



STRENGTH OF THE LAND

2016 SUSTAINABILITY REPORT





NAVAMINDRA PETROLEUM AREA

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

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



A PIONEER

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

AN EXPLORER

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



AN ENVIRONMENTALIST

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



THE DEVELOPER KING

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

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

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

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



SUSTAINABLE ORGANIZATION

OPERATIONAL EXCELLENCE

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



GOOD CORPORATE GOVERNANCE AND BUSINESS ETHICS

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





RESPONSIBILITY TO THE SOCIETY AND THE ENVIRONMENT

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

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Message from the President and CEO



PTTEP is grateful for the immeasurable grace and guidance shown by His Majesty King Bhumibol Adulyadej, “Father of Thai Energy Development”, for which we pledge our continuing loyalty and to pursue His Majesty’s aspirations and vision for the country. We will follow the lead of His Majesty King Bhumibol Adulyadej who had shown great kindness towards all Thai people and had been a role model throughout his 70-year reign.

The year 2016 marked another year of price volatility for the oil and gas business. Although the oil price situation started to show signs of an upward trend, especially as the year closed, resulting from a potential agreement amongst OPEC which would contribute towards a further rebalancing in supply and demand. Nevertheless, PTTEP is aware of the need to be ready to respond to any situational changes, to improve our business process, to remain competitive and to work towards a sustainable business model.

Despite the challenges and obstacles, the Company remains committed to lead the organization toward sustainability. The continued listing on the Dow Jones Sustainability World Indices (DJSI World) in the Oil and Gas Upstream & Integrated industry for

the third consecutive year and receiving the position of the Industry Leader with the highest assessment score amongst listed companies worldwide for the first time this year is proof of our commitment. The RobecoSAM Gold Class Sustainability Award 2017 is further recognition of the sustainable practices in our business conduct and long term performances. Moreover, PTTEP was selected to be part of the FTSE4Good Emerging Index 2016 ranked by FTSE Russell, further reflecting our efforts and commitment to being a sustainable organization.

In 2016 PTTEP continued its business strategy called “RESET-REFOCUS-RENEW” to improve our business operations to achieve sustainable growth in the future despite the current price environment:

RESET is to reduce our cost base by raising awareness and improving operational processes while maintaining safety standard, leading to enhanced competitiveness;

REFOCUS is to invest in the areas of our expertise by applying knowledge and experience to add value and increase investment returns;

RENEW is to change and adapt our strategy to achieve sustainable growth in the long term by forming joint ventures, developing technology, and identifying investment opportunities in new business areas.

The PTTEP Safety, Security, Health and Environment Management system (SSHE MS) strongly focuses on Target Zero as a key organization goal. In 2016 the Lost Time Injury Frequency (LTIF) was 0.10 and the Total Recordable Incident Rate (TRIR) was 0.88, which outperformed the global oil and gas industry standards when benchmarked against indexes such as the International Association of Oil and Gas Producers (IOGP). In addition, these results represented the best statistical performance ever achieved when compared with our previous performances.

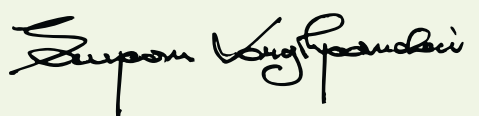
This renewal of our strategic business plan resulted in PTTEP embarking on the "SAVE to be SAFE" project to maintain competitiveness in the industry through increased business efficiency and cost reduction, while adhering to the highest safety standards, which was continued in the "SPEND SMART to Business Sustainability" project which further reinforces the renewal of the working culture to enhanced performance and efficiency. All these efforts have successfully reduced PTTEP expenses and unit costs in 2016 by 22 percent or 30.46 USD per barrel of oil equivalent, compared with 38.88 USD in 2015, enabling us to navigate any oil price volatility while maintaining our competitive advantages and financial strength to invest in areas with high petroleum potential where we have expertise.

PTTEP realizes that the sustainable growth of an organization is also dependent on the support and trust it receives from all stakeholders. Therefore, we give priority to social and environmental activities in both domestic and international operations by defining strategic directions, and proactive plans in sustainable development in the short and long terms, covering all 3 aspects: Business, Society and Environment. In the business aspect, PTTEP promotes research and develops the application of technology to support petroleum exploration and production efficiently. In the social aspect, we focus on developing 4 areas: basic needs, education, environment and culture to ensure that we are really able to respond to community needs. In the environmental aspect, PTTEP is committed to being a Low Carbon Footprint company with the target of reducing greenhouse gas emissions from PTTEP activities by not less than 20 percent by 2020, compared with the based year 2012. In 2016 PTTEP achieved greenhouse gas emissions reduction of 16 percent when compared with the base year 2012.

For the good corporate governance and business ethics, PTTEP is one of the 15 founding members of Global Compact Network Thailand (GCNT) whose mission is to elevate the importance of upholding the United Nations Global Compact (UNGC) sustainability principles within Thailand business sector. PTTEP has been a long term supporter of the UNGC and this is the second consecutive year which we have incorporated the UNGC Advanced Level principles. PTTEP has developed various anti-corruption guidelines as preventative measures against corruption risk.

In the case of the Rolls-Royce bribery charges, the Company has immediately set up a fact finding committee consisting of those not involved with the Rolls-Royce equipment procurement to gather facts and report to the Office of National Anti-Corruption Commission (NACC). PTTEP also has sent official letters to request additional information from the United States Department of Justice and the Rolls-Royce Company. PTTEP will take legal and disciplinary action on anyone found guilty in this matter. PTTEP is determined to continuously conduct business under the principle of good corporate governance and business ethics. We also continue to support the UN Sustainable Development Goals (SDGs) through our business practices, which promote good health and well-being, affordable and clean energy, full and productive employment with economic growth, sustainable industry, innovation and infrastructure, and responsibility in consumption and production. These are reflected in our core business priorities and sustainability strategies where annual and long term corporate targets are set, their performances tracked, monitored and reported, and also benchmarked against peers.

Lastly, we thank our shareholders, business partners, related government agencies, as well as all our executives and employees for their continued support and the contribution towards PTTEP overcoming the challenges we encounter and to continue to grow while providing energy security and sustainability for all.



Somporn Vongvuthipornchai

President and Chief Executive Officer

About This Report

Reporting Approach

The purpose of the 2016 Sustainability Report is to communicate economic, social and environmental material issues to stakeholders. The report covers the period from January 1 to December 31, 2016 and includes issues that are both directly and indirectly related to PTT Exploration and Production Public Company Limited (PTTEP) and the assets where PTTEP is the operator. This report follows the internationally accepted framework set by the Sustainability Reporting Guidelines, Oil and Gas Sector Supplement (OGSS) of the Global Reporting Initiative G4 (GRI G4) Guidelines Core Option. Other pertinent international sustainability management reporting frameworks include the Oil and Gas Industry Guidance on Voluntary Sustainability Reporting of International Petroleum Industry Environmental Conservation Association (IPIECA), Dow Jones Sustainability Indices (DJSI), 2008 AA1000 AccountAbility Principles Standard (AA1000APS) of Accountability and SASB Materiality Map™ of the Sustainability Accounting Standard Board (SASB).

PTTEP will achieve continuous development of sustainable operations by applying Integrated Reporting (IR) guidelines as a framework for the disclosure of future corporate performance. PTTEP also supports the United Nation's Sustainable Development Goals (SDGs) throughout our operations. The 2016 Sustainability Report considers these goals when discussing corporate materiality issues to further define business strategy.

The performance content in this report is the responsibility of PTTEP and is under the supervision of the Sustainable Development Council. The performance data on safety, occupational health and the environment have been verified with a limited level of assurance by KPMG Phoomchai Audit Co., Ltd., the details of which are included in the Assurance Statement. Financial statements have been audited by the Office of the Auditor General of Thailand, and the Audit Report can be found in the 2016 Annual Report.

Scope and Reporting Boundaries ^(G4-17, G4-23)

PTTEP collected data on safety, occupational health and the environment from all businesses where PTTEP is the operator, both in and outside Thailand, and included the data in the Sustainability Report. Economic and financial data are from the 2016 Annual Report. Because PTTEP is a subsidiary of PTT Public Company Limited, PTT Sustainability Report also contains information on PTTEP.

Stakeholder Engagement ^(G4-24, G4-25, G4-26)

PTTEP stakeholders can be classified into six groups: 1) Government agencies and public organizations 2) Suppliers and contractors 3) Employees 4) Shareholders, institutional investors and analysts 5) Communities and society, and 6) Independent organizations, industrial associations and press & media. The Company organizes engagement activities with all stakeholder groups to solicit feedback and suggestions. PTTEP uses stakeholder input to identify material issues with links to economic, social and environmental dimensions as well as for continuous improvement of business operations.



Stakeholder Engagement Activities and 2016 Performance



Government Agencies and Public Organizations

Engagement Approach

- Case-by-case meetings
- Monthly meetings with the Department of Local Administration
- Reporting to government agencies
- Participation in the government network

2016 Performance Summary

- PTTEP consulted with government officials to understand and supervise the effectiveness of mitigation measures and also to ensure compliance with laws relating to business operations.



Suppliers and Contractors

Engagement Approach

- PTTEP Vendor Portal
- Recommendations and complaints

2016 Performance Summary

- PTTEP developed a Vendor Sustainable Code of Conduct for suppliers and contractors in order to provide information relevant to transaction activities among suppliers, contractors and PTTEP.



Employees

Engagement Approach

- CEO and employee meetings
- Employee engagement surveys
- CG Hotline
- PTTEP intranet

2016 Performance Summary

- In 2016 PTTEP conducted an employee engagement survey to ascertain employee relationship to the organization as well as incorporating our EP SPRIT values into the everyday work practices of our employees.



Shareholders, Institutional Investors and Analysts

Engagement Approach

- Annual shareholder general meeting
- Analyst meetings
- Shareholder and investor roadshows
- Quarterly journals
- Recommendations and complaints
- Shareholder visits to the Company operation activities

2016 Performance Summary

- PTTEP collated and provided correct and accurate information to involved stakeholders through a variety of engagement activities.



Communities and Society

Engagement Approach

- Monthly meetings with community and civil society groups
- Community field visits
- Public hearings
- Recommendations and complaints
- Activities for Communities and Society
- Stakeholder Commitment Survey

2016 Performance Summary

- PTTEP continuously conducted these activities so as to prevent impact from operations on communities and completed community and social development projects that addressed stakeholder needs and PTTEP social development strategy.



Independent Organizations, Industrial Associations and Press & Media

Engagement Approach

- PTTEP membership in various organizations
- Website
- Facebook
- Press releases and press conferences

2016 Performance Summary

- PTTEP collaborated with several independent organizations to mitigate and prevent social and environmental impacts by disclosing information in a transparent manner, while also increasing knowledge and awareness of energy issues

Stakeholders' Opinions ^(G4-27)

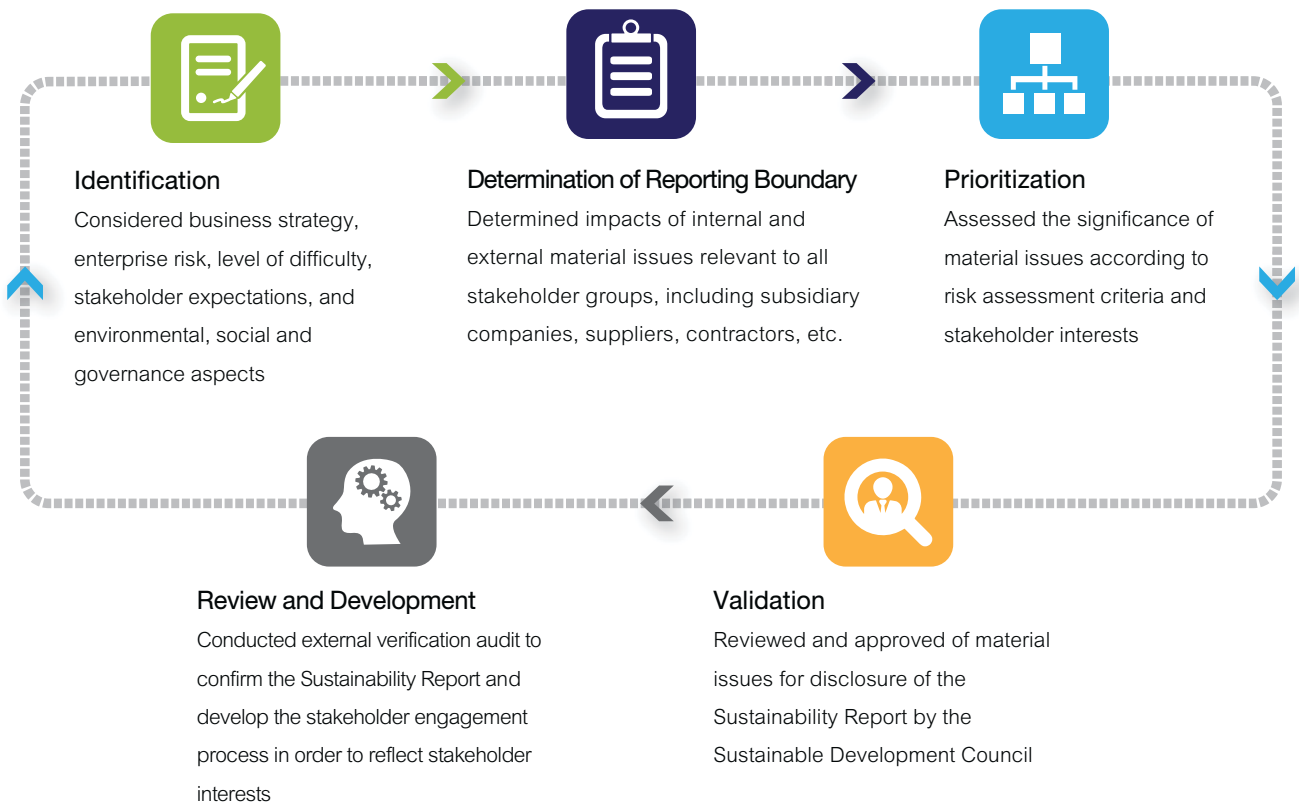
To achieve the goal of sustainable and continuous development, PTTEP solicited and gathered opinions from stakeholders regarding the Company sustainability practices through interviews and survey questionnaires. Key findings are:

- The changing landscape of the global oil and gas industry requires PTTEP to continue developing technology and innovation, developing and retaining people with high potential, and ensuring fairness and transparency for supplier engagement.
- PTTEP should clearly articulate its environmental management approach to build public confidence on issues such as recycling water, recovering oil and chemicals, mitigating impacts of oil and chemical leakage, and reducing flaring.
- PTTEP should present an overview of sustainability indicators for both past and present performance, case studies, direction of renewable energy and economic impacts on communities.

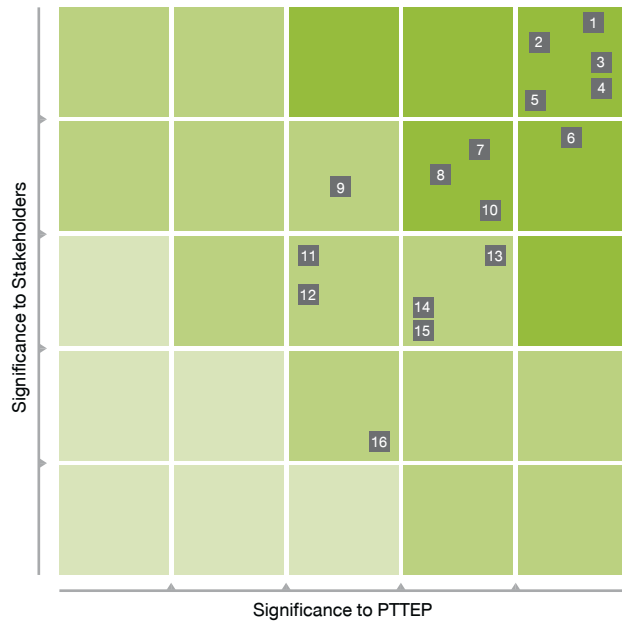
Material Assessment ^(G4-18)

PTTEP determined the 2016 material issues based on the importance level for the Company and the level of stakeholder interests as per the GRI G4 framework.

Identification of Material Issues



2016 Materiality Matrix



1. Climate change
2. Spills
3. Safety and occupational health
4. Petroleum production
5. Corporate governance
6. Technology and innovation
7. Social impact and contribution
8. Human capital development
9. Water resource management
10. Risk management
11. Energy efficiency
12. Operational eco-efficiency (emission, waste)
13. Supplier collaboration
14. Talent attraction and retention
15. Labor rights
16. Biodiversity

Material Issues and Boundaries (G4-19, G4-20, G4-21)

Material Issues	GRI Material Aspects	Chapters	Impact Boundaries			
			Internal PTTEP	External PTTEP		
				Government	Suppliers and Contractors	Community and Society
Climate Change	Emissions	Protecting the Environment	■	■	■	
Spills	Emissions and waste	Protecting the Environment	■		■	■
Safety and Occupational Health	Safety and Occupational Health	Ensuring Safe Operations	■		■	■
Petroleum Production	Economic performance	About PTTEP	■	■	■	
Corporate Governance	<ul style="list-style-type: none"> • Anti-corruption • Labor practices grievance mechanisms • Human rights grievance mechanisms • Environmental grievance mechanisms • Non-discrimination • Compliance 	Sustainable Business	■	■	■	
Technology and Innovation	-	Sustainable Business	■		■	
Social Impact and Contribution to Development	<ul style="list-style-type: none"> • Local communities • Grievance mechanisms for reporting impacts on society • Indirect economic impacts 	Creating Value for Society	■			■
Human Capital Development	Training and education	Developing Our People	■			
Risk Management	-	Sustainable Business	■	■	■	■

Amidst the decline in global oil prices, PTTEP continues to ensure energy sustainability by implementing both a new long-term organizational strategy and a business plan that will support its aspiration to become a leading exploration and production company in Asia.



PTTEP encourages all departments to exercise fiscal prudence by initiating the **“SAVE to be SAFE (SPEND SMART to Business Sustainability)”** project. This project aims to reduce the unit cost of production and enhance efficiency for long-term sustainability which further reinforces the renewal of the working culture to increase performance and efficiency. PTTEP reduced expenses and **unit costs in 2016 by 22% or 30.46 USD** per barrel of oil equivalent, compared with 2015.

In **2016** PTTEP invested in a new joint venture of **the exploration of Block SK410B** in Malaysia, an area with considerable petroleum potential.

PTTEP responded to the severity of the financial impact from the continued decline in global oil prices. The Company redirected and reshaped its operational strategy in 2016 by following the three-pronged strategy of **“RESET-REFOCUS-RENEW”**. This strategy strikes a balance between business growth and long-term sustainability. The details are as follows:

RESET	REFOCUS	RENEW
Reduce operating and organization management costs to enhance competitiveness	Redirect the expansion investment approach to achieve a steady growth	Target technological development and business investment opportunities related to petroleum exploration and production and other businesses to promote company sustainability

Strong Performance

Business Sustainability

Target

- | | |
|--|--|
| <ul style="list-style-type: none"> • Achieving a return on capital employed (ROCE) above the industry average • A competitive unit cost comparable to other oil exploration and production companies in Asia | <ul style="list-style-type: none"> • Maintaining the proved reserves life ratio (R/P ratio or 1P/Production) of at least 7 years • Production capacity at 600,000 BOED in 2025 |
|--|--|

2016 Performance

- | | |
|--|---|
| <ul style="list-style-type: none"> • Return on investment was at 3%. • The unit cost was at 30.46 USD per barrel of oil equivalent. • Return on capital employed (ROCE) was higher than the industry average with an EBITDA margin of 71%. • The operational cash flow was as high as 2,308 billion USD. | <ul style="list-style-type: none"> • Proved reserved life ratio (R/P Ratio or 1P/Production) stood at 5 years. • Production volume was at 368,303 BOED. • Sales volume was 319,521 BOED. |
|--|---|

PTTEP modified its business plans to implement the “RESET, REFOCUS, RENEW” strategy.

RESET Prioritize the 37 projects with clear long-term investment plans. PTTEP categorized projects and business plans into three core business areas plus the administrative projects:

- Producing Assets: Maintain or increase the production level, enhance efficiency, reduce expenses and procure proven oil reserves for replacement.
- Development Projects: Modify development plans to ensure the continued development of projects that is robust enough to withstand any volatility in crude oil prices.
- Exploration Projects: Manage appropriately the investment portfolio of exploration projects while focusing on areas with low risk and high likelihood of success.
- Organizational Capability Development: Develop system, process and management structure to be consistent with the Company strategies and business plans with an emphasis on sustainable development in both social and environmental aspects including research and development of knowledge and technology, and capability development to support the Company growth target by focusing on Exploration Success, Production Enhancement and Green Practices.

REFOCUS Emphasize two investment areas for the long-term growth of the Company:

- Identify investment and business opportunities in Southeast Asia, the region in which the Company has extensive experience and expertise, and countries with low production costs such as those in the Middle East.
- Identify joint-venture investment opportunities in the Liquefied Natural Gas (LNG) business to prepare for future market competition and enhance the Company competitive capability in unconventional production with a plan to invest in the United States.

RENEW Develop new technology and identify investment opportunities in new business areas to serve as alternatives to ensure the Company sustainability. This strategy recognizes the importance of identifying new areas of business opportunities, both related and unrelated to the Exploration and Production business, and focuses on developing knowledge, technology and R&D capability to support the Company growth strategy.

Business Overview

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

Thailand

Bongkot Project

Participation Interest **44.4445%**
Operator **PTTEP**

S1 Project

Participation Interest **100%**
Operator **PTTEP**

PTTEP 1 Project

Participation Interest **100%**
Operator **PTTEP**

B6/27 Project

Participation Interest **60%²**
Operator **PTTEP**

Arthit Project

Participation Interest **80%**
Operator **PTTEP**

L22/43 Project

Participation Interest **100%**
Operator **PTTEP**

L53/43 & L54/43 Project

Participation Interest **100%**
Operator **PTTEP**

E5 Project

Participation Interest **20%**
Operator **ExxonMobil**

Contract 3 Project

Participation Interest **5%**
Operator **Chevron**

Contract 4 Project

Participation Interest **60%**
Operator **Chevron**

G4/43 Project

Participation Interest **21.375%**
Operator **Chevron**

Sinphuhorm Project

Participation Interest **55%**
Operator **PTTEP**

B8/32 & 9A Project

Participation Interest **25%**
Operator **Chevron**

G4/48 Project

Participation Interest **5%**
Operator **Chevron**



Myanmar

Myanmar M3 Project

Participation Interest **80%**
Operator **PTTEP**

Myanmar M11 Project

Participation Interest **100%**
Operator **PTTEP**

Zawtika Project

Participation Interest **80%**
Operator **PTTEP**

Yadana Project

Participation Interest **25.5%**
Operator **TOTAL**

Yetagun Project

Participation Interest **19.31784%**
Operator **Petronas**

Myanmar PSC G & EP 2 Project

Participation Interest **70%**
Operator **PTTEP**

Myanmar MD-7 Project³

Participation Interest **100%**
Operator **PTTEP**

Myanmar MOGE 3 Project

Participation Interest **75%**
Operator **PTTEP**

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

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

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

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

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



Canada

Mariana Oil Sands Project

Participation Interest **100%**
Operator **PTTEP**

Brazil

Barreirinhas AP1 Project

Participation Interest **25%**
Operator **BG Brasil**

Brazil BM-ES-23 Project

Participation Interest **20%**
Operator **Petrobras**

Algeria

Algeria Hassi Bir Rekaiz Project

Participation Interest **24.5%**
Operator **PTTEP**

Algeria 433a & 416b Project

Participation Interest **35%**
Operator **GBRS**

Indonesia

Natuna Sea A Project

Participation Interest **11.5%**
Operator **Premier Oil**

Malaysia

Sarawak SK410B Project⁴

Participation Interest **42.50%**
Operator **PTTEP**

Mozambique

Mozambique Rovuma Offshore Area 1 Project

Participation Interest **8.5%**
Operator **Anadarko**

Vietnam

Vietnam 9-2 Project

Participation Interest **25%**
Operator **HV JOC**

Vietnam 16-1 Project

Participation Interest **28.5%**
Operator **HL JOC**

Vietnam B & 48/95 Project

Participation Interest **8.5%**
Operator **Petrovietnam**

Vietnam 52/97 Project

Participation Interest **7%**
Operator **Petrovietnam**

Australia

PTTEP Australasia Project

Participation Interest **90 - 100%⁵**
Operator **PTTEP**

Overlapping Area: 2 projects

G9/43 Project

Participation Interest **100%**
Operator **PTTEP**

MTJDA Project

Participation Interest **50%**
Operator **CPOC**

Production Phase

Exploration Phase

As a global leader and sustainable organization in the oil and gas business, PTTEP is dedicated to creating business opportunities with technology advancement, bringing wealth and security to society and emphasis on environmental stewardship in all our business decisions.



MEMBER OF

**Dow Jones
Sustainability Indices**

In Collaboration with RobecoSAM



ROBECOSAM
Sustainability Award
Industry Leader 2016



ROBECOSAM
Sustainability Award
Gold Class 2017

Continuous and concrete efforts to meet international standards on sustainability enable PTTEP not only to remain a member of the DJSI (Dow Jones Sustainability Indices) World Index for the Oil and Gas Upstream & Integrated Industry for the third consecutive year, but also to earn the highest assessment level (Industry Leader) among listed companies in the same industry worldwide. In addition, RobecoSAM announced PTTEP as Gold Class in the Sustainability Yearbook 2017. These recognitions are evidence of the Company as a “Sustainable Organization”.



FTSE4Good

PTTEP has been selected to be part of FTSE4Good Emerging Index 2016, ranked by FTSE Russell, for our performance on environmental, social and governance (ESG) issues, which provide the operational framework for our social engagement and responsibility. This recognition assures investors of PTTEP strong business potential and sustainable value.

PTTEP business operates in accordance with the Sustainable Development Policy, comprising of three components: business, society and the environment. In 2016 the Company reviewed the Sustainable Development Booklet to ensure consistency with international guidelines on sustainability. This booklet specifies clear guidelines on sustainability for PTTEP employees, suppliers, subsidiaries, and joint venture companies with the goal of a continuous improvement in the business operation to achieve long-term sustainability alongside society and the nation.

Sustainable Development Governance

The Sustainable Development Council (SD Council), chaired by PTTEP President and CEO, is a management team with the ultimate authority in the supervision of the organization sustainable development. The SD Council is responsible for directing operations and establishing strategy as well as approving

documents pertaining to the Company sustainable development practice, such as operational frameworks, policies, guidelines, operation plans and implementation plans for sustainable development.

In order for PTTEP to successfully and efficiently achieve the goal of sustainable development, the Company established the Sustainable Development Working Team, which includes representatives from various departments. The working team is responsible for preparing work plans, equipment and implementation guidelines, along with monitoring, giving compliance advice and reporting to the SD Council.

In 2016 the Sustainable Development Council and the Working Team convened eight times to review and approve work plans, policies and guidelines on sustainable development.





Vision

Leading Asian E&P company driven by technology and green practices



Mission

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

2016 Materiality Aspects	Climate Change	Spills	Safety and Occupation Health	Petroleum Production
Commitment	Become a low-carbon footprint organization and reduce the impact of greenhouse gas on the environment, society and the Company	Prevent any potential impact of oil and chemical spills on the environment and society (Zero Spills)	Be an Incident-Free Organization (Target Zero)	Secure energy to become a leading Asian E&P company
Implementation	<ul style="list-style-type: none"> Support natural gas production which is a clean energy source Extend the implementation of greenhouse gas emission reduction to projects located outside Thailand Apply Carbon Pricing Policy 	<ul style="list-style-type: none"> Revise the Spill Contingency Plan to be up-to-date and in line with the international best practices Install spill detection equipment Assess the production process risk and equipment that may cause oil and chemical spills 	<ul style="list-style-type: none"> Manage safety in operational process by managing and controlling factors of accidents Develop safety understanding and awareness for contractors Apply technology to reduce the risk of employees' serious illness Assure preparedness for rapid response to any emergency and crisis 	<ul style="list-style-type: none"> Focus on investment in areas where the company has extensive experience including natural gas resources Reduce cost production through SAVE to be SAFE project implementation
2016 Performance	<ul style="list-style-type: none"> Reduced greenhouse gas emissions by 239,400 tons CO₂e or 16% compared to the base year in 2012 	<ul style="list-style-type: none"> Reduced spills of oil and chemical by 0.04 tons per million tons of petroleum production 	<ul style="list-style-type: none"> Zero Fatalities of on-duty employees and contractors 0.10 cases per million hours worked of Lost Time Injury Frequency (LTIF) of employees and contractors 0.88 cases per million hours worked of Total Recordable Injury Rate (TRIR) of employees and contractors 	<ul style="list-style-type: none"> Increased production capacity to 368,303 barrels of oil equivalent per day Proved reserved life ratio (R/P Ratio or 1 P/Production) at 5 years A return on capital employed (ROCE) above the industry average with an EBITDA margin of 71%. Operating cash flow of 2,308 million USD
Target	<ul style="list-style-type: none"> Reduce greenhouse gas emissions by at least 20% of the 2012 base year by 2020 	<ul style="list-style-type: none"> Reduce spills of oil and chemical to 0.91 tons per million tons of petroleum production 	<ul style="list-style-type: none"> Achieve Zero Fatalities of on-duty employees and contractors Achieve 0.13 cases per million hours worked of Lost Time Injury Frequency (LTIF) on employees and contractors Achieve 0.96 cases per million hours worked of Total Recordable Injury Rate (TRIR) on employees and contractors 	<ul style="list-style-type: none"> Increase production capacity to 600,000 barrels of oil equivalent per day by 2025 Maintain proved reserved life ratio (R/P Ratio or 1P/Production) not less than 7 years Achieve a return on capital employed (ROCE) that is above the industry average Maintain credit rating in line with Thailand standard



Sustainable Development Policy

Good Governance

Responsible Operation

Optimum Returns on Capital

Wealth Contribution

Technologically Advanced Company

High Performance Organization

Corporate Governance

Technology and Innovation

Social Impact and Contribution

Human Capital Development

Risk Management

Conduct business with transparency, fairness and anti-corruption to achieve the targets on "Growth, Prosperity, Stability, Sustainability and Dignity"

Apply R&D and environmentally friendly technology with excellence in knowledge management to create sustainable competitiveness.

Gain a "Social License to Operate" in order to sustainably carry out exploration and production activities

Encourage employees to be not only capable but also good people as well as develop them to be ready for future challenges as the Employer of Choice

Manage risks and business continuity in line with international standards to enable PTTEP to reach the goal of a sustainable organization that is well regarded by the government, communities, employees and stakeholders

- Adhere to Good Corporate Governance and Business Ethics: CG&BE as the framework of business operation
- Review the current Board Skill Mix and expertise
- Prevent Insider Trading

- Define PTTEP Technology Development Policy
- Seek to collaborate with external organizations for technology development of petroleum exploration and production
- Set PTTEP Knowledge Management Strategic Framework

- Conduct Stakeholder Commitment Survey
- Adopt the Issue and Stakeholder Management System (ISMS) to analyze and manage the effects from operations
- Apply the Grievance Handling Guideline with all Thailand assets
- Implement social projects

- Encourage staff to have expertise in different skills and areas and develop them to be effective leaders.
- Recruit employees from diverse channels.
- Promote internal cooperation as a way to retain employees
- Treat employees with respect and comply with labor laws of operating country

- Analyze and assess risks of Corporate Risk Profile
- Established Risk Management committee
- Set PTTEP ERM Framework
- Assess Emerging Risks

The Board of Directors consisted of 15 directors:

- 14 non-executive directors (93.34% of total members)
- 1 executive director: President and Chief Executive Officer)
- 9 independent directors (60% of the total members, a ratio which is more than half of the incumbent members required by law and the Company CG&BE
- The Board of Directors attendance of Board meetings was 94.16%

• Achieved Technology Scoring Index 289

- There were 14 projects at development phase, 23 projects at production phase with community participation of 100% in all projects
- Contributed to communities and society 11.22 million USD on social development projects
- Number of volunteered employees: 1,602
- Total number of hours volunteered: 4,806 hours
- Stakeholder Commitment Survey resulted in Understand Level (Level 2)

- Achieved 53% for Employee Engagement Survey
- Spent 1.26 million USD for Employee Development
- Averaged training attended by employees: 27 hours
- Increased employee calibre 7% on average

• Assessed corporate risk at the 'Acceptable' level

- The Board of Directors consists of not more than 15 directors.
- The Board of Directors consists of non-executive and executive directors.
- Independent directors should not comprise less than half of the Board incumbent members.

- Set Technology Scoring Index 224
- Achieve 5 times return on investment from research and technology development by 2025.

- Involve community engagement in all projects at the development and production phases
- Achieve Stakeholder Commitment Survey to be "Commitment/ Support " Level (Highest level) by 2020

- Achieve 52% from Employee Engagement Survey
- Increase employee calibre on average 5%

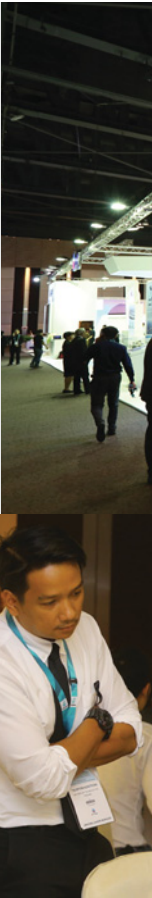
• Manage and Control risks to be at the 'Acceptable level'

The 10th International Petroleum Technology Conference - IPTC

In 2016 PTTEP was honored to be the host organization for the 10th International Petroleum Technology Conference (IPTC) between November 14-16, 2016 under the theme of “Innovation and Efficiency Excellence for Our Energy Future”. This event engaged international experts in the petroleum business to share their knowledge on the opportunities and challenges in the current oil and gas industry. Throughout the 3 days of the conference 3,712 participants from more than 600 organizations in 51 countries around the world attended the IPTC conference.

Being the host for this international event reflects the importance PTTEP places on to the development of technology and innovation, as a vital tool to drive the oil and gas industry under the current oil price situation and to grow sustainably in the future.

Apart from the conference and exhibition focused on technology development in the oil and natural gas industry, there were academic activities aimed at students and the next generation in the industry to have opportunities to update their knowledge about the latest technology development in the industry and gain experience directly from workers in the oil and gas business. PTTEP invited students at high school and university levels studying geosciences and engineering to visit the exhibition and academic activities with the intention to support youths and the next generation to foster an interest of working in the oil and gas business and developing people of high calibre for this industry.





“This has been a good opportunity to join the IPTC activities at the PTTEP Core Research Center (PCRC). There are many difficult subjects when studying geosciences at university. For many times, we have not seen how things really look like. This is really a good opportunity to see the real rocks. We have a better knowledge of petroleum, better understanding of what we have learned and are confident that the knowledge gained will be useful for us to develop our country further.”

Saowapab Uthairat
Geoscience Undergraduate, Mahidol University

One of the 7 undergraduates who had an opportunity to join the education week event for the 3rd and 4th year undergraduates studying science, geoscience and engineering from international institutes who joined the field trip to PCRC in Phra Nakhon Si Ayutthaya Province.

WE CAN DO BETTER... TOGETHER WE CAN

“PTTEP is a professional organization with work processes that are clear, efficient, safe, transparent, accountable and law-abiding as well as responsible towards our society and the environment. These characteristics will be a great protective shield and better immunity to the business of the company for PTTEP to operate in any area, to gain world-wide acceptance and to become the nation pride.”

Somporn Vongvuthipornchai
President and Chief Executive Officer



Corporate Governance

PTTEP adheres to Good Corporate Governance and Business Ethics (CG&BE) which serve as the main guiding principles to ensure that operations are efficient, transparent, accountable and meet international standards.

CG&BE are the key factors for achieving the highest level of sustainable success and creating long-term value for shareholders and stakeholders to gain trust and public acceptance.

PTTEP Board of Directors (The Board) plays an important role in shaping the Company corporate governance to create maximum benefits for the Company with fairness to all parties. In 2016 the Board developed the Skill Mix Development Guideline and reviewed the current Board skill mix to ensure suitability and consistency with the Company strategic direction. The guideline clearly defines skills and expertise in each area to be used in the process of recruiting and developing Board members. In the case of a vacancy in the Board, the Nominating Committee will consider the Company target skill mix (determined by the necessity and consistency with the Company strategic direction) to achieve best practices in the Board composition. The committee will also thoroughly consider potential conflicts of interest and perform gap analysis of the current skill mix. Consistent with the Company strategic direction for 2016-2017, the Risk & Crisis Management and Economics & Finance areas will be the

main priority of PTTEP target skill mix. The three components of PTTEP strategy are RESET-REFOCUS-RENEW, which focus on managing risk, reducing costs and adjusting the Company investment strategy to withstand the volatile oil market, economic conditions as well as global supply and demand.

PTTEP values the diversity of Board members which includes the gender and independence of directors. In 2016 the Board appointed female director who is a widely regarded expert and qualified as an independent director. This appointment raised the number of independent directors from eight to nine members, which accounts for 60% of the Board. The Board also appointed a female director with independent director qualifications and an accounting degree to the Audit Committee, which increases the credibility of our financial statement audit. The Board appointed a new set of Nominating Committee members to consist only of independent directors to ensure transparency, prevent conflicts of interest and comply with CG&BE.

The Board has constantly improved the Company CG&BE to be up to date and meet international standards. The Company aims to embed good corporate governance as part of the corporate culture with Board members and executives serving as role models. PTTEP also has a process of regular internal monitoring and performance evaluation.

All employees are required to adhere to the six principles of CG&BE, which aims to achieve five business goals: Growth, Prosperity, Stability, Sustainability and Dignity.

1. Responsibility
2. Accountability
3. Fairness and Integrity
4. Transparency
5. Creation of Long-term Value to Stakeholders
6. Promotion of Best Practices

Anti-corruption

In 2016 PTTEP developed various anti-corruption guidelines as preventative measures against corruption risk. The guidelines include an appropriate internal control system and a No Gift Policy for any occasion. In addition, CG&BE have been made available in Burmese to local employees to facilitate compliance.

PTTEP extends the anti-corruption commitment and effort to other related stakeholders which include suppliers, agents and joint venture partners. The Company sets clear anti-corruption policies for suppliers, agents and joint venture partners; organizes activities to promote ethical business practices among suppliers; and encourages all to join the coalition against corruption. In 2016 PTTEP Corporate Governance Committee communicated the anti-corruption policy and its importance to suppliers in the SSHE Contractor Forum, which had more than 300 participants. The Board also educated suppliers on anti-corruption issues on a quarterly basis. The Company, in collaboration with the Thai Institute of Directors (IOD), organized talks on the certification process of Thailand's Private Sector Collective Action Coalition Against Corruption (CAC) for suppliers and regularly monitored the outcomes. PTTEP participated in various public rally activities to fight corruption. These efforts demonstrate PTTEP determination to integrate anti-corruption policies and practices within the business sector culture and the wider society.

Preventing the Use of Insider Information

The Board specifies strict measures against the use of insider information in CG&BE, which are regularly reviewed. Any violation will result in disciplinary action. The Company prohibits any securities trading before financial statement disclosure. Insiders, which include directors, executives and deal team members, are prohibited from trading PTTEP securities and securities of a Mergers & Acquisitions (M&A) company from the date of the Board approval until one day after notification to the Stock Exchange of Thailand or deal termination. PTTEP discourages employees from trading securities of PTTEP or other companies in PTT Group. In cases where trading securities of PTTEP or other companies in PTT Group is unavoidable, employees must notify the Compliance Division at least one day before the transaction.

PTTEP designates the Compliance Department as the central department responsible for enforcing the compliance of Measures against the Use of Insider Information. Compliance Department responsibilities include compiling a list of insiders, granting trading approval (clearance) and collecting information on securities owned by directors and executives to report to the Board on a regular basis.

Reporting of Breaches

In 2016 there were nine complaints raised via the CG Hotline, six of which had adequate and clear evidence according to the Company protocols. The summary of the investigations is as follows.

- Four cases of wrongful acts were found. One case was a violation of the code of conduct on "Using and Storing Data and Assets". Three cases were violations regarding "Human Resources". Offenders were disciplined according to the Company rules. Two cases received verbal warnings and two cases received written warnings.
- No wrongful act was found in two cases, with no evidence of defamation or slander.
- No reported actions or complaints were raised on issues involving a violation of the Anti-corruption Policy.
- Notification was provided to the person raising the complaint at the conclusion of every complaint.

Risk Management

Petroleum exploration and production is a capital-intensive business entailing both technical and operational complexity. Therefore, risk and business continuity management is an integral part of PTTEP operations. Risk management practices enable PTTEP to securely push forward towards the goal of a sustainable organization that is well regarded by the government, communities, employees and stakeholders. PTTEP considers both internal and external risks for every aspect of operations, including strategy and investment, finance, community and compliance, production, safety and project development.

“PTTEP strongly believes in having effective risk management that meets international standards. Active involvement of executives and employees from various divisions is required so the Company is well prepared to handle any unavoidable short-term and long-term operational risk in a timely fashion.”

PTTEP developed an Enterprise Risk Management system (ERM) and a Business Continuity Management system (BCM). These systems establish necessary policies, standards and guidelines on key issues including monitoring, evaluation and communication. ERM and BCM together create a risk management process that can effectively monitor, prevent and mitigate risks to ensure that PTTEP can reach business goals and objectives.

PTTEP Risk Management Committee sets directions and monitors overall corporate risk management. PTTEP also designated committees for specific risks, such as the Operational Risk Committee to oversee operational risks and the Business Continuity Management Committee to ensure business continuity. In 2016 PTTEP organized quarterly meetings with these committees to monitor and review the risk management system as well as to stay informed on any important risk issues facing the Company.

In 2016 PTTEP analyzed and assessed the corporate risk profile. Every important aspect of corporate risk was covered such as oil price risk, reputational risk, operation safety risk and risk from higher than expected platform removal costs. The Company has comprehensive risk prevention measures and attentive monitoring which requires quarterly reporting to the Risk Management Committee.

In addition to assessing existing corporate risks, PTTEP is aware of emerging risks. Emerging risks are new potential risks that have not yet materialized, but can affect the organization in the future. In 2016 the Company assessed emerging risks in two important areas: disruptive technology and climate change.



Disruptive Technology

The advancement of technology and alternative energy plays an increasingly important role in the energy industry. This trend is illustrated by energy storage equipment and systems that can store more electricity, vehicles that use alternative energy such as electric batteries, and research and innovation in renewable energy and electric cars that will drive down future costs. These new technologies significantly reduce oil usage and may lead to the end of the oil industry by 2030.

To mitigate the impact from these potential risks, PTTEP established a team called “NExT” (New-gen Explorer Team). NExT mission is to identify new businesses that are consistent with the Company strategy. In the short term, the team is focusing on acquiring companies in the natural gas business which has certain and predictable market demand. Locating new sources of natural gas with exploration potential is the long-term plan. PTTEP collaborates with PTT on LNG Value Chain business to broaden our investment opportunities in midstream businesses (liquefaction, trading, and shipping).

Climate Change

PTTEP business is likely to be affected by the environmental consequences of climate change. For instance, severe cyclones and floods caused damage to production platforms and make new exploration areas or production sites inaccessible. Future carbon taxation may have an impact on production costs. PTTEP reviewed the standards of production base design as a short-term response measure. For a long-term plan to address the issue of climate change, PTTEP plans to reduce greenhouse gas emissions by at least 20% from the 2012 baseline by 2020. PTTEP will define natural gas production as its main product in the future since natural gas is a clean fuel that is crucial for the transition towards a low carbon society. The adaptation to climate change is discussed in more detail in the Climate Change topic.

Supply Chain Management

PTTEP practices effective supply chain management in accordance with the Supply Chain Management Policy and PTTEP Vendor Sustainable Code of Conduct. Suppliers are encouraged to adopt an integrated approach to management to achieve operational excellence and reduce any potential impact on the business, society and the environment.

Supply Chain Management Policy

- Complies with the applicable laws of the countries in which PTTEP operates the assets or has joint operating agreements, and relevant regulations and procedures according to the PTTEP corporate management system
- Conducts transparent, fair, and auditable business with equal treatment for all stakeholders by complying with the principles of good governance, business ethics, human rights and social responsibility
- Only engages with vendors whose business principles are in alignment with the PTTEP way of conduct and supports their capability development
- Acquires in a timely manner the right goods and services in compliance with the Safety, Security, Health, and Environment (SSHE) policy, risk management, green procurement practice and local content procurement
- Promotes the development and application of innovations to support the continuous improvement of supply chain management

Supplier Risk Management

Suppliers are one of the key stakeholders to help drive the business towards sustainability. PTTEP manages and assesses supplier risk to prevent and mitigate risk on both environmental and social aspects. Supplier risk assessment analysis consists of four steps: 1) New vendor pre-qualification by screening and evaluating suppliers for each business category 2) Spend analysis and procurement risk analysis using the Supply Positioning Model 3) Supplier classification analysis, and 4) Contract risk management, covering all processes from procurement, bidding, contract preparation and supplier contract management, including supplier relationship management and supplier performance evaluation.

In 2016 there were 35 critical suppliers with a value of 361 million USD or 39% of the total supply value.

In 2016, 100% of the planned supplier risk assessment was conducted for PTTEP suppliers, and 100% of PTTEP suppliers improved working processes.

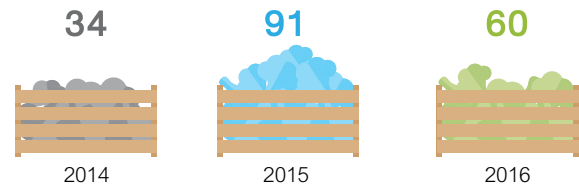
A critical supplier is a supplier with high or very high risk, classified as a High Risk Tier 1 Supplier. Critical suppliers must be audited by the Safety Management Department and Global Supply Chain Solutions Department through an annual site visit. High Risk Tier 1 Suppliers must establish corrective action plans and guidelines to reduce the frequency and the severity of accidents. Critical suppliers must also have an audit plan to verify compliance with PTTEP SSHE Contractor Management Procedure and Plan to ensure adequate risk management and lower potential risk to the business, communities, and environment.

Collaboration with Suppliers

In addition to establishing policies for supply chain management, PTTEP organized various activities in 2016 to promote supplier collaboration, enhance supply chain management efficiency and strengthen relationships with suppliers. For example, the Company organized the Vendor Symposium, attended by 90 suppliers, to explain the process and criteria for supplier selection. The Vendor Symposium also communicated supplier sustainability guidelines and PTTEP Safety, Security, Health and Environment Management System (PTTEP SSHE MS).

The Company organized the Supplier Day event. Key suppliers were invited to discuss and brainstorm new innovative and creative ideas to reduce costs and potentially be beneficial to the exploration and production business. This event also strengthened relationships and facilitated cooperation between suppliers and PTTEP. PTTEP also organized corporate social responsibility (CSR) activities, in cooperation with suppliers and contractors, to improve the local community's social and environmental well-being in every area of PTTEP exploration and production operations. In 2016, the Company organized cleaning and trash collection along the coastline of Ree Beach in Sawee District, Chumphon Province. This CSR activity helped to promote unity across different organizations and to build a sustainable relationship between communities and suppliers. CSR events promote production efficiency, sustainable growth and safe cooperation for a green globe in the future.

Local Procurement percent



In 2016 PTTEP efforts to foster cooperation and efficiency in the supply chain resulted in a cost reduction of 49.86 million USD.

- Implementation of management projects for logistics excellence, Marine Green Logistics and Marine Fleet Optimization, reduced costs by 2.7 million USD.
- The Supply Chain Plus Project generated a cost reduction of 47.16 million USD as a result of contract renegotiation efforts due to oil price volatility, replacement equipment procurement, changing operational procedures, improvements in procurement procedures, and strategic procurement.







The Green Procurement Project was able to procure environmentally friendly goods and services in the amount of 0.904 million USD which consisted of:

- Office equipment and suppliers at 0.105 million USD
- Photocopy machines at 0.134 million USD
- Executive vehicles at 0.665 million USD

"Due to the current oil price environment, Halliburton and PTTEP have coordinated technically under the Save to be Safe (SPEND SMART) project, which has introduced new technology to reduce the production cost of natural gas and oil while maintaining quality, safety and environmental efficiency. Technical cooperation, operation and business ethics of the two organizations will continue to drive sustainable development".

Rewat Wattanasuwankorn
Business Development Section,
Halliburton Energy Services, Inc.



	2014	2015	2016	2016 Target
 <p>Cost savings from Supply Chain Plus <i>Million USD</i></p>	76.25	22.8	47.16	41.6
 <p>SSHE audits of suppliers from four groups with high-potential risks including drilling, logistics, wellhead platform construction and other related functions <i>Number of SSHE audits of suppliers</i></p>	47	38	65	65
 <p>Vessel trips between Petroleum Development Support Base (Songkhla) and offshore operating area <i>Number of vessel trips per month</i></p>	45	37	34	< 37
 <p>Deck Space Utilization <i>Percent</i></p>	74	86	86	> 85
 <p>Carbon Footprint Reduction <i>Tons CO₂ equivalent</i></p>	56,000	46,108	49,788	> 40,000
 <p>The portion of green products and stationery items used in office <i>Percent</i></p>	63.3	83.8	52.2	> 50

Technology and Innovation

With 32 years of experience and expertise in petroleum exploration and production, PTTEP is an organization built on knowledge and innovation. PTTEP attaches paramount importance to research and development of technology to sustainably raise PTTEP potential while consideration is given to social and environmental impacts. PTTEP has an internal control management system to facilitate efficient operations. To achieve company goals, the Technology Development Steering Committee monitors and supports research and technology development.



Vision

An organization that applies R&D and environmentally friendly technology with excellent knowledge management to create sustainable competitiveness.



Goal

Achieve at least five-fold return on investment from research and technology development by 2025.

Technology Development

PTTEP is committed to applicable research and technology development. PTTEP enacted a policy for technology development and collaborates with a wide range of organizations, both domestically and internationally. Collaborators include companies within the PTT Group, government agencies, academic institutions and joint venture companies. Focus areas of research and technology development include increasing exploration success, enhancing production efficiency and promoting green practices. Each research and development focus area has clearly specified goals.

The Company long-term technology development plan, the Five-Year Technology Roadmap, was acknowledged by the Board of Directors in 2016.

Approach to Technology Development

PTTEP uses the Technology Scoring Index as an indicator of success for the Company technology development. The index measures progress in research and technology development from the initial stage of idea generation and background analysis to the final stage of research application. The Company also looks for new business opportunities from any research idea or technology with potential for commercialization.

**Achieved Technology Scoring
Index 289,
higher than the target 224**

Seismic Imaging Technology

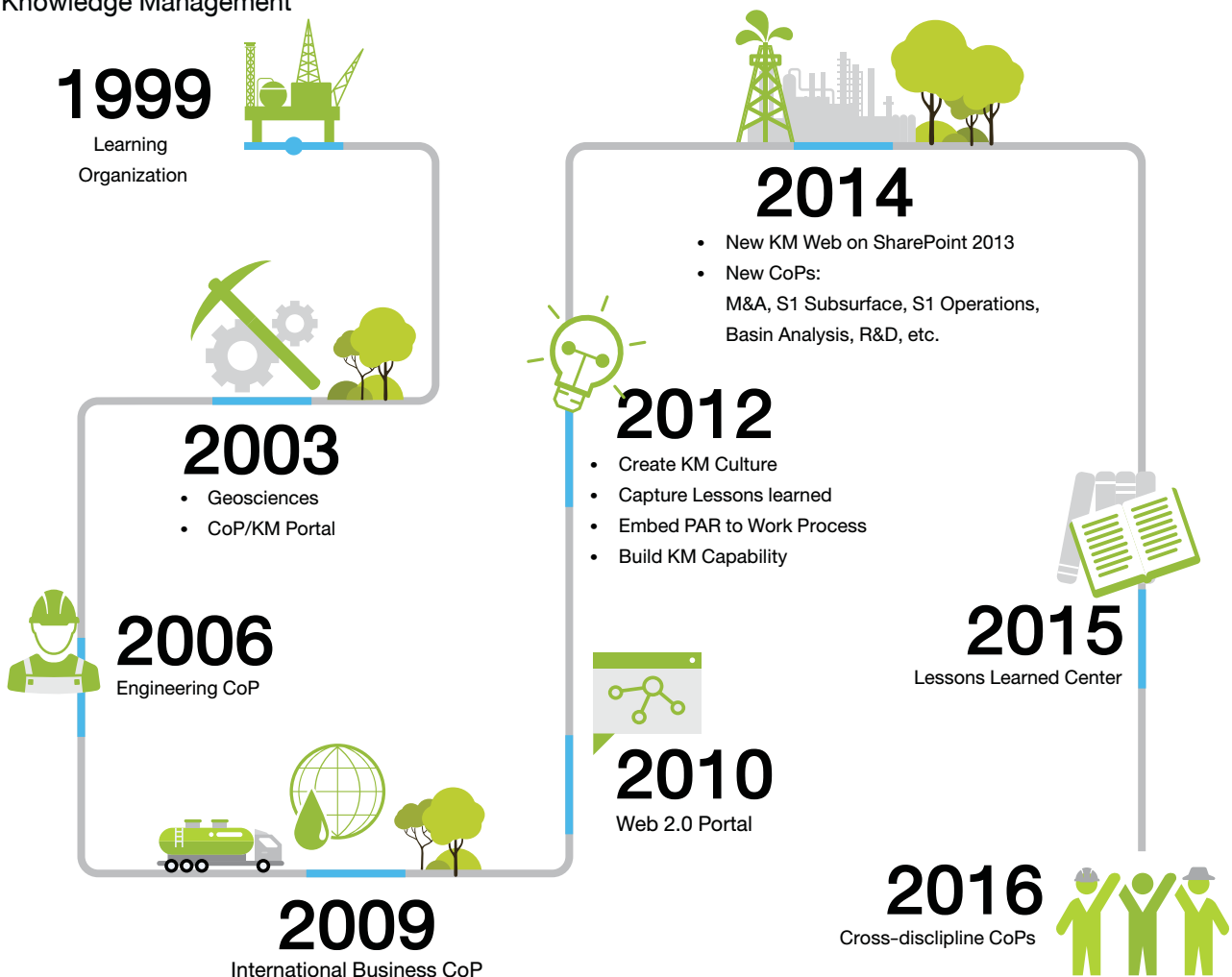
In 2016 the Company established a Dedicated Processing Center (DPC) with the goal of applying seismic imaging technology to enhance the process of evaluating below-surface potential. This technology is used in petroleum site exploration to increase accuracy. The processing center also serves to train personnel, which helps the Company save on hiring expenses and reduces dependency on foreign experts.

Robotic Technology



PTTEP utilizes Unmanned Aerial Vehicles (UAV) or drones to inspect the condition of production equipment located high above the ground. For example, a flare is a safety device used at a petroleum production platform which is always burning an open flame during operation. Therefore, manual inspection of this piece of equipment not only requires a production shutdown, but is also quite costly. An aerial inspection using a drone is simple, economical and safe because images produced are clear and detailed enough to enable a thorough assessment of the equipment condition.

Knowledge Management



The Company has implemented a five-year strategic plan in knowledge management by focusing on management and staff awareness and participation in the management of corporate knowledge as part of their work with concrete assessment. PTTEP organized KM Week 2016 which was the 20th time to promote the exchange of knowledge, technology and innovation among the PTT Group, government sectors, educational institutions, as well as fostering the integration of new knowledge resulting in innovation for the petroleum industry in the future. The Company conferred the 4th Innovation Awards in 2016. The award was given to employees that showcased the most innovative products in various categories that encouraged employees to create and present relevant new products. The outstanding innovative products were selected from various categories. Employees submitted 140 technical papers and 53 technological innovation papers for the competition.

PTTEP aims to be an Incident-Free Organization with a target of zero incidents. Attention is given to both personal safety and process safety for all workers and contractors to ensure that everyone can come to work and go home safely. PTTEP business is operated in accordance with standards and policies on safety, security, occupational health and environment to limit and prevent harmful consequences for stakeholders.



Process Safety

For comprehensive risk mitigation and risk prevention of Major Accident Events (MAE) from the production process, PTTEP has a systematic approach to Process Safety Management (PSM). PTTEP also performs regular audits and PSM reviews. The Company PSM covers risk identification and risk education for employees and contractors. This includes allocating time for knowledge exchange on production process safety (Process Safety Moment), preparing process safety booklets and organizing training sessions. Time is also provided to prepare standard PSM documentation and report information on production safety indices such as MAE prevention tools, Loss of Primary Containment (LOPC) surveys and Management of Change (MOC) standard. In addition, safety case studies are used to assess severe risks and prepare for effective accident management and control. These efforts and activities enabled the Company to reach the target of zero Major Accident Event Rate (MAER) in 2016.

Safety, Security, Health and Environment (SSHE) Policy

Because the issues of safety, security, health and environment are important to us, PTTEP made changes to the SSHE policy to better reflect our priorities and to be up-to-date with the current global conditions. Details of some of the changes are:

- Strive to manage operational and process safety as a fundamental and critical element in our SSHE philosophy and practice. To achieve this, SSHE risks shall be identified, eliminated and minimized to be As Low As Reasonably Practicable (ALARP).
- Promote employee health as part of an effective occupational health management system.
- Identify and plan for emerging security threats and respond proactively to emergencies and crisis to minimize their impact.



Zero Accidents involving life-threatening **injuries** to both employees and contractors in 2016

Achieved 2016 target on **Lost Time** Injury Frequency Rate

Achieved 2016 target on **Total Recordable** Injury Rate

Medical research has shown that physical and mental fatigue is one explanatory factor for production process accidents. PTTEP collaborated with the Physical Therapy Department of Mahidol University to develop a fatigue indicator tool for assessing employees' level of fatigue at an operation site. This tool uses a tablet application to collect and analyze data on the level of employees' physical responses. The tool is expected to help lower the number of accidents and near miss cases in the production process. PTTEP is in the process of collecting additional data from a pilot study so that this tool can be tested on a larger sample size. The Company plans to launch this tool, along with a user manual, in 2018.

Personnel Safety and Security

PTTEP uses safety performance indices to work towards becoming an Incident-Free Organization. Lost Time Injury Frequency (LTIF) and Total Recordable Injury Rate (TRIR) statistics monitor PTTEP safety progress. Both LTIF and TRIR have been trending downward in recent years. Both statistical performance when compared with previous performances were the best at the lowest level in 2016 LTIF was at 0.10 cases per million hours worked; a 55% reduction from 2014 and a 23% reduction from 2015. TRIR was at 0.88 cases per million hours worked; a 32% reduction from 2014 and a 21% reduction from 2015. In 2016 there were no accidents among PTTEP employees and contractors that resulted in fatalities.

Furthermore, an analysis of operational accidents in 2016 reveals that the major causes of accidents are related to four factors. The four factors are Land transportation, Leakage of oil and chemicals, Lifting operations, and Leadership and accountability. Consequently, PTTEP established the 4Ls safety management plan as a guideline to solve and control these major causes of accidents and to prevent incident recurrence.

The 4Ls

Land Transportation



- Reassess SSHE MS of land transportation and identify high risk contractors to identify gaps and improvement plans on a regular basis
- Arrange quarterly SSHE performance reviews with all contractors
- Increase SSHE supervision and leadership among targeted contractors with emphasis on those engaged in land transportation

Leak



- Enhance asset and pipeline integrity management for onshore assets
- Set taskforce team to conduct assessment and identify preventive measures
- Strengthen asset and pipeline integrity assurance via Operational Technical Review (OTR) process

Lifting Operation



- Reassess the effectiveness of lifting operation implementation and determine an improvement plan
- Promote "Safe Lift, Save Life" campaign and evaluate staff understanding and competency prior to commencement of work
- Assess and review employees' and contractors' knowledge prior to every operation

Leadership and Accountability



- Collaborate with all function groups and contract holders to help promote injury prevention campaigns
- Build up Behavior-Based Safety (BBS) trainers and coaches for key contractors to improve SSHE culture among targeted function, particularly construction and drilling



Contractor Management on Safety, Security, Health, and Environment

Contractor safety is as important as employee safety. PTTEP ensures that contractors have an equal understanding of the safety culture and are conscious of the PTTEP goal to become an incident-free organization. As part of this, PTTEP provides contractors with workshop activities and safety management methods. For example, the SSHE Contractor Management Handbook serves as a guideline for contractors and related parties to understand and comply with PTTEP SSHE management procedures. PTTEP also established an online accident reporting system. The database system is an accident report channel. Regular meetings are organized with contractors to jointly discuss and analyze the cause of accidents and prevention measures.

Workshop of Safety, Security, Health, and Environment for Contractors

The objective of this workshop is to share experience and knowledge on effective accident prevention measures with contractors and to jointly identify ways to become an incident-free organization. In 2016 the Company organized two workshops. During the workshop, PTTEP emphasized the importance of SSHE and facilitated a joint discussion with contractors on accident prevention measures. The timing of the workshops made the discussion even more relevant because some accident risk factors were present at the time such as seasonal change, monsoon season and long holidays.

Health and Occupational Health

PTTEP continuously monitors the Total Recordable Occupational Illness Rate (TROIR) of employees to prevent and control illness at work. The TROIR is also used as a performance indicator for occupational health. In 2016 the TROIR statistics was 0.03 cases per million hours worked, achieving the target set 0.13 cases per million hours worked.

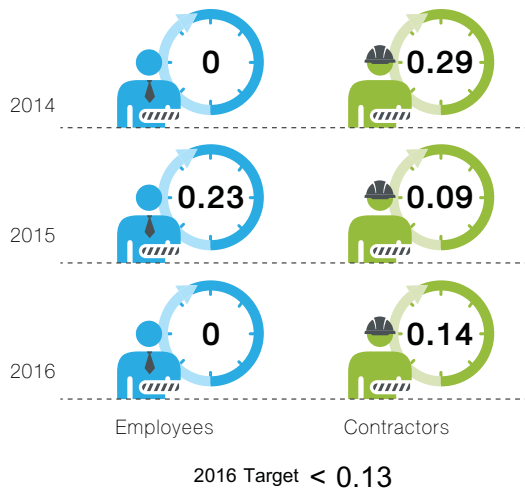
In 2015 the Company introduced the E-Health Book to allow employees easy access to their past and present annual health check-up data via a mobile application. The E-Health Book was further improved in 2016 by adding the capability to analyze a person's risk to develop certain illnesses ranging from heart disease and blood vessel related illness, diabetes, high blood pressure and obesity. This system enables employees to conveniently access annual check-up data that are linked to hospitals' databases. The Company also uses data from this system to design more effective health promotion plans for high risk employees.

Emergency and Crisis Management

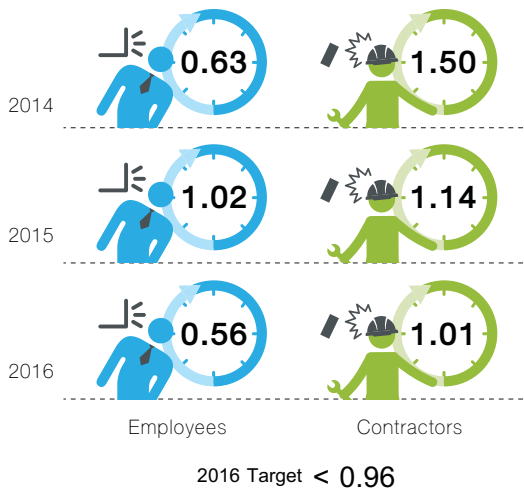
PTTEP constantly prepares for any emergency that may affect the security of the production process by setting up risk control measures such as internal warning emails, for risks that may impact both the organization and stakeholders. The Company has implemented emergency plans and procedures. Regular drills are performed for employees to practice executing the plan. The Company also collaborates with local hospitals near PTTEP operation sites to be ready in case of emergencies. One hospital collaborator is Bangkok Hospital Hat Yai in Songkhla Province.



Lost Time Injury Frequency (LTIF)
cases per million hours worked



Total Recordable Incident Rate (TRIR)
cases per million hours worked



LS Engineering and Construction Limited Company

"I am glad and very impressed to have an opportunity to work with PTTEP because I trust in the safety system and measures here which give me the confidence every time I come to work onsite."

Vina Sensahae Quality Control Officer

"Our team is confident about the safety management system at PTTEP due to its assurance system in every work process. There is professional guidance and information systems along with the support for the contractors to be safe at all times."

Chalermchai Janchum Project Engineer



Spie Oil & Gas Services (Thailand) Limited Company

"Working with PTTEP makes us feel proud, comfortable and feel as if it's a second home because PTTEP has a clear work process. Before commencing any work, there is a discussion about safety and risk reduction. At PTTEP, there is constant two-way communication on safety where the Company makes it easy for us to ask for suggestions or clarification and give feedback on safety issues."

Safon Chuaynukul Rigger

Tawon Prommeongkao Fitter Foreman

"PTTEP takes good care of us. The Company security system is clear; everybody knows his/her own role, including sharing experience and knowledge with one another. If we nominate people to work with the Company, we are confident that our people are definitely safe at work."

Phunya Tongnitikul QA/QC Manager

PTTEP has established emissions reduction programs in various countries under PTTEP operational control as we recognize the serious impact of greenhouse gases on climate change and global warming. The Company supports the global goal to reduce greenhouse gas emissions according to the Paris Agreement from the 21st Conference of the Parties of the United Nations Framework Convention on Climate Change (UNFCCC).



Adapting to Climate Change

PTTEP has achieved “Leadership Level” in CDP Climate Change Program for three consecutive years.

The Company ability to adapt to the adverse effects of climate change is a crucial sustainability factor. PTTEP pursues a proactive risk management approach which supports the production of natural gas which is classified as clean fuel. The Company also targets a reduction in greenhouse gas emissions by at least 20% of the 2012 base year by 2020. These efforts move PTTEP towards becoming a low-carbon organization and reducing the impact of greenhouse gas on the environment and society.

In addition to the Company performing a climate change risk assessment to create a mitigation and adaptation plan, PTTEP engages in proactive planning to meet the goal of maintaining global temperature rising no more than 2 degrees Celsius under the International Energy Agency's (IEA) for energy industry sectors. Specifically, PTTEP plans to extend the strategic plan of greenhouse gas emissions reduction to new projects in Thailand, and projects beyond Thailand, new concession areas in Thailand and production support bases which are Zawtika Project, Montara Project, Sinphuhorm Project, and the other two Petroleum Development Support Bases in Songkhla and Ranong

Provinces in 2017. PTTEP determined greenhouse gas reduction measures for these areas and projects since the basic design phase. For example, the Montara Project implemented a process of gas injection to capture flare gas in underground reservoirs. This process was commissioned in 2016 and is expected to reduce greenhouse gas emissions by more than 100,000 tons per year. PTTEP is also developing green technology to further reduce greenhouse gas emissions to ensure that the Company meets future energy industry emission targets.

In 2016 PTTEP began to include carbon pricing in project assessments. For example, PTTEP assessed an efficiency enhancement project for offshore flare gas recovery units using the reference price from the Thailand Greenhouse Gas Management Organization (TGO) at 200 THB per ton of CO₂e. The incorporation of carbon pricing in project assessments increases the economic viability of emissions reduction projects.

To encourage voluntary greenhouse gas reduction, PTTEP worked with the TGO to develop protocols and methodologies for the Thailand Voluntary Emission Reduction Program (T-VER) which focus on methods to detect methane leakage and equipment repairs in petroleum production and transportation. The protocol abides by the UNFCCC standards. Other Thai energy companies could adopt or apply these protocols, implemented in 2016 to enhance production efficiency and to contribute towards the national effort to reduce greenhouse gases.

In 2016 PTTEP reduced greenhouse gas intensity emissions by **16% compared to the base year in 2012** where 5% reduction was primarily accounted for GHG reduction plan and the rest was due to the efficient petroleum production and additional GHG reduction initiatives.

In 2016 PTTEP initiated several emission reduction projects that improved the energy efficiency of projects and reduced the adverse effects of greenhouse gases on the environment and society.

- **Gas Injection Project**

Flare gas produced during the production process was reduced by injecting the gas into underground reservoirs. PTTEP reduced the average volume of gas flaring by seven million standard cubic feet per day, which reduces greenhouse gas emissions by 150,000 tons of CO₂e per year.

- **Flare Gas Recovery Unit Project**

PTTEP enhanced production efficiency by recovering excess gas, which is normally flared from condensate production. The average recovery rate was 11 million standard cubic feet per day which amounts to a greenhouse gas reduction of 140,000 tons of CO₂e per year.

- **Marine Green Logistics Project**

PTTEP enhanced marine transportation system that supports petroleum production in the Gulf of Thailand through logistics optimization. In 2016 increased shipping efficiency reduced greenhouse gas emissions by 45,000 tons of CO₂e.

- **Trunk Flow Line Project**

The Trunk Flow Line Project reduces flaring at remote stations by transporting excess gas through pipelines to be consolidated and reused at the main production facilities. This project started to operate in the fourth quarter of 2016. Initial estimate suggests that the project can reduce greenhouse gas by 20,000 tons of CO₂e per year.

- **Heat Recovery Steam Generation Project**

The energy savings from recovering excess heat and reusing the heat in steam generation help PTTEP reduce greenhouse gas by 500 tons of CO₂e per month.

- **PTTEP Reforestation Project**

In 2016 PTTEP participated in reforestation efforts for the fourth consecutive year by maintaining trees planted from 2013 to 2015 covering an area of 105,000 rai in 27 provinces. In 2016 PTTEP prepared an additional proposal covering 55,000 rai of forest area to submit an application for registration of Thailand Voluntary Emission Reduction - T-VER Project.

- **Carbon Trading Activities**

PTTEP bought carbon credits for the amount of 4.14 tons of CO₂e from carbon credit agencies in Thailand to compensate for emissions from the SD Day event in 2015 which helps support greenhouse gas reduction projects in Thailand.





PTTEP cut the amount of GHG emissions arising from production

800,000

CO₂e from 2013 to present

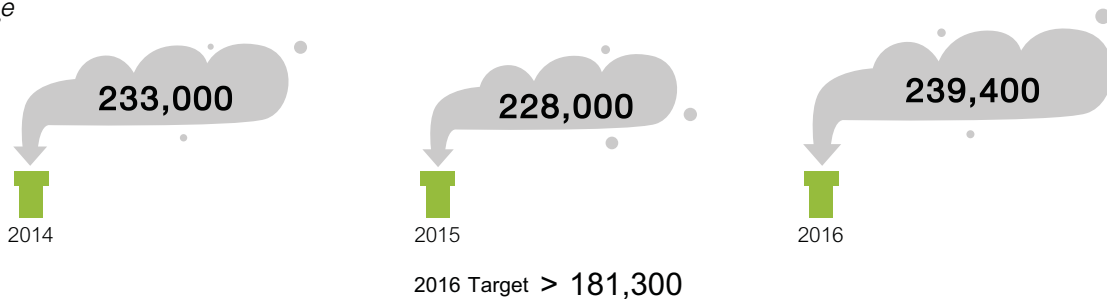


Number of trees planted to absorb CO₂

12,000,000

tons

Greenhouse gas reduction from production process
tons CO₂e



"TGO encourages private companies to carry out activities to reduce greenhouse gas emissions and participate in the development of methods to reduce greenhouse gases under the Thailand - Voluntary Emission Reduction (T-VER) project. The objective is to provide procedures for the reduction of greenhouse gases, corresponding to actual operations to calculate the actual amount of greenhouse gas reduction which can then be certified as carbon credits. The carbon credits from the T-VER project can be used to offset greenhouse gas emissions (Carbon Offsetting) or be sold on the carbon market of the Thailand - Voluntary Emission Reduction project that the TGO is developing. The TGO plans to develop methods of reducing greenhouse gases to support a wide range of activities in many sectors. Moreover, TGO aims to encourage all sectors to additionally implement greenhouse gas reduction projects as well as to raise awareness of the carbon market in the country.

Last year PTTEP in cooperation with the TGO developed methods to reduce greenhouse gas for Methane Leak Detection and Repair in Petroleum Processing and Distribution Systems. These procedures developed to

reduce greenhouse gases are not only helpful to the Company but can be used by other agencies as well in investigating methane leakages. The Company has initiated other projects to reduce greenhouse gas emissions, the experience gained from this collaboration will be useful in developing procedures and methodologies for reducing greenhouse gases and the implementation for upcoming projects.

Paweena Panichayapichet and Siriporn Viriyatangsakul
Thailand Greenhouse Gas Management Organization
(Public Organization)



Operational Eco-efficiency

PTTEP environmental management system ensures operations are eco-efficient and meet international standards (ISO 14001). In 2016 PTTEP was certified ISO 14001: 2004 by AJA Registrars under the United Kingdom Accreditation Service (UKAS) certification for all operation areas in Thailand and for the operation site in Australia. PTTEP plans to be certified by the latest version of ISO 14001: 2015 for the above operation areas such as the Zawtika Project in 2017.

Air Emissions

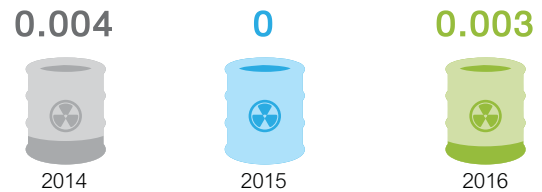
To mitigate the impact of harmful air pollutants on employees, the environment and communities, PTTEP implemented improvements to the fossil fuels combustion processes in energy and heat production systems to reduce emissions of air pollutants, such as NOx, SOx and VOCs. PTTEP strives to keep air pollutant emissions within the industry average of the International Association of Oil and Gas Producers (IOGP).

Waste Management

PTTEP is committed to waste management with the goal of zero hazardous waste to landfill. In 2016 PTTEP developed an online waste management system to control and monitor waste transport from the operating sites (originators) to the disposal sites. This system serves as a waste management database for monitoring waste transport, which is to ensure that PTTEP waste management practice complies with relevant laws and regulations and causes no harm to the environment. PTTEP currently applies the waste management system to various offshore as well as onshore operations, including Greater Bongkot North, Greater Bongkot South, Arthit and Sinphuhorm projects. In the future PTTEP plans to expand the system implementation to all other operations.

Zero Hazardous Waste to Landfill

percent



2016 Target < 0.5 of total hazardous waste

Air Emission Reduction Performance

tons per thousand ton production

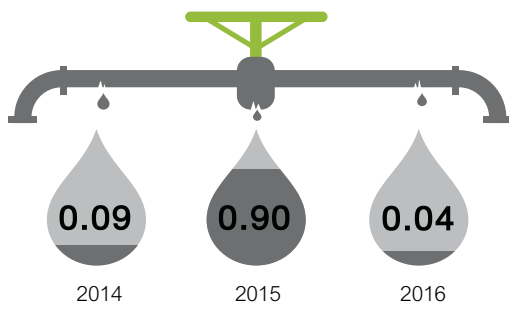


Notes: There was no disclosure of 2016 IOGP Average.

Spills

PTTEP targets zero spills to prevent any potential impact of oil and chemical spills on the environment and society. In 2016 PTTEP updated the Spill Contingency Plan to be in line with international best practices. PTTEP also initiated the 4L's project; one of the 4L's stands for "LEAK", with the objective to minimize leaks from process equipment in order to prevent spill incidents. PTTEP is establishing the Spills Capability Assessment Program for the S1, Bongkot and Zawtika projects. The program assesses the effectiveness and readiness of spill response as well as improving the spill response process and enhance the integrity of production process. The Spills Capability Assessment Program is expected to be completed in 2017. PTTEP plans to expand this assessment program to other operation areas in 2018.

Oil and Chemical Spills tons per million ton petroleum production



2016 Target < 0.91

Water Resource Management

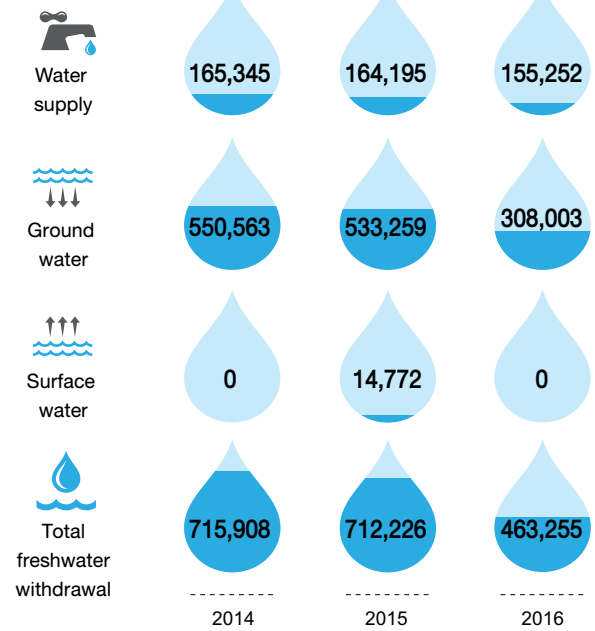
PTTEP commitment to efficient water management minimizes potential impacts on the environment and surrounding communities. PTTEP conducts water risk assessments by considering all relevant aspects such as water shortage, water price volatility, laws and regulations related to water usage and any potential impacts from water sharing with a community.

In 2016 PTTEP managed water with higher efficiency in medium risk areas such as the S1 and PTTEP1 projects. The improved water management practices contributed to a reduction in freshwater consumption by more than 200,000 cubic meters in

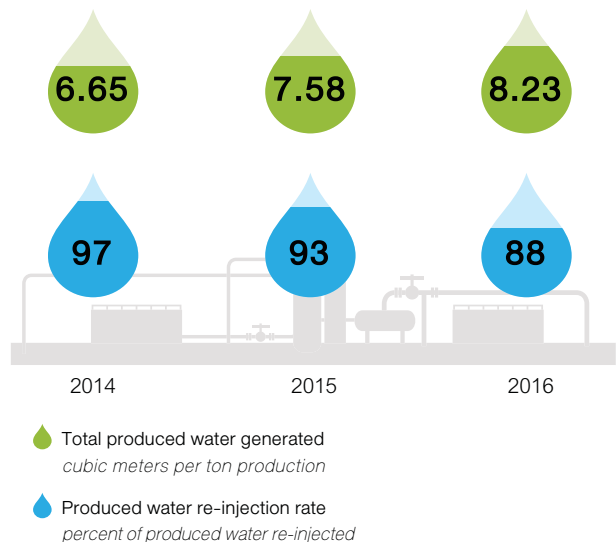
2016 compared to 2015. The enhanced efficiency was gained by implementing improvements to the cooling system and water circulation maintenance program to significantly reduce water loss in the production process.

Freshwater Withdrawal

cubic meters



At PTTEP the majority of produced water from the production process is disposed of by re-injection into underground reservoirs. In 2016 we re-injected 88% of produced water into underground reservoirs while the remainder was treated and legally disposed.



Biodiversity

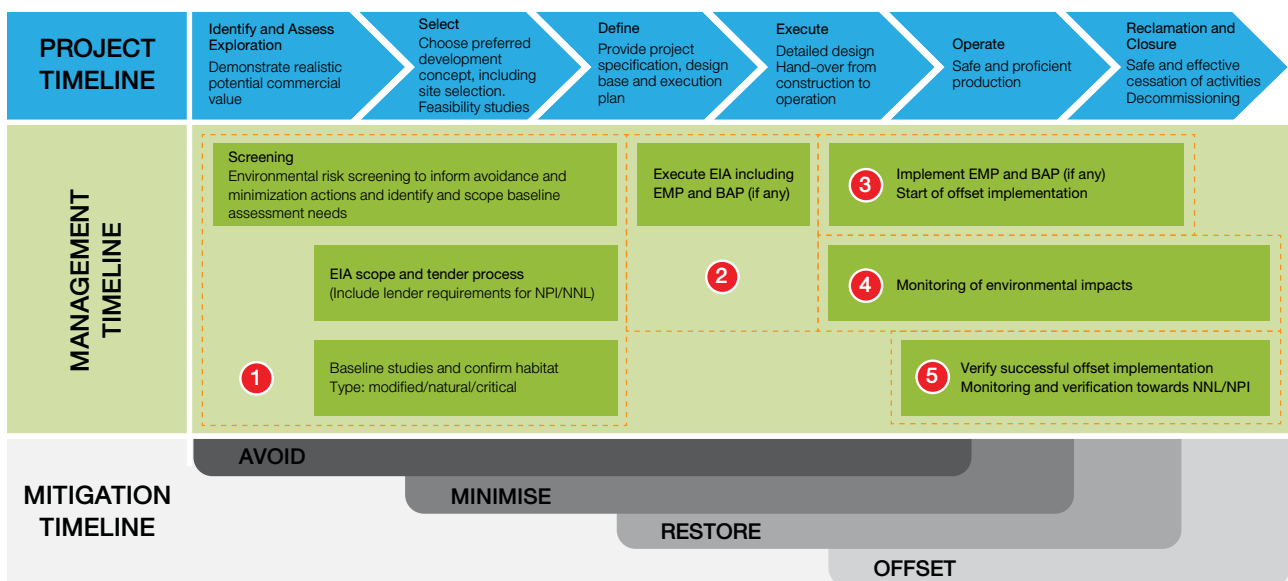
PTTEP biodiversity management goals include minimizing the impact of operations on the environment and generating a net positive impact on the ecosystem and biodiversity. The Company conducts an annual comprehensive biodiversity risk assessment on all PTTEP project areas. The risk assessment considers project activities and location, particularly whether the project is located in a biodiversity and ecosystem sensitive area. Any project considered high risk is required to have a Biodiversity Action Plan (BAP) that closely follows the principles underpinning PTTEP biodiversity and ecosystem service management. It consists of five stages, covering all phases of the project: 1) risk assessment primarily on biodiversity and the ecosystem services 2) preparation of biodiversity management plans 3) compliance with the biodiversity management plan 4) monitoring the environmental impact 5) monitoring the compliance with the biodiversity management plan. At every step PTTEP applies the Mitigation Hierarchy as well.

The result of biodiversity risk assessment in 2016 revealed that Zawtika and Sinphuhorm projects posed medium biodiversity risks. No project was assessed as high risk.

At present, the Sinphuhorm Project, located in a watershed area class 1A and in an active production phase, has medium biodiversity and eco-system service risk. The project prepared a Biodiversity Action Plan (BAP) on a voluntary basis with the goal of mitigating biodiversity risk in the watershed area.

The natural gas piping system for the Zawtika Project is located in the Tanintharyi forest area which is under International Union for Conservation of Nature (IUCN) IV protection. Seven wildlife species on the IUCN Red List under the endangered category and six plant species on the IUCN Red List under the threatened category have been found in the area. This project is currently in the production phase with a medium level of biodiversity and ecosystem services risk. Similar to the Sinphuhorm Project, a Biodiversity Action Plan (BAP) for the Zawtika Project has been prepared on a voluntary basis.

Biodiversity Management and Ecosystem Services



The Zawtika Project presented the BAP to the Tanintharyi Nature Reserve Project Committee. This collaboration is intended to assist with organism preservation efforts for species on the IUCN Red List and to monitor potential impacts on biodiversity and ecosystem services from the project.

To promote biodiversity, PTTEP continues to work on improving the efficiency of Remotely Operated Vehicles (ROV). In 2016 PTTEP collaborated with King Mongkut's University of Technology North Bangkok, Kasetsart University, Burapha University and the Southeast Asian Fisheries Development Center (SEAFDEC) on ROV improvement efforts. Efficiency testing was performed for applications in the area of the Gulf of Thailand.

In 2016 for the first time in Thailand, PTTEP organized a workshop on biodiversity and ecosystem service management for the petroleum industry. The workshop was prepared in cooperation with the International Petroleum Industry Environmental Conservation Association (IPIECA), International Association of Oil & Gas Producers (IOGP), and United Nations Environmental Program-World Conservation Monitoring Center (UNEP-WCMC). This workshop, attended by more than 50 participants, was developed by IPIECA to build a learning network among experts and personnel in the oil and gas industry whose roles and direct responsibilities are in the areas of environment, ecosystem and biodiversity.

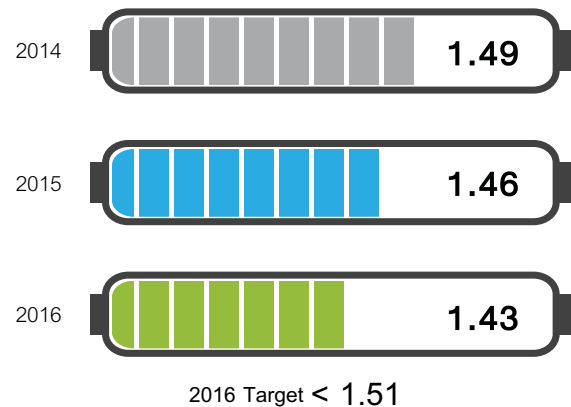
The Company adopted the Net Environmental Benefit Analysis (NEBA) methodology to analyze the net environmental impact from PTTEP operation in 2016. The assessment from NEBA enables the Company to prepare a protocol and guidelines for selecting an optimal engineering design to minimize environmental impacts. The option shown to generate the maximum net benefit will be selected for implementation. The Company also used the NEBA methodology and process to determine an optimal procedure for petroleum platform removal and decommissioning activities to minimize environmental impact.

Energy Efficiency

PTTEP has an energy efficiency target of 5% intensity reduction in energy consumption by 2020. In 2016 PTTEP conducted studies on energy consumption patterns of S1 Project and energy consumption baseline and identifying significant consuming energy activities for Zawtika Project. Study data will be used to improve future energy consumption. PTTEP plans to widen the scope of energy efficiency related activities to cover all projects both inside and outside Thailand.

Energy intensity

GJ per ton production



Note: Performance and targets were reported for the Thailand operation areas: S1, PTTEP1, Bongkot and Arthit projects.



PTTEP believes that employees are the key foundation to the Company success. We focus on recruiting and retaining competent employees while respecting labor rights. In addition, PTTEP develops employees to reach their full potential so that employees become the main impetus for the Company strength and sustainable growth.



Human Capital Development



1.26 million USD were used for employee development in 2016



199 internal training programs



Average hours of employees attending trainings were **27** per year

PTTEP Vision on Human Resource Management

- “Employer of Choice” that attracts and retains global talent
- World-class reputation for technical and functional best practices
- Internationally recognized brand
- Full of competent people ready for new challenges

PTTEP believes that every employee is critical to business success. Therefore, continuous professional development is a key component to robust and sustainable company growth. The Competency Management System (CMS) was established to evaluate employee competency. In 2016 the Company widened the CMS scope of implementation to cover foreign subsidiaries, including Australia and Myanmar, in order to maintain personnel development standards throughout the organization. Since 2009, the Company has implemented the Individual Competency Development Plan (ICDP) at the head office in Thailand. ICDP utilizes the 70 : 20 : 10 approach (70% on-the-job training : 20% coaching and mentoring : and 10% formal training) for effective personnel development.

Employee Engagement Survey



2016 Target = 52

PTTEP recognizes the need to develop both technical and business competencies for employees to support both domestic and international operations. For each professional group, the Company has job competency profiles (JCP) to provide detailed specifications of necessary technical and business knowledge and skills to meet current business needs. A JCP can change over time. For example, a change in technology or work process will prompt a revision to the JCP to ensure that specified skills, knowledge, and competencies remain up-to-date for each position.



Potential and calibre development was provided for **613** employees



Employee calibre increased **7%**, higher than the target **5%**

Employees at the managerial and executive level are critical to overall human resource management and development of the Company. PTTEP developed the Supervisory Skills Development program to train employees in leadership positions to become effective managers and executives. Based on the analysis of the employees' engagement survey in 2015, the Supervisory Skills Development program targets three areas: self-understanding and empathy towards others, evaluating performance, and coaching and providing feedback. In 2016 the Company offered 11 leadership training sessions with a total of 321 participants. Surveys indicated that 96% of participants provided positive feedback and were satisfied with the training.

PTTEP is also developing the EP-LEAD I program to train new executives with no management experience to prepare them for management level positions. EP-LEAD I aims to develop optimistic attitudes, skills to manage diverse teams, and skills for change management.

The Company also established a coaching and mentoring program. Experienced employees were assigned as mentors to junior employees. Mentors and junior employees are arranged within the same technical group such as geology, engineering and drilling engineering. The mentoring program gives mentors an opportunity to develop their teaching, managing and monitoring skills while benefitting junior employees through exposure to the mentor wealth of knowledge and experience. In 2016 there were 105 employees as mentors and 308 employees as mentees. The ratio of mentors to mentees was estimated to be 1 : 3 with the total average training of 96 hours per person per year.

PTTEP places high importance on efficient spending as well as personnel training and development. The Company achieves these

two objectives simultaneously by encouraging knowledgeable employees to serve as internal resources for various training programs to teach colleagues within and outside their own divisions. The engineering training program creates a platform to share specialized knowledge from different internal branches of engineering that are vital to business operations. Colleagues learn from the internal resources and apply the knowledge to their own work areas. PTTEP also organized the FNA Academy program for the second consecutive year. Employees from every professional group, a total of 729 participants, built skills, knowledge and understanding in finance, accounting and basic cost management to enhance overall business understanding. Internal training and educational programs benefit employees beyond business applications because the subject matter can also apply to personal situations.



"Training from the Supervisory Skills Development program helps us to understand where certain behaviours are coming from and the internal stimuli that drive them. With a better understanding of ourselves, we can empathize and understand other people. This program also helps develop the potential and lowers the boundaries that limit ourselves and our team members as well as foster mutual acceptance and kindness and increase the effectiveness of team management, job assignment, and job training."

Pongpun Urarungroj *Vice President
Engineering Management
System Department*

Veerawat Aumsoi *Manager, Arthit Field*

Niwat Prompradis *Superintendent, Production*

Supervisory Skills Development Program Participants

Talent Attraction and Retention

To support long-term growth aspirations, PTTEP recognizes the importance of attracting employees with potential, knowledge, competency, and experience as well as retaining current employees. The Company recruits from standard job market candidates in addition to other recruiting channels such as PTTEP scholarship students. Out of fourteen PTTEP scholarship students who graduated in 2016 six students (43%) have been hired as full-time employees.

PTTEP creates opportunities for employees to be involved in their own career management as well as to develop competency outside their current areas of expertise. The Company has an internal recruitment process to fill job vacancies at both the employee level and the executive level. Current employees can apply to be considered for opening positions via the internal job posting system (Career Choice). In 2016, 29 employees or 33% of job vacancies were filled with existing PTTEP employees.

PTTEP is committed to building a strong operational foundation in Myanmar, one of PTTEP important investment countries. The Company selects Myanmar employees with high potential to join the ICDP at PTTEP Head Office in Thailand. After completing the ICDP, the employees return to Myanmar to manage and develop the Company exploration and production projects. These employees continue to receive additional training under the Myanmar Value Creation Program which emphasizes on-the-job training, coaching and mentoring. In 2016 there was one Myanmar employee who participated in the program. The Company plans to increase the

number of participants to five employees in 2017. PTTEP also plans to increase the share of Myanmar employees from 50% to 75% of total employees for Myanmar-based projects to help promote local employment and raise the capability of local employees to meet the same standards as other countries.

To retain competent employees with potential, knowledge and experience, PTTEP focuses on promoting internal cooperation and creating value for employees at every level. PTTEP ensures that employees can realize their full potential by establishing an intensive performance management and remuneration procedures as well as a systematic talent development and management process.

PTTEP instills corporate values, EP SPIRIT, through employee representatives who have been nominated as “change agents”. The role of these “EP SPIRIT Transformers” is to make EP SPIRIT values more concrete for all employees through various forms of communication and activities. In 2016 there were 130 EP SPIRIT Transformers representing 9 function groups. Meanwhile PTTEP has also organized activities to promote employee engagement. For example senior executives communicated the importance of our people in the Company monthly newsletter and also organized activities on important occasions. The Mentor Training program has been in effect for two consecutive years to provide a channel through which the accumulated knowledge of senior employees can be passed to new generations of employees who are enthusiastic and eager to learn. This program also ensures that knowledge and intellectual capital remains within the organization.

“I believe that the variety of assignments and case studies that I have experienced throughout the program helps me develop the necessary skills to face future challenges in my job which include technical skills, teamwork, leadership, confidence and flexibility including adaptability to live and work abroad. One thing from the program that impresses me is how highly PTTEP values their employees. This will help build employees’ loyalty to the organization and motivate them to work at their fullest capacity.”

Thu Ya Lwin

Geologist at PTTEP International Limited Company (Yangon Branch)

Participant of Myanmar Value Creation Program



Labor Rights

PTTEP treats employees with respect and does not tolerate discrimination on any basis, including gender race, or religion. The Company does not allow being involved in any act of human rights violation by adhering to the human rights policy which closely follows the protocols of the United Nations Universal Declaration of Human Rights and other international guidelines. This policy covers all aspects of PTTEP operation and applies to every group of stakeholders, including all company employees, suppliers and contractors of the businesses for which PTTEP is the operator, and PTTEP joint venture businesses. PTTEP human rights guidelines apply to all levels of the organization.

As evidence of PTTEP non-discriminatory employment practice, the Company's workforce shows an appropriate gender composition at both the organizational level and the operational level. In 2016 the share of female employees was 33%, a level comparable to other companies in the oil and gas business. Any competent employee is ensured equal opportunity to grow within the organization. The lack of gender discrimination is evident from the fact that females compose 38% of employees, 23% of junior executives, and 22% of senior executives.

The Company offers excellent employee benefits to enhance the well-being of employees and their families. Benefits include a health center, medical care and proper resting space at work. The Company pays particular attention to benefits for women with children to promote healthy families and to operate the business in accordance with United Nations Children's Rights and Business Principles. For example, nursing rooms are made available for new mothers. Male employees can take paternity leave to care for and spend time with their newborns. The Company strictly complies with labor laws in every country. The Welfare Committee was established to regularly discuss benefits and labor rights issues. One percent of the Company total workforce, both employees and executives, participate in the Welfare Committee. In 2016 the Welfare Committee considered and discussed 93 issues related to compensation, benefits and career opportunities.



PTTEP utilizes effective community relations management to encourage and build community support for the organization. PTTEP also manages social impacts from petroleum exploration and production. The Company initiates and completes projects that respond to community needs to ensure sustainable development.



Community Relations Management

PTTEP is fully aware of the importance of having a social license to operate, to carry out exploration and production activities sustainably. The Company conducts a Stakeholder Commitment Survey every three years to assess the level of stakeholder commitment in various PTTEP project areas. The survey results are used to improve the effectiveness of social projects. The goal of effective community relations management is to raise the primary stakeholder commitment level to “Commitment/ Support”, which is the highest level of commitment identified in the survey.

The Stakeholder Commitment Survey comprises four main steps: 1) Respondent screening 2) Data collection 3) Data recording and analysis and 4) Presentation. PTTEP uses two screening criteria for survey respondents: 1) Study areas (primary and secondary areas) and 2) Target groups (communities and related agencies that may be adversely affected by PTTEP projects). The Company surveys all affected households, related agencies, community leaders and community organizations in primary areas. The Company uses random sampling with a pre-specified sample size to identify affected parties to participate in the survey in the secondary areas. After data collection, survey results are summarized and the level of stakeholder commitment.

14 projects under the exploration and development phase

23 projects under the production phase

100% involved community engagement and consultation

In 2016 the Company conducted the Stakeholder Commitment Survey for three areas of exploration and production projects in Thailand. The areas surveyed were the Petroleum Development Support Base in Songkhla; S1 Project in Kamphaengphet, Sukhothai and Phitsanulok; and PTTEP1 Project in Suphanburi and Nakornpathom Provinces. Survey questionnaires were tailored for each project based upon different social and community programs operating in the area. The survey results show that three project areas reported their levels of engagement as “Understanding”. The survey also reveals information on social activities that meet community needs and community issues or concerns for PTTEP to address.

The Community Relations Management Policy, effective in 2015, exists to build good community relations. PTTEP is committed to preventing any negative affect on communities from petroleum exploration and development by introducing the Issue and Stakeholder Management System (ISMS). The ISMS manages and provides analysis of effects on communities from PTTEP operations. The Company encourages community involvement in every area of PTTEP operation, both domestic and international. Examples

of community involvement include the S1 Project, Sinphuhorn Project, PTTEP1 Project, B6/27 Project, Natuna Sea A project in Indonesia, and PTTEP Australasia Project in Australia. These six projects account for 61% of projects under PTTEP operation.

The ISMS risk analysis of the S1 Project indicated that some stakeholders did not understand how PTTEP operated. To improve stakeholder comprehension, the Company increased efforts to communicate and interact with stakeholders by sending community relations officers into the community. The officers explained the details of activity plans, listened to feedback and addressed concerns. S1 Project site visits were also offered. The Piyachat Nithat Exhibition Center was opened in 2003 to serve as an energy educational center. There were 5,516 visitors in 2016. These efforts helped the Company avoid conflicts and serious complaints regarding the S1 Project throughout 2016. For the sixth consecutive year, the S1 Project achieved the level of Role Model, the highest level of the ISO 26000 Social Responsibility assessment.

Starting in 2016 the Grievance Handling Guideline was applied to all projects in Thailand to allow complaints to be managed and handled systematically. The Company implemented a variety of complaint channels so individuals can discuss complaints in person, via a community relations officer, by email, telephone or letter. After a complaint has been resolved, employees were informed of the incident to prevent future recurrence. The Company plans to apply this guideline to all international projects in 2017.



Social Development



Vision

Stakeholders' sustainable trust and support to ensure PTTEP social license to operate



Mission

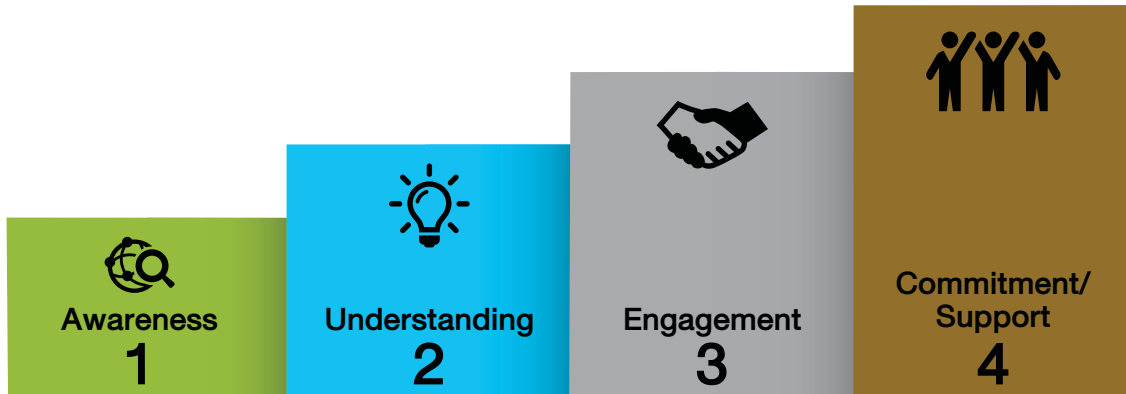
- Efficiently and effectively implement social projects with community involvement that address four aspects: basic needs, education, environment, and culture
- Promote social and community development to create strength and sustainability
- Provide clear strategic communication and monitoring
- Provide accurate information on petroleum exploration and production



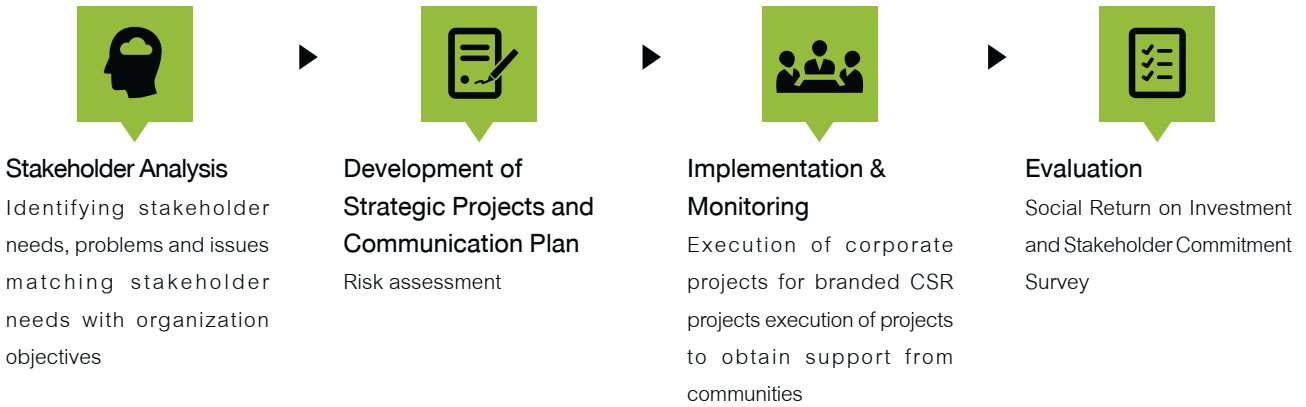
Target

Stakeholder engagement "Commitment/Support" by 2020

Stakeholder Commitment Level



Processes of long-term strategic plan for social development project



Corporate Social Responsibility Policy

- Integrate social responsibility with each business decision-making and execution process
- Uphold fundamental human rights while respecting local laws, cultures, customs and values in dealing with employees and those affected by our business execution alike, and shall not be complicit in human rights abuses
- Contribute to the sustainable social development, conservation of natural resources, and environment of the community in which we operate
- Conduct effective and transparent engagement and communication with our stakeholders
- Cultivate social responsibility awareness and values among management, employees, and contractors

Beginning in 2016 PTTEP analyzed Social Return on Investment (SROI) of various projects in Thailand, including the Project for Eco-learning at Sri Nakhon Khuean Khan Park (in line with HRH Princess Sirindhorn's Initiative, Bang Kachao), Crab Hatchery Learning Center, Waste to Energy Project and "PTTEP Petch S1" Scholarship Program.



Total contribution to communities and society **11,226,277 USD**



1,602 employee volunteers



4,806 hours of volunteer work

Reforestation Restoration Project for Eco-learning at Sri Nakhon Khuean Khan Park (Bang Kachao)

PTTEP is committed to reducing the environmental impacts through various projects. An example of commitment is the Reforestation and Restoration Project for Eco-learning at Sri Nakhon Khuean Khan Park (in line with HRH Princess Sirindhorn's Initiative, Bang Kachao) in Samut Prakan Province. The project was initiated in 2013 to restore a 40-rai forest in a botanical garden and to renovate the park into an eco-learning site in the style of a nature classroom. The site has become a popular recreational ground, nicknamed "the Lung of Bangkok".



145,719

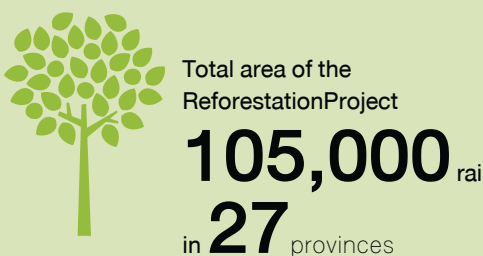
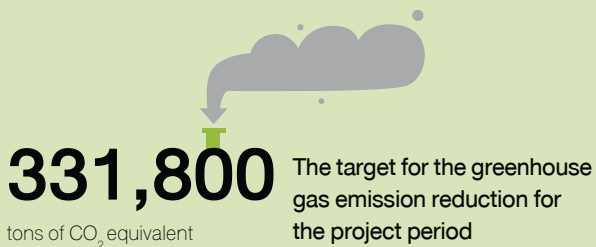
Visitors



PTTEP Reforestation

PTTEP implemented the reforestation of 105,000 rai as an ongoing project from 2013-2020. PTTEP is the operator of tree planting and maintenance for the first three years before handing them over to the Forest Department, the Department of National Parks and Wildlife and Plant Conservation and the Department of Marine and Coastal Resources in the fourth year for further maintenance. For forest communities, PTTEP planted and maintained trees for five years which were then transferred over to the Forest Department in the sixth year for further maintenance. In addition to absorbing carbon dioxide, the project also helps create value for the local economy by creating jobs and distributing income to the local community as well.

In 2016 the Company carried out maintenance plantation of forests in 27 provinces totaling 105,000 rai. PTTEP has already started to gradually deliver plantation forests to the government with the delivery of all to be completed in 2019. In addition, the Company has organized a community network of forest conservation and environment in the area near the Reforestation Project in order to gain community participation in conservation, including a community network to protect and maintain the forest in cooperation with the government agencies. In 2016 there were three training sessions in Phitsanulok, Tak, Lampang Provinces with 184 attendees.



Waste to Energy Project

Communities around PTTEP exploration and production onshore sites do not all practice appropriate household and livestock waste management. Therefore, PTTEP initiated the Waste to Energy Project to educate individuals in appropriate waste sorting and energy creation. Hands-on training workshops taught communities how to convert manure from livestock farming and household waste into biogas to be used as cooking fuel. The resulting compost can also be made into organic fertilizer for agricultural use. After attending the educational workshop, people can appropriately manage household and livestock waste using low-cost and locally available materials and equipment. Correct and appropriate waste management can improve a community's quality of life by preventing epidemics and promoting energy self-sufficiency. Communities can reduce fuel and chemical fertilizer expenses, improve public health by properly treating manure, and decrease environmental pollution.



Fuel cost reduction
THB per household per year



Chemical fertilizer cost reduction
THB per household per year



31
Number of households
attending workshops
persons



Garbage reduction
kilograms per household per year



400
Environmental emission reduction
from waste or municipal waste
kilograms per household per year

"We gained support from PTTEP in terms of finance and materials. The equipment installation has obviously decreased our burden of Liquefied Petroleum Gas (LPG) gas expenses. During the past three years, the school bought only two LPG cylinders".

Chatchai Laokliangdee *Director of Ban Tub Hai School*

Free Health Clinic

PTTEP Natuna Sea A Project is located in Indonesia and the Company recognized the need for improved health-related basic needs of low-income Indonesian communities. PTTEP initiated the Free Clinic Project to offer free health services in Jakarta. This project is a collaborative effort with the Dompot Dhuafa Foundation (DD). DD focuses on improving personal health and basic public health. A clinic building and mobile clinics were set up in 2014 to offer basic medical check-ups and health education by volunteer doctors and medical personnel from the PTTEP and DD network.

Through the hard work and dedication of all participants, the project was awarded the Platinum Award in the Best Community Program category at the 8th Annual Global CSR Summit and Awards in 2016. The Company plans to open a tuberculosis center and an AIDS center in 2017 to address local epidemic risks.



120,000
Number of patients
persons



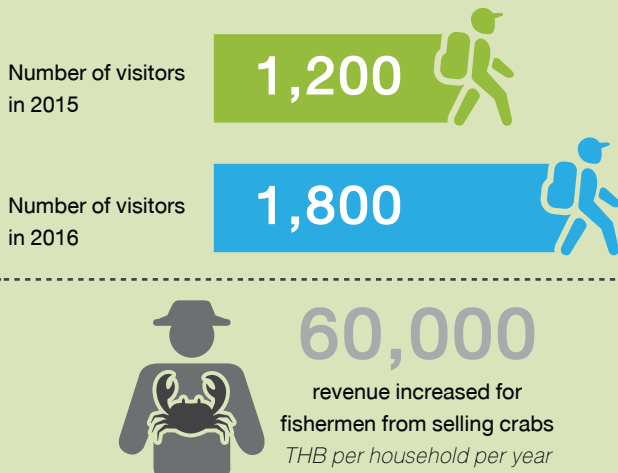
Education Projects

PTTEP has implemented projects to meet the educational needs of both domestic and international communities. The **PTTEP Petch S1 Scholarship Program** provides financial support to low-income students from communities near PTTEP S1 Projects. The Company awards 10 scholarships annually, which provides financial support until students complete their Bachelor's degree.

The **Labor Potential Development Project** was initiated from a survey of available skilled Burmese laborers. The survey indicated a shortage of skilled labor, especially of welders and air-conditioning installation technicians. In collaboration with the Skill Training Center (Department of Labor, Ministry of Labor Immigration and Population, Myanmar), PTTEP started the Project in 2015 to increase employment in the Burmese labor market. The project will renovate the training building, procure equipment and organize training to upgrade the skill level of local artisans during the first phase (2015 - 2017). In 2016 there were 258 attendants, and the Company plans to train 500 Burmese laborers by 2017.

Crab Hatchery Learning Center Project

The project was initiated in 2013 and located in an area straddling Songkhla, Chumphon and Ranong Provinces in close proximity to Petroleum Development Support Base (Songkhla). The goal of this project is to restore the ocean around the area of PTTEP operation and to supplement the income of local fishermen. The Company funded the Learning Center for Crab Breeding and Hatching and applied appropriate renewable energy technology for crab breeding. The Learning Center has also been renovated to attract more visitors.



"From my past objection to PTTEP work, I became more open-minded to learn and accept the collaboration which has turned out to offer national benefits. The locals had a better boost from the increased crab population and natural resources. For the past 3-4 years, the population of crabs in the lake increased significantly, resulting in the locals being able to extend the period when they could earn their livelihoods from crab fishing during late February to October. "

Anan Manin *Chairman of the Local Fishery Group Por Sub Anan*

Awards and Recognitions

Recognition of PTTEP and our dedication and excellence in practices were proved by a number of leading organizations and publications in 2016.



Corporate Governance



- ▶ The Best CFO Award from IAA Awards for Listed Companies 2015/2016
Investment Analysts Association (IAA)
- ▶ Received the highest Ranking of Level 5 from the Corporate Governance Report of Thai Listed Companies (CGR) 2016
Thai Institutes of Directors Association (IOD)

- ▶ The Asset Best Initiative Award in Innovation
The Asset Magazine



- ▶ Asia's Icon Award on Corporate Governance
The Corporate Governance Asia Magazine

- ▶ The Asset Corporate Awards at Platinum Level
The Asset Magazine

- ▶ Asian Corporate Director Recognition Award
The Asset Magazine



Investor Relations

- ▶ Asia's Best CFO (Investor Relations) Award
Investment Analysts Association (IAA)

- ▶ Best Investor Relations Company (Thailand) Award
The Corporate Governance Asia Magazine

- ▶ The Asset Best Investor Relations Team Award
The Asset Magazine



Social Responsibility

- ▶ Honorary Member Award
Thailand Business Council for Sustainable Development (TBCSD)

- ▶ Asia's Best Environmental Responsibility Award
Corporate Governance Asia Magazine

- ▶ The Asset Best Initiative Award in Environmental Responsibility
The Asset Magazine

- ▶ Platinum Award in the Best Community Program category for the recognition of PTTEP-LKC DD Free Healthcare Center Project

The 8th Annual Global CSR Summit and Awards 2016

- ▶ Bronze Stevie Award in the category of Innovation in the Community Relations
The Asia-Pacific Stevie Awards



- ▶ Carbon Neutral Certificate as a company with outstanding practices in sustainable development activities for carbon offsetting in the Greenhouse Gas Emission Reduction
Thailand Greenhouse Gas Management Organization (Public Organization) or TGO



Best Practices

MEMBER OF
**Dow Jones
Sustainability Indices**
In Collaboration with RobecoSAM

- ▶ Member of 2016 Dow Jones Sustainability Indices (DJSI) and Industry Leader in the World Oil and Gas Upstream & Integrated Industry for the third consecutive year and announced PTTEP as Gold Class in the Sustainability Yearbook 2017 RobecoSAM



- ▶ ISO 22301:2012 Certification for Business Continuity Management System (BCMS) British Standards Institution (BSI)



- ▶ Sustainability Report Award 2016 in the outstanding category Thai Listed Companies Association



- ▶ Ranked at “Leadership Level” in CDP as a Company with risk management and gas emission reduction plan CDP



FTSE4Good

- ▶ Selected to be part of FTSE4Good Emerging Index 2016 FTSE Russell

- ▶ Diamond and Gold Level of the National Occupational Safety and Health Awards for the second consecutive year Department of Labor Protection and Welfare, Labor Ministry



- ▶ 2016 SHE AWARD for Greater Bongkot gas field, S1 and Sinphuhom projects Department of Mineral Fuels, Ministry of Energy



- ▶ SPE Distinguished Corporate Support Award of North Asia Pacific The Society of Petroleum Engineers (SPE) of Asia Pacific region



- ▶ BG Group’s Gold Hard Hat Award BG Asia Pacific Pte Limited

SD Performance Summary

Economic	Unit	2013	2014	2015	2016
Direct Economic Value Generated					
Total revenue	Million USD	7,445	7,834	5,614 ⁽²⁾	4,339
Economic Value Distributed					
Salary, wages and employees' benefits	Million USD	137.27	171.12	139.19	138.61
Operating expenses	Million USD	827	857	685 ⁽²⁾	582
Payments to Providers of Capital					
Payment to governments ⁽³⁾	Million USD	2,151	2,183	1,398	950
Dividend payments	Million USD	783	736	298	310
Interest payments	Million USD	174	216	253	271

Remarks

- (1) Scope of reporting Economic performance is in alignment with 2016 PTTEP Annual Report.
- (2) 2015 Financial Statement is restated. ^(G4-22)
- (3) Payment to government covers petroleum royalties, remuneration for the petroleum and tax payments.

Environment	Unit	2013 ⁽¹⁾	2014	2015	2016		
					Thailand	International	
						Australia	Others
Hydrocarbon Production							
Production from operating asset	BOE	105,924,646	124,091,873	136,408,299	102,888,543	5,631,282	19,485,131
	Tons	14,452,553	16,929,815	19,015,762	15,112,236	746,681	2,593,185
Energy Consumption							
Total direct energy consumption	GJ	20,825,094	23,840,867	26,116,608	20,909,807	861,789	4,440,164
Total indirect energy consumption by primary energy source (electricity purchased)	GJ	34,167	73,469	81,510	106,908	6,828	0
Total energy intensity	GJ/ton production	1.44	1.41	1.38	1.39	1.16	1.71
Greenhouse Gas Emissions (GHGs)⁽²⁾⁽³⁾⁽⁴⁾							
Direct total GHGs	Tons CO ₂ equivalent	4,459,039	5,122,074	4,885,952	4,048,528	242,670	340,293
Indirect total GHGs	Tons CO ₂ equivalent	1,830	4,155	4,228	5,283	383	0
Other relevant indirect GHG emission ⁽⁵⁾	Tons CO ₂ equivalent	12,470	35,364	57,910	17,181	41,649	0
GHG intensity	Tons CO ₂ equivalent/ thousand ton production	310	305	260	269	381	131
Flare							
Total flaring	MMscf	47,946	54,028	48,285	40,152	2,598	685
Hydrocarbon flaring	Tons	1,101,526	1,265,170	1,096,671	982,161	61,648	15,546
Hydrocarbon flaring intensity	Tons/thousand BOE	10.40	10.20	8.04	9.55	10.95	0.80
Emissions							
Volatile organic compounds (VOCs)	Tons VOC	16,571	18,231	16,620	14,865	930	269
VOC intensity	Tons VOC/ thousand ton production	1.147	1.077	0.874	0.984	1.246	0.104
Nitrogen oxides (NOx)	Tons NO ₂	9,454	10,618	11,043	8,746	362	1,752
NOx intensity	Tons NO ₂ / thousand ton production	0.654	0.627	0.581	0.579	0.485	0.676

Environment	Unit	2013 ⁽¹⁾	2014	2015	2016		
					Thailand	International	
						Australia	Others
Sulfur oxides (SOx)	Tons SO ₂	576	715	598	460	18	132
SOx intensity	Tons SO ₂ / thousand ton production	0.040	0.042	0.031	0.030	0.024	0.051
Ozone-depleting substances (Hydrochlorofluorocarbon: HCFC) ⁽⁶⁾	Kg of CFC11 equivalent	8.3	13.8	8.5	3.7	0.0	0.0
Spills⁽⁷⁾							
Spills	Cases	26	28	17	9	1	6
	Tons	44.28	1.44	17.14	0.51	0.001	0.228
Hydrocarbons	Cases	25	25	15	9	1	6
	Tons	44.18	1.42	16.59	0.51	0.001	0.228
Non-hydrocarbons	Cases	1	3	2	0	0	0
	Tons	0.10	0.02	0.55	0.00	0.00	0.00
Water Withdrawal							
Total water consumption	Cubic meters	67,032,041	51,033,650	51,295,665	50,420,020	6,696	355,402
Water withdrawal (excluding once through cooling water)	Cubic meters	2,027,523	2,622,604	2,630,453	1,994,573	6,696	355,402
Once through cooling water	Cubic meters	65,004,518	48,411,046	48,665,213	48,425,447	0	0
Water Discharge							
Water discharge	Cubic meters	6,640,290	6,658,178	7,668,987	7,281,782	789,743	149,364
Produced water injection	Cubic meters	6,640,290	6,438,057	7,013,451	7,276,263	0	0
Produced water disposed by evaporation	Cubic meters	0	128,599	279,930	4,823	0	103,679
Produced water treated & discharged ⁽⁸⁾	Cubic meters	0	89,564	374,451	0	789,743	45,685
Produced water disposed by waste processor	Cubic meters	0	1,958	1,155	696	0	0
Waste Generation⁽⁹⁾							
Hazardous waste	Tons	NA	36,468	42,566	28,243	19	480
Non-hazardous waste	Tons	NA	202,886	175,750	149,018	130	90
Waste Disposal⁽¹⁰⁾⁽¹¹⁾							
Hazardous waste	Tons	44,559	36,738	42,367	27,668	61	480
Drilling mud and cutting waste	Tons	41,894	34,702	40,286	25,348	0	NA
Other hazardous waste	Tons	2,665	2,036	2,080	2,320	61	480
Non-hazardous waste	Tons	1,238	203,079	175,506	148,953	109	90
Drilling mud and cutting waste	Tons	NA	200,757	171,911	143,139	0	NA
Other non-hazardous waste	Tons	1,238	2,322	3,595	5,814	109	90
Exported hazardous waste under the Basel Convention	Tons	460	205	0	0	0	NA
Environmental Management							
Investing in managing environmental impacts	Million USD	9.34	6.09	12.77	39.56	0.39	0.59
Treatment and disposal expenses	Million USD	4.08	3.99	6.42	4.85	0.23	0.46
Protection, management and investments	Million USD	5.26	2.37	6.36	34.71	0.16	0.13

Environment	Unit	2013 ⁽¹⁾	2014	2015	2016		
					Thailand	International	
						Australia	Others
Percentage of prevention cost in total environment expense	%	56	37	50	88	41	22
Legal Compliance							
Significant fines, penalties and settlements	Case	0	0	0	0	0	0
	Million USD	0	0	0	0	0	0
Biodiversity and Ecosystem services							
Significant operating sites where biodiversity risks have been assessed	Number of sites	NA	NA	NA	8	1	2
	%	NA	NA	NA	100	100	100
Significant operating sites exposed to significant biodiversity risk	Number of sites	NA	NA	NA	0	0	0
	%	NA	NA	NA	0	0	0

Remarks

- (1) 2013 Environmental performance data includes Thailand assets only.
- (2) Total direct GHG emission (Scope 1) based on equity basis is not included in this report.
- (3) GHG emission from well service venting is not included.
- (4) Methane (CH₄) emission is equivalent to 11,531 and 1,972 tons CH₄ for Thailand and International assets respectively.
- (5) Other relevant indirect GHG emission (Scope 3) is comprised of transportation and air travel.
- (6) Ozone-depleting substances (ODS) include Hydrochlorofluorocarbon (HCFC) only.
- (7) 2013 - 2015 reported spills include production phase of operating assets in Thailand and International assets
- (8) Hydrocarbon discharged within produced water is equal to 0 and 19.85 tons for Thailand and International assets respectively.
- (9) 2016 hazardous and non-hazardous waste generation subtracted by reuse/recycling/recovery are 544 and 126,820 tons.
- (10) Drilling mud and cutting waste is included in Thailand assets only.
- (11) The difference between waste generation and disposal amount is accounted for on-site storage.
- (12) NA (not available)

Safety and Health	Unit	2013	2014	2015	2016		
					Thailand	International	
						Australia	Others
Fatalities							
Total number	Cases	1	0	0	0	0	0
Workforce ⁽¹⁾	Cases	0	0	0	0	0	0
Contractors ⁽²⁾	Cases	1	0	0	0	0	0
Fatal accident rate (FAR) - Workforce	Cases per million hours worked	0.00	0.00	0.00	0.00	0.00	0.00
Fatal accident rate (FAR) - Contractors	Cases per million hours worked	2.55	0.00	0.00	0.00	0.00	0.00
Occupational Health and Safety							
Total recordable incident rate (TRIR) - Workforce	Cases	5	6	9	1	3	1
	Cases per million hours worked	0.59	0.63	1.02	0.13	11.50	0.84

Safety and Health	Unit	2013	2014	2015	2016		
					Thailand	International	
						Australia	Others
Total recordable incident rate (TRIR) - Contractors	Cases	39	46	25	16	1	4
	Cases per million hours worked	1.26	1.50	1.14	1.00	7.40	0.86
Lost time injury frequency (LTIF) - Workforce	Cases	1	0	2	0	0	0
	Cases per million hours worked	0.12	0.00	0.23	0.00	0.00	0.00
Lost time injury frequency (LTIF) - Contractors	Cases	5	9	2	2	0	1
	Cases per million hours worked	0.16	0.29	0.09	0.13	0.00	0.21
Near Miss - Workforce	Cases	67	98	44	21	22	6
Near Miss - Contractors	Cases	98	53	34	14	2	5
Illnesses							
Total recordable occupational illness frequency (TROIF) - Employees	Cases per million hours worked	0.15	0.22	0.03	0.00	2.53	0.00
Absentee rate - Workforce	%	NA	1.13	1.41	1.50	2.16	NA
Absentee rate - Contractors	%	NA	NA	NA	NA	NA	NA
Restricted work case (RWC) - Workforce ⁽⁴⁾	Cases	0	7	0	0	1	0
Restricted work case (RWC) - Contractors ⁽⁴⁾	Cases	2	0	0	0	0	0
Medical treatment case - Workforce ⁽⁴⁾	Cases	0	1	0	0	0	0
Medical treatment case - Contractors ⁽⁴⁾	Cases	2	4	1	0	0	0
Process Safety							
Number of Tier 1 process safety events	Cases	4	3	1	0	0	0
Number of Tier 2 process safety events	Cases	2	7	5	1	0	0
Loss of primary containment (LOPC)							
Loss of primary containment (LOPC)	Number of incidents per million work hours of drilling and production	0.34	0.48	0.21	0.06	0	0

Remarks

- (1) Workforce means employees and supervised workers of PTTEP (PTTEP Services Limited).
- (2) Contractor means an individual or a company carrying out work under the supervision, instructions and SSHE Management System of PTTEP or subsidiaries within the reporting boundary.
- (3) NA (not available)
- (4) The Restricted Workday Case (RWC) and Medical Treatment Case numbers for 2013 are restated to reflect an updated methodology.^(G4-22)

Labor Practices	Unit	2013		2014		2015		2016	
		Male	Female	Male	Female	Male	Female	Male	Female
Workforce									
Total Workforce ⁽¹⁾	Persons	4,316		4,547		4,297		3,794	
	Persons	2,851	1,465	3,058	1,489	2,904	1,393	2,540	1,254

Labor Practices	Unit	2013		2014		2015		2016	
		Male	Female	Male	Female	Male	Female	Male	Female
Staff by region									
Thailand	Persons	2,155	1,252	2,247	1,275	2,270	1,189	2,043	1,071
Australia	Persons	204	57	176	39	154	35	107	30
Oman	Persons	68	6	73	14	72	14	9	1
Myanmar	Persons	246	92	377	98	244	98	272	102
Others	Persons	178	58	185	63	164	57	109	50
Staff by age									
< 30 years	Persons	869	563	924	501	660	351	408	222
30 - 50 years	Persons	1,603	824	1,671	893	1,826	955	1,760	941
> 50 years	Persons	379	78	463	95	418	87	372	91
Staff by employment type									
Permanent ⁽³⁾	Persons	2,251	1,162	2,431	1,216	1,700 ⁽²⁾	862 ⁽²⁾	1,541	795
Temporary ⁽⁴⁾	Persons	600	303	627	273	1,204 ⁽²⁾	531 ⁽²⁾	999	459
Staff by employment Category									
Executives	Persons	30	7	34	8	33	8	26	8
Middle management	Persons	66	23	77	25	77	29	83	23
Senior	Persons	672	213	618	222	619	237	912	276
Employee	Persons	2,084	1,221	2,329	1,234	2,175	1,119	1,519	947
Training and Development									
Average training hours	Hours/person/year	57	65	49	40	39	44	32	20
Employee Satisfaction									
Employee satisfaction	%	49		46		50		53	
Composition of Governance Bodies									
Board of directors	Persons	14	1	14	0	15	0	14	1
Executives	Persons	30	7	34	8	33	8	26	8
Middle management	Persons	66	23	77	25	77	29	83	23
Senior	Persons	672	213	618	222	619	237	912	276
Employee	Persons	2,084	1,221	2,329	1,234	2,175	1,119	1,519	947
New Employee Hire by Age Group									
< 30 years	Persons	291	226	268	137	62	39	27	23
30 - 50 years	Persons	230	104	201	65	85	25	41	15
> 50 years	Persons	42	3	54	7	11	1	11	1
Total	Persons	563	333	523	209	158	65	79	39
New hire rate	% of total employees	13.0	7.7	11.5	4.6	3.7	1.5	2.1	1.0
Turnover by Age Group									
< 30 years	Persons	42	42	66	77	46	43	29	29
30 - 50 years	Persons	57	33	81	50	66	67	98	94
> 50 years	Persons	20	2	42	9	37	7	31	9
Total	Persons	119	77	189	136	149	117	158	132
Turnover rate	% of total employees	2.8	1.8	4.2	3.0	3.5	2.7	4.2	3.5

Labor Practices	Unit	2013		2014		2015		2016	
		Male	Female	Male	Female	Male	Female	Male	Female
Turnover by Type									
Voluntary resignation	Persons	108	76	173	129	139	115	111	124
Dismissal	Persons	0	0	0	0	0	0	30	5
Retirement	Persons	8	1	11	6	7	1	16	3
Death - not related to work	Persons	3	0	5	1	3	1	1	0
Parental Leave									
Employee taken parental leave	Persons	0	27	17	15	61	46	35	39
Employee returned to work after parental leave	%	100	100	100	100	98.36	97.82	100	97.44
Integrity									
Training hours concerning human rights, anti-bribery, and corruption	Hours	420	833	1,694	1,568	675	891	502	339
Gender Diversity and Equal Remuneration									
Ratio basic salary women/men	Ratio	0.87		0.89		0.66 ⁽⁵⁾		0.73 ⁽⁵⁾	
Gender Diversity									
Women in workforce	Persons	1,465		1,489		1,393		1,254	
	%	34		33		32		33	
Women in professional positions	Persons	1,222		1,234		1,119		947	
	%	37		35		34		38	
Women in senior leadership positions	Persons	213		222		237		276	
	%	24		26		28		23	
Women in management positions	Persons	30		33		37		31	
	%	24		23		25		22	

Remarks

- (1) Total workforce is the total number of employees involved in core activities of PTTEP and subsidiaries. This does not include workers and supervised workers performing non-core activities in the Company e.g. maids, gardeners and drivers, etc.
- (2) 2015 data is restated due to redefinition of 'permanent' and 'temporary' employment by employment contract types.^(G4-22)
- (3) Permanent means employment contracts with an indeterminate period made with PTTEP or its subsidiaries excluding PTTEP Services which is manpower agency of PTTEP.
- (4) Temporary means employment contracts with or without a specific employment period made through manpower agencies e.g. PTTEP Services, etc.
- (5) PTTEP started reporting HR performance indicators at global scale in 2015.

Corporate Social Responsibility	Unit	2013	2014	2015	2016
Total Contribution					
Total contribution ⁽¹⁾	Million USD	19.76	44.50	26.46	11.23
Volunteer	Hours	9,083	10,308	6,438	4,806

Remarks

- (1) Total contribution has included corporate philanthropic spending and philanthropic spending at the project level since 2013.



KPMG Phoomchai Audit Ltd.
Empire Tower, 50th-51st Floors
1 South Sathorn Road, Yannawa
Sathorn, Bangkok 10120, Thailand
Tel +66 2677 2000, Fax +66 2677 2222

บริษัท เคพีเอ็มจี ภูมิไชย สอบบัญชี จำกัด
ชั้น 50-51 เอ็มไพร์ทาวเวอร์
1 ถนนสาทรใต้ แขวงยานนาวา
เขตสาทร กรุงเทพฯ 10120
โทร +66 2677 2000 แฟกซ์ +66 2677 2222

Independent Limited Assurance Report

Relating to PTT Exploration and Production Public Company Limited's environmental and occupational health and safety indicators within the Sustainability Report for the calendar year 2016

To the Directors of PTT Exploration and Production Public Company Limited

Our conclusion

Based on the procedures performed, as described below, nothing has come to our attention that would lead us to believe that the Selected Sustainability Information identified below and included in the 2016 Sustainability Report for the year ended 31 December 2016, is not, in all material respects, prepared in accordance with the Global Reporting Initiative ("GRI") G4's Sustainability Reporting Guidelines and GRI G4's Oil and Gas Sector Disclosure ("GRI G4 Guidelines"), the AA1000 AccountAbility Principles Standard (2008) ("AA1000 APS") and management's calculation methodologies.

We, KPMG Phoomchai Audit Ltd, have been engaged by PTT Exploration and Production Public Company Limited ("PTTEP") and are responsible for providing a limited assurance conclusion in respect of the selected sustainability information for the period ended 31 December 2016 to be included in the Sustainability Report ("the Report") as identified below ("the Selected Sustainability Information").

Our assurance engagement is conducted in accordance with the International Standard on Assurance Engagements ISAE 3000 *Assurance Engagements other than Audits or Reviews of Historical Financial Information*, ISAE 3410 *Assurance on Greenhouse Gas Statements* and AA1000 Assurance Standard (2008). These standards require the assurance team to possess the specific knowledge, skills and professional competencies needed to provide assurance on sustainability information, and that they comply with the requirements of the Code of Ethics for Professional Accountants of the International Federation of Accountants to ensure their independence. The firm applies International Standard on Quality Control 1 and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

We have not been engaged to provide an assurance conclusion on any other information disclosed within the Report.

Selected Sustainability Information

Selected Sustainability Information includes the following data for the year ended 31 December 2016 for PTTEP's operations and activities in Thailand and Australia only:

- Energy consumption within organization (G4 – EN3)
- Total water withdrawal by source (G4 – EN8)
- Direct greenhouse gas emissions (scope 1) (G4 – EN15)
- Energy indirect greenhouse gas emissions (scope 2) (G4 – EN16)
- Other indirect greenhouse gas emissions (scope 3) (G4 – EN17)
- Emissions of ozone-depleting substances (ODS) (G4 – EN20)
- Nitrogen Oxide (NOx), Sulphur Oxide (SOx), and other significant air emissions (Methane, Volatile Organic Compounds Emissions) (G4 – EN21)
- Total water discharge by quality and destination (G4 – EN22)
- Total weight of waste by type and disposal method (G4 – EN23)
- Total number and volume of significant spills (G4 – EN24)
- Type of injury and rates of injury, occupational diseases, lost days, and absenteeism, and total number of work-related fatalities by region and by gender (G4 – LA6)
- Volume and disposal of formation or produced water (G4 – OG5)
- Amount of Drilling Waste (Drill mud and cuttings) and Strategies for treatment and disposal (G4 – OG7)
- Number and percentage of significant operating sites in which biodiversity risk has been assessed and monitored (G4 – OG4)
- The description given by PTTEP in the "About this report" section on compliance with the accountability principles set forth in the AA1000 APS standard on inclusivity, materiality and responsiveness in the process adopted to prepare the Report

Director's and management's responsibilities

The directors and management of PTTEP are responsible for the preparation and presentation of the Selected Sustainability Information, specifically ensuring that in all material respects the Selected Sustainability Information is prepared and presented in accordance with the GRI G4 Guidelines, the AA1000 APS standard and management's calculation methodologies. This responsibility also includes the internal controls relevant to the preparation of the Report that is free from material misstatement whether due to fraud or error.



Limited assurance over Selected Sustainability Information

In forming our limited assurance conclusion, in the first paragraph of this report, over the Selected Sustainability Information our procedures consisted of making enquiries and applying analytical and other evidence gathering procedures including:

- Interviews with senior management and relevant staff at corporate and operating sites;
- Inquiries about the design and implementation of the systems and methods used to collect and process the information reported, including the aggregation of source data into the Selected Sustainability Information;
- Inquiries about management practices and procedures related to identifying stakeholders and their expectations, determining material sustainability matters and implementing sustainability policies and guidelines;
- Visits to 2 sites¹, selected on the basis of a risk analysis including the consideration of both quantitative and qualitative criteria;
- Agreeing the Selected Sustainability Information to relevant underlying sources on a sample basis to determine whether all the relevant information has been included in the Selected Sustainability Information and prepared in accordance with the GRI G4 Guidelines and management's calculation methodologies.

The procedures performed in a limited assurance engagement vary in nature and timing from, and are less in extent than for, a reasonable assurance engagement and consequently the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had a reasonable assurance engagement been performed. Accordingly, we do not express a reasonable assurance opinion.

Observations

Further observations and findings, made during the assurance engagement, are:

- **Inclusivity:** PTTEP has demonstrated a commitment to be accountable to its stakeholders. This is evident through the incorporation of stakeholder considerations within strategy, policies and targets. Mechanisms are in place to engage with stakeholders and take account of the outputs of stakeholder engagement throughout the organisation. For future stakeholder engagement, there is an opportunity to further formalise how stakeholders are prioritised based for example on respective influence and dependence.
- **Materiality:** Materiality assessment conducted by PTTEP relies on a structured approach, which is reviewed and updated on an annual basis and endorsed by its top management. Materiality assessment is conducted considering the company's exposure to risk and the level of focus it needs to place in each aspect, as well as the influence each aspect has on stakeholders. An opportunity exists to consider if reserves and exploration considerations should be differentiated from the 'Business performance' material aspect currently included in the materiality matrix.
- **Responsiveness:** PTTEP has in place processes to respond to issues relevant to the business and its stakeholders. Current initiatives such as Environmental and Social Impact Assessments, as well as Biodiversity Action Plans are illustrations of activities undertaken by PTTEP in response to stakeholder needs. A dashboard related to material sustainability aspects is prepared and presented annually to the Board, including objectives, targets, key performance indicators and associated action plans.

Restriction of use of our report

Our report should not be regarded as suitable to be used or relied on by any party wishing to acquire rights against us other than PTTEP, for any purpose or in any other context. Any party other than PTTEP who obtains access to our report or a copy thereof and chooses to rely on our report (or any part thereof) will do so at its own risk. To the fullest extent permitted by law, we accept or assume no responsibility and deny any liability to any party other than PTTEP for our work, for this independent limited assurance report, or for the conclusions we have reached.

KPMG Phoomchai Audit Ltd.

KPMG Phoomchai Audit Ltd.

Bangkok

2 March 2017

¹ S1 Project, PTTEP Australasia Project.

Global Reporting Initiative (GRI)

General Standard Disclosures



General Standard Disclosures		Page Number	Omissions/ Remarks	External Assurance	
Strategy and Analysis	G4-1	6-7	-	-	
	G4-2	24-25	-	-	
Organizational Profile	G4-3	62	https://www.pttep.com/en/Aboutpttep/Pttepgroup/Pttepheadquarters.aspx	-	
	G4-4	14-15	-	-	
	G4-5	62	https://www.pttep.com/en/Aboutpttep/Pttepgroup/Pttepheadquarters.aspx	-	
	G4-6	14	-	-	
	G4-7	62	https://www.pttep.com/en/InvestorRelations/ShareholderInformation/Top10Shareholders.aspx	-	
	G4-8	14-15	-	-	
	G4-9	54, 57, 62	https://www.pttep.com/en/InvestorRelations/FinancialPerformance/FinancialHighlight.aspx https://www.pttep.com/en/Investorrelations/Bondholderinformation/Debtprofile.aspx	-	
	G4-10	62	No significant variation in employment numbers and changes in 2016	-	
	G4-11	45	-	-	
	G4-12	26-27	-	-	
	G4-13	62	No significant changes during the reporting year	-	
	G4-14	24, 35-41	-	-	
	G4-15	62	https://www.pttep.com/en/SustainableDevelopment.aspx , https://www.pttep.com/en/SustainableDevelopment/Environment/Ciimatestrategy.aspx	-	
	G4-16	7	-	-	
	Identified Material Aspects and Boundaries	G4-17	8	-	-
		G4-18	10	-	-
G4-19		11	-	-	
G4-20		11	-	-	
G4-21		11	-	-	
G4-22		54, 59	None	-	
G4-23		8	No significant changes from previous reporting periods in the scopes and aspect boundaries	-	
Stakeholder Engagement	G4-24 ^{OGSS}	8	-	-	
	G4-25	8	-	-	
	G4-26	8	-	-	
	G4-27 ^{OGSS}	10	-	-	
Report Profile	G4-28	8	-	-	
	G4-29	62	Most recent previous report is 2015 PTTEP Sustainability Report.	-	
	G4-30	62	PTTEP publishes Sustainability Report annually.	-	
	G4-31		-	-	
	G4-32	8	-	-	
	G4-33	60-61	PTTEP engaged KPMG to provide limited independent assurance service to PTTEP 2016 Sustainability Report. PTTEP has process to ensure transparent external assurance. For more details of scope of the assurance, refer to Assurance Statement on Pages 60-61	-	
Governance	G4-34	62	https://www.pttep.com/en/Aboutpttep/Publications/download.aspx?Content=1967	-	
	G4-35	62	https://www.pttep.com/en/SustainableDevelopment/Sustainabilityatpttep/SDGovernanceStructure.aspx	-	

General Standard Disclosures		Page Number	Omissions/ Remarks	External Assurance
	G4-36	63	https://www.pttep.com/en/SustainableDevelopment/Sustainabilityatpttep/SDGovernanceStructure.aspx	-
	G4-37	63	Refer to Pages 131-136 of 2016 Annual Report	-
	G4-38	63	Refer to Page 95 of 2016 Annual Report	-
	G4-39	63	Refer to Page 97 of 2016 Annual Report	-
	G4-40	63	Refer to Page 157 of 2016 Annual Report	-
	G4-41	63	Refer to Pages 138, 156, 163 of 2016 Annual Report	-
	G4-42	63	https://www.pttep.com/en/SustainableDevelopment/Sustainabilityatpttep/SDGovernanceStructure.aspx	-
	G4-43	63	Refer to Pages 158-159 of 2016 Annual Report	-
	G4-44	63	Refer to Pages 105-107 of 2016 Annual Report	-
	G4-45	24-25	-	-
	G4-46	24-25	-	-
	G4-47	24-25	-	-
	G4-48	10	-	-
	G4-49	63	Refer to Pages 108-110 of 2016 Annual Report	-
	G4-50	63	Refer to Pages 108-110 of 2016 Annual Report	-
	G4-51	63	Refer to Pages 127-128 of 2016 Annual Report	-
	G4-52	63	Refer to Page 127 of 2016 Annual Report	-
	G4-53	63	Refer to Page 124 of 2016 Annual Report	-
	G4-54	63	Information is confidential.	-
	G4-55	63	Information is confidential.	-
Ethics and Integrity	G4-56	63	https://www.pttep.com/en/SustainableDevelopment/Business/Cgandbusinessethics.aspx	-
	G4-57	63	https://www.pttep.com/en/ContactUs.aspx	-
	G4-58	63	https://whistleblower.pttep.com/en/MainInternetForm.aspx	-

Specific Standard Disclosures

Material Aspects	DMA and Indicators	Page Number	Omissions/ Remarks	External Assurance
ECONOMIC Economic Performance	G4-DMA	12-13	-	-
	G4-EC1 _{OGSS}	54, 59	-	-
	G4-EC2 _{OGSS}	35-37	-	-
	G4-EC3	54	-	-
	G4-EC4	63	PTTEP does not receive financial assistance from government.	-
Indirect Economic Impacts	G4-DMA _{OGSS}	46-51	-	-
	G4-EC7 _{OGSS}	46-51	-	-
	G4-EC8 _{OGSS}	46-51	-	-

Material Aspects	DMA and Indicators	Page Number	Omissions/ Remarks	External Assurance*
ENVIRONMENTAL				
Energy	G4-DMA _{OGSS}	41	-	-
	G4-EN3	54	-	✓
	G4-EN4	64	PTTEP does not report energy consumption outside of the organization publicly at this time.	-
	G4-EN5 _{OGSS}	41, 54	-	-
	G4-EN6	41	-	-
	G4-EN7	64	Not applicable to PTTEP business	-
	G4-OG2	64	Not applicable to PTTEP business	-
	G4-OG3	64	Not applicable to PTTEP business	-
Water	G4-DMA	39	-	-
	G4-EN8 _{OGSS}	39	-	✓
	G4-EN9 _{OGSS}	39	-	-
	G4-EN10	64	No recycled or reused water in 2016	-
Biodiversity	G4-DMA _{OGSS}	40-41	https://www.pttep.com/en/SustainableDevelopment/Environment/Biodiversity.aspx	-
	G4-EN11	40-41	-	-
	G4-EN12	40-41	-	-
	G4-EN13	40-41	-	-
	G4-EN14	40-41	-	-
	G4-OG4	40-41	-	✓
Emissions	G4-DMA	35-38	-	-
	G4-EN15 _{OGSS}	54	-	✓
	G4-EN16 _{OGSS}	54	-	✓
	G4-EN17 _{OGSS}	54	-	✓
	G4-EN18 _{OGSS}	54	-	-
	G4-EN19 _{OGSS}	36-37	-	-
	G4-EN20	55-56	-	✓
	G4-EN21 _{OGSS}	54-55	-	✓
Effluents and Waste	G4-DMA _{OGSS}	38-39	-	-
	G4-EN22	55-56	-	✓
	G4-EN23 _{OGSS}	55-56	-	✓
	G4-EN24 _{OGSS}	55-56	-	✓
	G4-EN25	55-56	-	-
	G4-EN26	40-41	-	-
	G4-OG5	55-56	-	✓
	G4-OG6	54	-	-
	G4-OG7	55-56	-	✓
Supplier Environmental Assessment	G4-DMA	26	-	-
	G4-EN32	26	-	-
	G4-EN33	64	Information is currently unavailable. PTTEP will improve the data collection process.	-
Environmental Grievance Mechanisms	G4-DMA	46-47	-	-
	G4-EN34	46-47	-	-
LABOR PRACTICES AND DECENT WORK				
Employment	G4-DMA _{OGSS}	42-45	-	-
	G4-LA1	58-59	-	-

Material Aspects	DMA and Indicators	Page Number	Omissions/ Remarks	External Assurance*
	G4-LA2	44	https://www.pttep.com/en/SustainableDevelopment/Business/Labourpractices.aspx	-
	G4-LA3	59	-	-
Occupational Health and Safety	G4-DMA _{OGSS}	31-34	-	-
	G4-LA5	45	-	-
	G4-LA6 _{OGSS}	56-57	-	√
	G4-LA7	32	-	-
	G4-LA8	45	-	-
Training and Education	G4-DMA	42-43	-	-
	G4-LA9	58	-	-
	G4-LA10	65	https://www.pttep.com/en/SustainableDevelopment/Business/Labourpractices.aspx	-
	G4-LA11	65	100% of employees received regular performance and career development reviews.	-
Supplier Assessment for Labor Practices	G4-DMA	26	-	-
	G4-LA14	26	-	-
	G4-LA15	65	Information is currently unavailable. PTTEP will improve the data collection process.	-
Labor Practices Grievance Mechanisms	G4-DMA	45	-	-
	G4-LA16	45	-	-
HUMAN RIGHTS				
Non-discrimination	G4-DMA	65	https://www.pttep.com/en/Aboutpttep/Corporategovernance/CgandbusinessEthics.aspx	-
	G4-HR3	45	No cases of discrimination in 2016	-
Supplier Human Rights Assessment	G4-DMA _{OGSS}	26	-	-
	G4-HR10	26	-	-
	G4-HR11	65	Information is currently unavailable. PTTEP will improve the data collection process.	-
Human Rights Grievance Mechanisms	G4-DMA	23	-	-
	G4-HR12	23	-	-
SOCIETY				
Local Communities	G4-DMA _{OGSS}	46-48	-	-
	G4-SO1	46	-	-
	G4-SO2 _{OGSS}	46-47	-	-
	G4-OG10	65	None	-
	G4-OG11	65	No sites have been decommissioned	-
Anti-Corruption	G4-DMA _{OGSS}	23	-	-
	G4-SO3	65	https://www.pttep.com/en/Aboutpttep/Corporategovernance/Cgassessment.aspx	-
	G4-SO4	23	Refer to Pages 138-140, 158-159 of 2016 Annual Report	-
	G4-SO5	65	No corruption cases in 2016	-
Compliance	G4-DMA	56	-	-
	G4-SO8 _{OGSS}	56	-	-
Supplier Assessment for Impacts on Society	G4-DMA	26	-	-
	G4-SO9	26	-	-
	G4-SO10	65	Information is currently unavailable. PTTEP will improve the data collection process.	-
Grievance Mechanisms for Impacts on Society	G4-DMA	46-47	-	-
	G4-SO11	46-47	-	-
Asset Integrity and Process Safety	G4-DMA _{OGSS}	31-32	-	-
	G4-OG13	57	-	-

Remarks

External Assurance is provided for PTTEP operations in Thailand and Australia.

Integrated Reporting (IR)

Capital	Description	Page
Financial Capital	The pool of funds that is available to an organization for use in the production of goods or the provision of services obtained through financing such as debt, equity or grants or generated through operations or investments.	26-28, 42, 48
Manufactured Capital	Manufactured physical objects that are available to an organization for use in the production of goods or the provision of services (e.g. buildings, production, equipment and infrastructure).	14-15, 26-30
Intellectual Capital	Organizational, knowledge-based intangibles including intellectual property (e.g. patents, copyrights, software, rights and licenses) and organizational capital (e.g. tacit knowledge, systems procedures and protocols).	29-30
Human Capital	People's competencies, capabilities and experience, and their motivations to innovate.	42-44
Social and Relationship Capital	The institutions and relationships established within and between each community, group of stakeholders and other networks and an ability to share information) to enhance individual and collective well-being (e.g. shared norms, common values and behaviors; key stakeholder relationships; intangibles associated with the brand and reputation; social license to operate).	46-51
Natural Capital	All renewable and non-renewable environmental stocks that provide goods and services that support the current and future prosperity of an organization (e.g. air, water, land, minerals and forests biodiversity and eco-system health).	35-41, 46-51

United Nations Sustainable Development Goals (UN SDGs)

Goal	Description	Page
3	Ensure healthy lives and promote well-being for all at all ages	31-34, 46-51
4	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	42-45, 46-51
7	Ensure access to affordable, reliable, sustainable and modern energy for all	12-13, 35-37
8	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	12-13, 24-25, 46-51
11	Make cities and human settlements inclusive, safe, resilient and sustainable	46-51
12	Ensure sustainable consumption and production patterns	39, 46-51
13	Take urgent action to combat climate change and its impacts	35-37
14	Conserve and sustainably use the oceans, seas and marine resources for sustainable development	39
15	Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	35-37, 46-51
16	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels	22-23
17	Strengthen the means of implementation and revitalize the global partnership for sustainable development	24-25, 35-37



United Nations Global Compact Communication on Progress (UNGC COP) for the Advanced Level

Criterion	Description	Page
1	The COP describes mainstreaming into corporate functions and business units	10, 24-25
2	The COP describes value chain implementation	23, 26-27, 56-57
3	The COP describes robust commitments, strategies or policies in the area of human rights	23, 26, 45
4	The COP describes effective management systems to integrate the human rights principles	23, 26, 45
5	The COP describes effective monitoring and evaluation mechanisms of human rights integration	23, 26, 45
6	The COP describes robust commitments, strategies or policies in the area of labor	26, 31-34, 42-45, 56-59
7	The COP describes effective management systems to integrate the labor principles	26, 31-34, 42-45, 56-59
8	The COP describes effective monitoring and evaluation mechanisms of labor principles integration	26, 31-34, 42-45, 56-59
9	The COP describes robust commitments, strategies or policies in the area of environmental stewardship	26, 35-41, 46-47, 54-56
10	The COP describes effective management systems to integrate the environmental principles	35-41
11	The COP describes effective monitoring and evaluation mechanisms for environmental stewardship	35-41
12	The COP describes robust commitments, strategies or policies in the area of anti-corruption	23, 26, 31-32, 46-48, 56
13	The COP describes effective management systems to integrate the anti-corruption principle	23, 26, 31-32, 46-48, 56
14	The COP describes effective monitoring and evaluation mechanisms for the integration of anti-corruption	23, 26, 31-32, 46-48, 56
15	The COP describes core business contributions to UN goals and issues	12-13, 23, 26, 31-39, 40-51, 56
16	The COP describes strategic social investments and philanthropy	12-13, 23, 26, 31-39, 40-51, 56
17	The COP describes advocacy and public policy engagement	12-13, 23, 26, 31-39, 40-51, 56
18	The COP describes partnerships and collective action	12-13, 23, 26, 31-39, 40-51, 56
19	The COP describes CEO commitment and leadership	6-7, 24-25
20	The COP describes Board adoption and oversight	10, 24-25
21	The COP describes stakeholder engagement	8

Survey of Readers' Opinions

Your suggestions will be valuable inputs for the improvement of the PTTEP Sustainability Report.

1. Does the report provide you with an understanding of PTTEP sustainability?

- Yes, fully Yes, partially Not at all

2. Please rate your suggestion of the 2016 PTTEP Sustainability Report.

- | | | | | |
|----------------------|-------------------------------|---------------------------------|------------------------------|---------------------------------------|
| Completeness | <input type="checkbox"/> High | <input type="checkbox"/> Medium | <input type="checkbox"/> Low | <input type="checkbox"/> Dissatisfied |
| Topics | <input type="checkbox"/> High | <input type="checkbox"/> Medium | <input type="checkbox"/> Low | <input type="checkbox"/> Dissatisfied |
| Ease to understand | <input type="checkbox"/> High | <input type="checkbox"/> Medium | <input type="checkbox"/> Low | <input type="checkbox"/> Dissatisfied |
| Report design | <input type="checkbox"/> High | <input type="checkbox"/> Medium | <input type="checkbox"/> Low | <input type="checkbox"/> Dissatisfied |
| Overall satisfaction | <input type="checkbox"/> High | <input type="checkbox"/> Medium | <input type="checkbox"/> Low | <input type="checkbox"/> Dissatisfied |

3. Please choose top five of materiality issues which influence PTTEP business operation.

- | | |
|---|--|
| <input type="checkbox"/> Climate Change | <input type="checkbox"/> Water Resource Management |
| <input type="checkbox"/> Spills | <input type="checkbox"/> Risk Management |
| <input type="checkbox"/> Safety and Occupational Health | <input type="checkbox"/> Energy Efficiency |
| <input type="checkbox"/> Petroleum Production | <input type="checkbox"/> Operational Eco-efficiency |
| <input type="checkbox"/> Corporate Governance | <input type="checkbox"/> Supplier Collaboration |
| <input type="checkbox"/> Technology and Innovation | <input type="checkbox"/> Talent Attraction and Retention |
| <input type="checkbox"/> Social Impact and Contribution | <input type="checkbox"/> Labor Rights |
| <input type="checkbox"/> Human Capital Development | <input type="checkbox"/> Biodiversity |

4. Please provide further comments and/or suggestions (if any).

.....
.....

5. Which best describes you as a stakeholder?

- | | | |
|--|--|--|
| <input type="checkbox"/> Shareholder / Investor | <input type="checkbox"/> Government Agency | <input type="checkbox"/> Media |
| <input type="checkbox"/> Supplier | <input type="checkbox"/> Employee | <input type="checkbox"/> Research / Academic Institute |
| <input type="checkbox"/> Student | <input type="checkbox"/> NGO | <input type="checkbox"/> Communities surrounding PTTEP operation areas |
| <input type="checkbox"/> Others (please specify) | | |

PTTEP appreciates your valuable inputs.



2016 SUSTAINABILITY REPORT

บริการธุรกิจตอบรับ

ใบอนุญาตเลขที่ ปน (น) 3225 ปณศ. จตุจักร
ท่าอากาศยานประเทศไทยไม่ต้องนํากตราไปรษณียากร

กรุณาส่ง

บริษัท ปตท.สำรวจและผลิตปิโตรเลียม จำกัด (มหาชน)
ฝ่ายสื่อสารองค์กร
ศูนย์เอนเนอร์ยีคอมเพล็กซ์ อาคารเอ ชั้นที่ 6, 19-36
เลขที่ 555/1 ถนนวิภาวดีรังสิต แขวงจตุจักร
เขตจตุจักร กรุงเทพฯ 10900





**PTT Exploration and Production
Public Company Limited**

PTTEP

Energy Complex Building A, Floors 6, 19-36

555/1 Vibhavadi Rangsit Road, Chatuchak Bangkok 10900, Thailand

Tel: +66 (0) 2537 4000 Fax: +66 (0) 2537 4444

www.pttep.com

www.facebook.com/ptteplc

