT |
| 2014 - September 30, 2014 | : Executive Vice President, Trading Operations, PTT |
| October 1, 2014 - Present | : Senior Executive Vice President, International Trading Business Unit, PTT |

Relevant Important Positions in Listed Company – The Stock Exchange of Thailand

- Director, PTT Global Chemical Public Company Limited

Relevant Important Positions in Non-listed Company/ Other Organizations

- Director, PTT Polymer Marketing Company Limited
- Director, Tiger Energy Trading Pte. Ltd.
- Vice Chairman, The Institute of Industrial Energy, The Federation of Thai Industries

Relation among Family with other Directors and Executives

- None

12

Mr. Wittawat Svasti-xuto Age 55
Senior Executive Vice President,
Sustainability Management and Project Engineering

(%) Share Possession: 0.001241
(Own 0.001241; Spouse 0)

Appointed

- January 1, 2017

Education

- Bachelor of Engineering (Chemical Engineering),
Chulalongkorn University, Thailand
- Master of Science (Industrial Engineering),
The University of Rhode Island, USA

Certification

- Director Certification Program (DCP),
Financial Statements for Director (FSD),
Thai Institute of Directors (IOD)

Work Experiences

- August 1, 2014 - : Executive Vice President,
December 31, 2015 Strategy Management,
Downstream Business Unit, PTT
- January 1, 2016 - : Executive Vice President,
September 30, 2016 Downstream Business Group Alignment,
PTT
- October 1, 2016 - : Senior Executive Vice President,
December 31, 2016 Sustainability Management, PTT
- January 1, 2017 - : Acting Senior Executive Vice President,
Present Sustainability Management
and Project Engineering, PTT

Relevant Important Positions in Listed Company –
The Stock Exchange of Thailand

- None

Relevant Important Positions in Non-listed Company/
Other Organizations

- Director, Energy Complex Company Limited

Relation among Family with other Directors and Executives

- None

13

Mr. Supot Laosuarpha Age 59
Senior Executive Vice President,
Taking a Position of Executive Vice President,
Office of Corporate Legal

(%) Share Possession: 0.002759
(Own 0.002759)

Appointed

- August 1, 2016

Education

- Bachelor on Laws, Ramkhamhaeng University
- Master of Management (Law and Management),
College of Management Mahidol University
- Lawyer License, Lawyers Council of Thailand
- Graduate Diploma Program in Business Law,
Thammasat University

Certifications

- Director Certification Program (DCP 139),
Thai Institute of Directors Association (IOD)
- Higher Graduate Diploma Program, Public Sector Management
and Public Law, King Prajadhipok’s Institute
- Senior Executive Program (SEP 21),
Sasin Graduate Institute of Business Administration,
Chulalongkorn University
- Notarial Services Attorney, Lawyers Council of Thailand
- Top Executive Program in Administrative Judicial Administration,
Office of the Administrative Court
- Judicial Administration Training Program for Top Executive,
Training and Development Institute,
Office of the Attorney General
- Anti-Corruption Government Network Program,
Office of the National Anti-Corruption Commission (NACC)
- Leadership Succession Program (LSP), Institute of Research
and Development for Public Enterprise (IRDP)
- Top Executive Administration Strategic Program,
Office of the National Anti-Corruption Commission (NACC)

Work Experiences

- 2009 - 2016 : Executive Vice President,
Office of Corporate Legal, PTT
- August 1, 2016 - : Senior Executive Vice President,
Present Taking a Position of Executive
Vice President, Office of Corporate Legal

Relevant Important Positions in Listed Company –
The Stock Exchange of Thailand

- None

Relevant Important Positions in Non-listed Company/ Other Organizations

- Chairman, Business Services Alliance Company Limited
- Chairman, PTT Green Energy Private Company Limited
- Director, East Mediterranean Gas Company

Relation among Family with other Directors and Executives

- None

14

Miss Nitaya Direksathapon Age 59
Senior Executive Vice President
and Taking a Position of Executive Vice President,
Office of Corporate Audit

(%) Share Possession: 0.000175
(Own 0.000175)

Appointed

- August 1, 2016

Education

- Bachelor of Accounting (Second-Class Honors), Chulalongkorn University
- Master of Business Administration (Finance), National Institute of Development Administration (NIDA)

Certifications

- Director Accreditation Program (DAP), Thai Institute of Directors (IOD)
- Senior Executive Program (SEP), Sasin Graduate Institute of Business Administration of Chulalongkorn University
- Finance for Senior Executives, Harvard Business School
- NIDA - Wharton Executive Leadership Program, National Institute of Development Administration (NIDA)
- Senior Judicial Administration Executives Program, (Class of 3rd), Office of the Administrative Court

Work Experiences

| | |
|-----------------------------|--|
| 2001 - 2006 | : Vice President, Financial Risk Management on Finance and Credit Policy Department, PTT |
| 2006 - 2008 | : Executive Vice President, Corporate Accounting and Finance, IRPC Public Company Limited |
| 2009 - July 31, 2016 | : Executive Vice President, Office of Corporate Audit, PTT |
| August 1, 2016 - Present | : Senior Executive Vice President and Taking a Position of Executive Vice President, Office of Corporate Audit, PTT |

Relevant Important Positions in Listed Company – The Stock Exchange of Thailand

- None

Relevant Important Positions in Non-listed Company/ Other Organizations

- None

Relation among Family with other Directors and Executives

- None

15

Mr. Somporn Vongvuthipornchai Age 58
President and Chief Executive Officer,
PTT Exploration and Production
Public Company Limited (PTTEP)

(%) Share Possession: 0.000350
(Own 0; Spouse 0.000350)

Appointed

- October 22, 2015

Education

- Bachelor of Sciences (Petroleum Engineering), University of Tulsa, Oklahoma, USA
- Master of Sciences (Petroleum Engineering), University of Tulsa, Oklahoma, USA
- Ph.D. (Petroleum Engineering) University of Tulsa, Oklahoma, USA

Certifications

- Director Certification Program (DCP 224/2016), Thai Institute of Directors (IOD)
- Advanced Management Program 2006 (Executive Education Program), Harvard Business School, USA
- GE Energy Customer Executive Leadership Program (Class 2012), GE Global Learning, Crotonville, USA
- Leadership Development Program III (2013), PTT Leading and Learning Institute (PLLI)
- Certificate in Top Executives in the Energy Education Program (Class of 2nd), Thailand Energy Academy (TEA)
- Anti-Corruption Strategic Management Course for Senior Executive (Class of 6th), Sanya Dhamasakti Anti-Corruption Institute (SDI), Office of the National Anti-Corruption Commission (NACC)

Work Experiences

May 1, 2006 - : Vice President,
January 14, 2010 International Asset Division,
PTT Exploration and Production
Public Company Limited (PTTEP)

January 15, 2010 - : Executive Vice President,
December 31, 2014 International Asset Group, PTTEP

January 1, 2015 - : Executive Vice President,
October 21, 2015 Strategy and Business
Development Group, PTTEP

October 22, 2015 - : Senior Executive Vice President, PTT
Present working on as secondment as
President and Chief Executive Officer,
PTTEP

Relevant Important Positions in Listed Company –
The Stock Exchange of Thailand

- Director,
PTT Exploration and Production Public Company Limited

Relevant Important Positions in Non-listed Company/
Other Organizations

- Director, Power of Innovation Foundation
- Director, Power of Learning Foundation
- Director, Thailand Energy Academy
- Director, Thai Listed Companies Association

Relation among Family with other Directors and Executives

- None

16

Mr. Supattanapong Punmeechaow Age 57
President and Chief Executive Officer,
PTT Global Chemical Public Company Limited

(%) Share Possession: None

Appointed

- October 1, 2014

Education

- Bachelor Degree, Chemical Engineering,
Chulalongkorn University, Thailand
- Master Degree, Business Administration,
Chulalongkorn University, Thailand

Certifications

- Director Certification Program (DCP 131/2010),
Role of Chairman Program (RCP 30/2013),
Thai Institute of Directors Association (IOD)
- Advanced Management Program, INSEAD University, France
- Diploma, The National Defence Course (Class of 50th)
and The Joint State-Private Sector Course (Class of 20th),
National Defence College
- Oxford Energy Seminar 2013, UK
- Certificate in Top Executives in the Energy Education Program
(Class of 4th), Thailand Energy Academy
- Corporate Governance for Directors and Senior Executives
of State Enterprises and Public Organizations (Class 12/2014),
Public Director Institute (PDI), King Prajadhipok's Institute
- Rule of Law for Democracy Course (Class 3/2015)

Work Experiences

2009 - 2011 : Executive Vice President,
Business Development,
PTT International Company Limited
and Executive Vice President,
Corporate Strategy, PTT

2011 - : Senior Executive Vice President,
September 30, 2014 Corporate Strategy, PTT

October 1, 2014 - : Senior Executive Vice President, PTT,
Present working on a secondment as
President and Chief Executive Officer,
PTT Global Chemical
Public Company Limited

Relevant Important Positions in Listed Company –
The Stock Exchange of Thailand

- Director/ Secretary to the Board/
Member of Risk Management Committee,
PTT Global Chemical Public Company Limited
- Vice Chairman, Vinythai Public Company Limited
- Director, Global Power Synergy Public Company Limited

Relevant Important Positions in Non-listed Company/
Other Organizations

- Director, PTT Chemical International Private Limited (CH INTER)
- Director, PTT Chemical International (Asia Pacific ROH) Limited
- Chairman of the Board of Directors,
Global Green Chemicals Public Company Limited
- Member, Council of Trustees, Petroleum Institute of Thailand
- Chairman of the Community Partnership
- Vice Chairman, Director, Power of Innovation Foundation
and Power of Learning Foundation

Relation among Family with other Directors and Executives

- None

17

Mr. Atikom Terbsiri Age 54
President and Chief Executive Officer,
Thai Oil Public Company Limited

(%) Share Possession: None

Appointed

- Appointed October 1, 2014

Education

- Bachelor of Business Administration, Assumption University, Thailand
- Master of Business Administration (Finance & International Business), High Distinction, Armstrong University, Berkeley, California, USA

Certifications

- Director Certification Program (DCP 125/2009)
Risk Management Program for Corporate Leader (RCL 4/2016), Thai Institute of Directors (IOD)
- Diploma, National Defence College, The State Private Sector and Political Sectors Course, (Class of 5th),
- Advanced Security Management Program (ASMP1), The National Defence College Association of Thailand
- Top Executives Program, Capital Market Academy (Class of 17th), Thailand
- Executive Education Program, Harvard Business School, Harvard University, USA
- Certificate in Top Executives in the Energy Education Program (Class of 6th), Thailand Energy Academy (TEA)

Work Experiences

2009 - 2011 : Senior Executive Vice President, Corporate Strategy & Planning, Acting Senior Executive Vice President, Port & Asset Management Business Unit, IRPC Public Company Limited

2011 - 2013 : Senior Executive Vice President, PTT working on a secondment as President, IRPC Public Company Limited

2013 - 2014 : Senior Executive Vice President, Petrochemicals & Refining Business Unit, PTT

October 1, 2014 - Present : Senior Executive Vice President, PTT, working on a secondment as President and Chief Executive Officer, Thai Oil Public Company Limited

Relevant Important Positions in Listed Company – The Stock Exchange of Thailand

- Director and Secretary to the Board of Directors, Thai Oil Public Company Limited
- Director, Global Power Synergy Public Company Limited

Relevant Important Positions in Non-listed Company/ Other Organizations

- Chairman, Thai Lube Base Public Company Limited
- Chairman, Thairoil Marine Company Limited
- Chairman, Thairoil Solvent Company Limited
- Chairman, TOP Solvent Company Limited
- Chairman, Thairoil Power Company Limited
- Chairman, TOP SPP Company Limited
- Chairman, LABIX Company Limited
- Chairman, Thai Paraxylene Company Limited
- Director, Power of Innovation Foundation and Power of Learning Foundation
- Council, Vidyasirimedhi Institute of Science and Technology
- Director, Board of the Federation of Thai Industries
- Executive Director, Thailand Energy Academy
- Director, Thai Industries Estate Foundation
- Executive Director, Thailand Swimming Association

Relation among Family with other Directors and Executives

- None

18

Mr. Sukrit Surabotsopon Age 58
President,
IRPC Public Company Limited

(%) Share Possession: 0.000070
(Own 0.000070; Spouse 0)

Appointed

- October 1, 2013

Education

- Bachelor of Engineering (Chemical Engineering)
(2nd Class Honor), Chulalongkorn University, Thailand

Certifications

- Directors Certification Program (DCP 132/2010),
Audit Committee Program (ACP 38/2012),
Monitoring the System of Internal Control and Risk Management
(MIR 12/2012), Thai Institute of Directors Association (IOD)
- Executive Development Program (EDP 3) 2009,
Thai Listed Companies Association (TLCA)
- Democratic Politics and Governance for High-Level
Administrators (Class 15/2012), King Prajadhipok's Institute
- Top Executives Program, Capital Market Academy
(Class of 16th), Thailand
- Diploma, The Joint State-Private Sector Course (Class 26/2013),
National Defence College
- Energy Literacy Executive Management Program (TEA 6/2015),
Thailand Energy Academy
- The Board's Role in Strategic Formulation, Governance Matters,
Australia (2015)

Work Experiences

- 2010 - 2013 : Senior Executive Vice President -
Petrochemicals & Refining Business Unit,
PTT
- 2013 - Present : Senior Executive Vice President, PTT,
working on a secondment as President,
IRPC Public Company Limited

**Relevant Important Positions in Listed Company –
The Stock Exchange of Thailand**

- Director/ Secretary of the Board/
Member of the Risk Management Committee,
IRPC Public Company Limited

**Relevant Important Positions in Non-listed Company/
Other Organizations**

- Director, UBE Chemicals (Asia) Public Company Limited
- Chairman, IRPC Oil Company Limited
- Chairman, IRPC Polyoil Company Limited
- Chairman, IRPC A&L Company Limited
- Chairman, IRPC Technology Company Limited
- Chairman, IRPC PCC Company Limited
- Director, PTT Energy Solutions Company Limited
- Chairman, Petroleum Refining Industry Club,
The Federation of Thai Industries (Term 2014 - 2016)
- Vice President, Petrochemical Cluster
(Petroleum Refining, Petrochemicals, Plastics,
and Chemicals Industries)
- Director and Executive Director,
the Institute of Industrial Energy,
The Federation of Thai Industries (Term 2014 - 2016)
- Director, Water Institute for Sustainability (Term 2014 - 2016)
- Director (Chemical Engineering Sector),
The Engineering Institute of Thailand
under H.M. The King's Patronage
- Council, Vidyasirimedhi Institute of Science and Technology
- Director, Power of Innovation Foundation
- Director, Power of Learning Foundation
- Director, The Federation of Thai Industries (Term 2014 - 2016)
- Director, Industrial Promotion Committee,
The Federation of Thai Industries
- Director, The Industrial Environment Institute,
The Federation of Thai Industries
- Advisory of the Board of Directors, Plastics Institute of Thailand
- Advisor, Chulalongkorn University Alumni Association
under the Patronage of His Majesty The King (2015 - 2017)
- Director, Public-Private Steering Committee
(Competitive Workforce Sector)

Relation among Family with other Directors and Executives

- None

Positions held by The Management and Authorized Controllers of PTT Plc.
Subsidiaries, Associates, and Related Companies for 2015

Note:

- Symbol x = Chairman — = Vice Chairman * = President O = CEO / = Director // = Executive
- The first four executives, excluding the President & CEO, under SEC's Announcement are Mr. Wirat Uanarumit, Mr. Surun Rangkasiri, Mr. Chawalit Punthong, and Mrs. Nitima Thepranangkul.
- * The Company has classified new subsidiary in according to the International Financial Reporting Standards No. 10 Consolidated Financial Statement, effective since January 1, 2015.



Awards of Thai Pride

PTT values sustainable business conduct in a socially and environmentally responsible way with due regard to good governance, transparent information disclosure, and commitment to innovation together with technological promotion. This year PTT garnered 61 awards from 33 entities both national and international levels.

Business Excellence

National

1



BrandAge Thailand's Most Admired Brand 2016

1. PTT service stations were voted the Most Admired Brand for 13 consecutive years based on a consumer survey.
2. PTT service stations received a "Thai Brand" plaque of honor for being the most popular brand in the market despite fierce competition with international brands. PTT is considered as Thai pride for being the consumer's favorite for over 10 years.

PTT lubricant products were also voted the Most Admired Brand for seven consecutive years.

Date:

February 23, 2016

Presented by:

BrandAge Magazine

BrandAge

- Business Excellence
- Business Sustainability
- Good Governance and Transparency
- Innovation and Technology

22 Domestic
Entities
Total

34 awards

11 International
Entities
Total

27 awards

2



The No. 1 Brand Thailand 2015 – 2016

Three awards were presented to PTT for:

1. PTT Life Stations (Gas Station)
2. Café Amazon (Coffee Shop), and
3. PTT Lubricants (Engine Oil Car)

They were voted the most trusted brand for five consecutive years.

Date:

May 2016

Presented by:

Marketeer Magazine

Marketeer

3



The Prime Minister's Industry Award 2016

Two awards were presented to PTT for:

1. Rayong Gas Separation Plant,
Excellence in Safety Management
(for ten consecutive years)
2. Khanom Gas Separation Plant,
Excellence in Quality Management
(for five consecutive years)

Date:

July 27, 2016









Presented by:

Ministry of Industry



Business Excellence

National

| | |
|---|--|
| <div>4</div> <div>  <p>Café Amazon's Black Coffee was voted by Time Out Bangkok Magazine as the Best Americano</p> <p>Date: July 27, 2016</p> <p>Presented by: Time Out Bangkok Magazine</p>  </div> | <div>5</div> <div>  <p>SOE Award 2016</p> <p>Three awards were presented to PTT for:</p> <ol style="list-style-type: none"> 1. Outstanding State-Owned Enterprise Award 2016 2. Outstanding Information Disclosure and Transparency Award 3. Outstanding Innovation Award (for seven consecutive years). <p>Date: September 15, 2016</p> <p>Presented by: Ministry of Finance</p>  </div> |
| <div>6</div> <div>  <p>PTT won Thailand Automotive Quality Award 2016 (TAQA Award 2016)</p> <p>for seven consecutive years for:</p> <ol style="list-style-type: none"> 1. Automotive products (Fuels) 2. Service stations. <p>Date: December 2, 2016</p> <p>Presented by: Inter-Media Consultant Co., Ltd., Custom Asia Co., Ltd., and Manager Newspaper</p> <div>    </div> </div> | |

International

1



**PTT's CEO and President,
Mr. Tevin Vongvanich,
won The Asset CEO of the Year
(Oil and Gas Business)**

Date:

9 March 2016

**Best Risk Management Solution
from The Asset Triple – A Transaction
Banking Awards 2016**

Date:

May 2016

**The Asset Corporate Excellence
Awards 2016:**

- The Platinum Award Winners (for eight consecutive years)
- Best Chief Executive Officer Award
- Best Investor Relations Team Award
- Best Initiatives in Innovation Award
(Eco-Cure Water Systems)
- Best Initiatives in Diversity and Inclusion Award

Date:

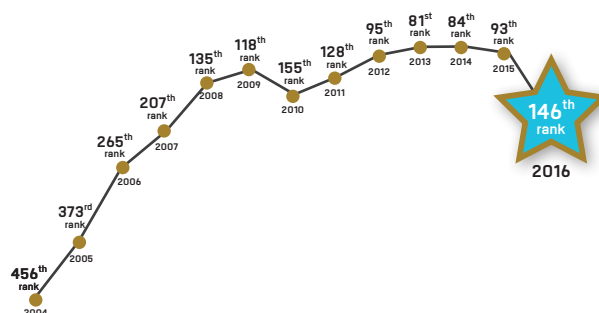
December 15, 2016

Presented by:

The Asset Magazine

THE Asset 財資

2



**PTT was ranked 146th of 500 major
companies worldwide 2016**

- Based on revenue and profit of 2015
- PTT remains the sole Thai top-500 company
- Past ranking:

93rd in 201584th in 201481st in 201395th in 2012128th in 2011155th in 2010118th in 2009135th in 2008207th in 2007265th in 2006373rd in 2005456th in 2004.**Date:**

July 2016

Presented by:

Fortune Global 500 Magazine



Business Sustainability

National

1



PTT Reforestation Institute's Metro-Forest Project won the 2016 BMA's Toilet of the Year (Private Tourist Destinations Category)

among the 16 awardees and 83 entries

Date:

April 2016

Presented by:

Department of Health in conjunction with 50 District Offices of BMA



2



"Forest Planting from the Heart" won the Best TV Commercial from the 14th Outstanding Television Commercial for Consumers Project (OCPB Ad Awards 2015), Category: Social, Art & Cultural, and Environmental Promotion

Date:

May 2016

Presented by:

Office of the Consumer Protection Board (OCPB) in conjunction with the Advertising Association of Thailand (AAT)



3



PTT won a "100% Foam-Free Organization Certificate" at a Workshop of 100% Foam-Free Certification and Food Sanitation Network Promotion

Date:

June 3, 2016

Presented by:

Department of Health



4



PTT Head Office, La Salle, and Navanakorn service station branches won Green Label Certification from the Green Label Program

Date:

June 6, 2016

Presented by:

Thailand Environment Institute (TEI)



5



National Safety Awards 2016

Two awards were presented to PTT for:

1. Outstanding Occupational Safety Officer (Executive): Mr. Sukit Wannako
2. Outstanding Workplace for Safety, Occupational Health, and Work Environment for PTT's 17 oil terminals and Phra Khanong Office.

Date:

July 2016

Presented by:

Department of Labour Protection and Welfare,
at the 30th National Safety Week 2016



6



PTT and PTT LNG won CSR-DIW Awards 2016 for its gas separation plants

The CSR-DIW (Corporate Social Responsibility, Department of Industrial Works) project promotes sustainable social responsibility and coexistence with communities among industrial factories.

Date:

July 28, 2016

Presented by:

Department of Industrial Works,
Ministry of industry



7



PTT won certificates from The Thailand Greenhouse Gas Management Organization (Public Organization)

four kinds on its operations for

1. Carbon Footprint for Organization, for PTT's Natural Gas Processing and Natural Gas Transmission Groups

2. Low Emission Supporting Scheme (LESS) for Wang Chan Afforestation Project and PTT Group's Rayong Wanarom Eco-Forest
3. Thailand's Voluntary Emission Reduction Program (T-VER): for PTT Group's Rayong Wanarom Eco-Forest and Community Biogas from Pig Farms, Tambon Tha Manao, Amphoe Chai Badan, Lop Buri
4. Carbon Neutral Event for the Workshop on PTT Group's QSHE Business Direction, PTT Annual General Meeting 2015, and PTT Group's National Occupational Safety Week 2016 Exhibition.

Date:

September 19, 2016

Presented by:

Thailand Greenhouse Gas Management
Organization (Public Organization) TGO



Business Sustainability

National

8



PTT Business Continuity Management System (BCMS) was ISO 22301:2012 – certified

Date:

October 11, 2016

Presented by:

The Management System Certification Institute (Thailand) (MASCI)



9



EIT-CSR Award 2016 (Plaque of Excellence, State Enterprise Category)

Date:

November 30, 2016

Presented by:

The Engineering Institute of Thailand under H.M. The King's Patronage (EIT)



10



Best Sustainability Report Award 2016

for four consecutive years

Date:

December 15, 2016

Presented by:

Thai Listed Companies Association, SEC, and Thaipat Institute



International

1



PTT's "Energy & the Future", TV commercial broadcast on Bloomberg TV in 2015, won a Telly Award 2016 (Bronze Level, Category: Regional TV & Multi-Market Cable-Institute/Corporate Image).

Telly Awards represent international-standard media awards. With over 12,000 entries from around the world, this 2016 event marked its 37th consecutive year.

Date:

August 2016

Presented by:

Telly Awards



2



Ranked membership of Dow Jones Sustainability Indices (DJSI)

• DJSI 2016

PTT has retained DJSI membership for five consecutive years.

Date:

September 8, 2016

Presented by:

Dow Jones Sustainability Indices (DJSI)



3



PTT's Metro Forest Project won the "2016 ASLA Professional Award" (Honor Award, General Design Category)

as a role model for sustainable development in an eco-friendly way

Date:

November 10, 2016

Presented by:

American Society of Landscape Architects (ASLA)



Good Governance and Transparency

National

1



Most Popular Stock Award: Resources Group

for four consecutive years

Date:

May 23, 2016

Presented by:

Kao Hoon (stock news) newspaper,
University of the Thai Chamber of Commerce, and SET



2



PTT’s 10 service stations won certificates for Standard on Prevention and Solution to Drug Problems in the Workplace and Labour Network for Drug Prevention

Date:

June 23, 2016

Presented by:

Department of Labour Protection and Welfare



3

Corporate Governance Report of Thai Listed Companies 2016 (CGR 2016) PTT won Excellent CG Scoring (5 emblems)

for eight consecutive years and was ranked in the Top quartile of listed companies with market capitalization of over THB 10,000 million.

Date:

October 26, 2016

Presented by:

Thai Institute of Directors (IOD),
supported by SET



4



Outstanding Corporate Governance Award 2016

Date:

December 13, 2016

Presented by:

Office of the National Anti-Corruption Commission,
Thai Chamber of Commerce,
and The University of the Thai Chamber of Commerce



International

1



1. The 11th Corporate Governance Asia Recognition Award 2015, Icon on Corporate Governance

for 11 consecutive years and was named Asia's CG role model.

2. Asian Corporate Director Recognition Award 2015

for four consecutive years

Date:

January 13, 2016

PTT garnered six Asian Excellence Awards 2016:

3 individual awards:

1. Asia's Best CEO: Mr. Tevin Vongvanich
2. Asia's Best CFO: Mr. Wirat Uanarumit
(for two consecutive years)
3. Best Investor Relations Professionals:
Mr. Phichin Aphiwantanaporn
(for three consecutive years).

3 corporate awards:

1. Best Investor Relations (for six consecutive years)
2. Best Corporate Communications Team
3. Asia's Best CSR (for four consecutive years).

Date:

June 20, 2016

Presented by:

Corporate Governance Asia Magazine



2

PTT was ranked in the top 25 by the Transparency International organization

along with three other Thai companies:

Indorama Ventures (ranked 20th, 5.6 points),
Thai Union Frozen Products (ranked 21st, 5.5 points),
and PTT (ranked 22nd, 5.4 points)

Date:

July 2016

Presented by:

Transparency International



3



PTT accepted four awards from Alpha Southeast Asia in 2016:

1. Most Organized Investor Relations
2. Strongest Adherence to Corporate Governance
3. Most Consistent Dividend Policy
4. Best Annual Report in Thailand

Date:

August 31, 2016

Presented by:

Alpha Southeast Asia magazine



Innovation and Technology

National

1



PTT's Rayong Gas Separation Plant won a Gold Award International QCC 2016

at the International Convention on Quality Control Circles (ICQCC) 2016 - Bangkok for its energy reduction project for the AGRU Reboilers at Gas Separation Plant Unit 5

Date:

August 23 - 26, 2016

Presented by:

Department of Industrial Promotion (DIP), Ministry of Industry, in conjunction with The Association of QC Headquarters of Thailand



2



PTT won the Best Exporter Award (Major Company) of the Prime Minister's Export Awards 2016

This most prestigious award recognizes exporters who apply their knowledge, creativity, and innovation to the development of international-standard products and services, leading to sustainable competition in international markets.

Date:

September 20, 2016

Presented by:

Ministry of Commerce



International

3



PTT won a certificate at the “Thailand IPv6 Ready Award 2016”

Date:

October 2016

Presented by:

Ministry of Digital Economy and Society



1



The “Data CHAMPION” award recognized PTT’s leadership in embracing a data culture in its organization for business success.

PTT is the first Thai energy company to achieve business transformation through the innovation of advanced database management and analytics.

Date:

April 27, 2016

Presented by:

Microsoft Asia,
at The Power of Data event



4

ISO14644–1 (Certification of Compliance: Classification of Air Cleanliness), Class 8

The certificate confirms the international-standard cleanliness of PTT Head Office’s White Space Room Data Center, with very low particles, comparable to leading Co-Location Data Centers.

Date:

October 2016

Presented by:

QV Test



2



The Innovators 2016 – Corporate Finance (Process Innovation and Product Innovation).

PTT, with Siam Commercial Bank,
accepted the award for PTT’s innovation:
Cash Easy 2.0-Automated Cash Management Solution

Date:

May 2016

Presented by:

Global Finance Magazine





{ PTT Metro-Forest Project }

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