



# ENERGY PARTNER OF CHOICE

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SUSTAINABILITY REPORT  
2019

# ENERGY PARTNER OF CHOICE

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## Sustainable Value

For 35 years, our explorer spirit has driven us beyond energy security, for we must also deliver value to society, communities, and the environment. To us, sustainability means that the growth of our business goes hand in hand with all our stakeholders.



# Contents

- 4 Message from the President and Chief Executive Officer
- 6 Over Three Decades on Sustainable Development Path
- 8 From “We” to “World”, to Become a Sustainable Organization and the Pride of Thailand
- 10 Our Sustainable Development
  - 13 Expand and Execute Strategy
  - 20 Greenhouse Gas Reduction Strategy
  - 23 Circular Model for E&P\* Strategy
  - 27 Ocean for Life Strategy
- 32 Towards a Sustainable Organization for a Sustainable World
- 34 Stakeholder Value Creation
- 36 Our Affirmation on Sustainable Values
- 37 Awards and Recognition
- 41 Survey of Readers’ Opinions



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## Partner of Everyone’s Choice

Beyond our commitment and responsibility to green exploration and production, we strive to deliver opportunities and a decent quality of life for society and communities and to cultivate joint environmental stewardship. That way, we will prove our worth as a partner of choice.

\* E&P - Exploration and Production

# Message from the President and Chief Executive Officer



Throughout 35 years, PTTEP has been engaged in oil and gas exploration and production activities to serve social and economic development while protecting and conserving the environment. Although oil and gas are prime sources of energy in today's world, increasing concerns about adverse impacts from their operations are prominent; for example greenhouse gas emissions, resource efficiency, and potential spills to the environment. Other additional issues including global oil prices, growth in renewable energy, emerging technology and technological innovations are also becoming threats to oil and gas activities.

To overcome these challenges, PTTEP aims to deliver growth and create long-term value to all stakeholders while transforming ourself to the challenging environment and drive the company to strong and sustainable growth.

These commitments are very well demonstrated in our vision to become an "Energy Partner of Choice".

We fully recognize that we cannot be viewed simply as a profit-seeking entity. Instead, an important element of our

strategy is to incorporate social and environmental concerns into our business activities to ensure the sustainability of the organization.

Sustainability can be defined under different perspectives. PTTEP's core philosophy of Sustainable Development is based on balancing of the business growth, environmental stewardship and social development. The philosophy is driven by our Sustainable Development framework which is based on the key aspects of High Performance Organization (HPO) to drive efficiency throughout our value chain, Governance, Risk Management and Compliance (GRC) for effective governance in the organization and Stakeholder Value Creation (SVC) as part of our commitment to create long-term value for all stakeholders. Sometimes we refer to this framework as "Be Smart, Be Good, and Be Responsible". Sustainable Development is, therefore, not only our goal, but it is also the way we think and act in pursuit of our vision.

PTTEP performance in 2019 was relatively satisfactory across various aspects, with a number of actions still ongoing. In terms of business, the company has achieved our targets

under the “Expand and Execute” Strategy. In Thailand, PTTEP signed Production Sharing Contract (PSC) for Bongkot and Erawan fields allowing PTTEP to become the largest domestic gas supplier from 2020 awards. Internationally, the company expanded our business in strategic areas through acquisitions, such as, Murphy Oil Corporation in Malaysia and Partex Holding B.V. with the main investment in the Middle East. Furthermore, PTTEP discovered a large natural gas field in Sarawak SK410B project in Malaysia, as well as achieved Final Investment Decision (FID) for operating projects in Mozambique and Algeria. The results of such successes mean the company achieved the highest average sales volume at 350,651 barrels of oil equivalent per day with the proportion of natural gas sales at 71% and expected continued growth in the next 5 years (2020 - 2024). As a result, proved reserves at the end of 2019 were at 1,140 million barrels of oil equivalent and proved reserves to production ratio was at 7.5 years as targeted. Moreover, the company targeted to increase the proportion of natural gas production at 80% of all production to cope with the energy transition which is predicted to have a significant impact to the oil and gas industry.

In addition, in response to the rapid changes through our ENTERPRISE\* Project, PTTEP has continuously focused on the transformation of the organization, work processes, organizational culture as well as the digital transformation to strengthen cost competitiveness, improve work efficiency and to sustain in the rapid changes of the upcoming future.

PTTEP also moved forward to grasp new business opportunities throughout our value chain in the oil and gas business, including investments in the natural gas value chain, such as the Gas-to-Power project in the Republic of the Union of Myanmar and in new business sectors, including robotics and Artificial Intelligence (AI), predictive maintenance and inspection, and renewable energy.

At PTTEP, we work to ensure a zero-accident workplace to achieve our aspiration of Target Zero. We seek to create an open and inclusive safety culture where our employees and contractors are empowered to “Stop Work” any time they believe it is unsafe to continue. Through our commitment to personal and process safety, our safety statistics have significantly decreased and ranked in the top quartile compared to the average performance in the International Association of Oil and Gas Producers (IOGP). In addition, our continuous efforts on the environment have led us to receive awards for climate change and water programs

from CDP, a not-for-profit organization for the global disclosure of environmental impacts.

Apart from the “Expand and Execute” business strategy, PTTEP also highlighted three additional strategies to drive the company towards sustainable growth in all aspects. Those strategies included: “Greenhouse Gas Reduction” in response to global concern of global warming and climate change, “Circular Model for E&P\*\*” to cope with issues related to resource efficiency and waste management, and “Ocean for Life” to respond to global ocean issues on pollution and natural conservation. Our corporate strategies were developed in alignment to our stakeholder expectations and in support of the United Nations Sustainable Development Goals (UN SDGs). Long-term targets (2030) and their significant achievements were highlighted in this report.

With our continuous efforts and commitment to a sustainable future, in 2019, PTTEP was once again selected as a member of the 2019 Dow Jones Sustainability Indices (DJSI) in the DJSI World Oil and Gas Upstream & Integrated Industry for the sixth consecutive year. The company was also ranked the Industry Leader in this category for the second time. The first time was in 2016. Domestically, PTTEP received the 2019 SET Award in Best Sustainability Award from The Stock Exchange of Thailand (SET), and the NACC Integrity Award from the National Anti-Corruption Commission (NACC). This recognition reflects our commitment and determination to sustainable value creation for our stakeholders.

PTTEP adheres to the ten principles of the United Nations Global Compact (UNGC) at Advanced Level principles. Additionally, over the past years, PTTEP has been driving the Thai business sectors towards sustainability through various collaboration platforms, together with other organizations in Thailand, such as, the Global Compact Network Thailand (GCNT), Thai Business Council of Sustainable Development (TBCSD), and Thailand Responsible Business Network (TRBN).

Last but not least, I would like to thank our shareholders, business partners, contractors, suppliers, related government agencies, communities, as well as, our management and employees for their continued support and contribution to our journey towards sustainability.

I believe that together we all are part of the move towards a sustainable future.

\* ENTERPRISE is a project to transform the organization, work processes, and corporate culture.

\*\* E&P - Exploration and Production

# Over Three Decades on Sustainable Development Path

PTTEP first started as the petroleum exploration and production arm of the Petroleum Authority of Thailand (PTT), with the mission to ensure Thailand's energy sustainability. It remained so until PTTEP was established as PTT Exploration and Production Company on June 20, 1985.



1985

PTTEP Establishment

PTTEP has transferred technology from world-class Exploration and Production (E&P) companies. We continued to gather experience, knowledge, and expertise until the day we ventured out of the country in 1989 to commence operations in the Republic of the Union of Myanmar. Currently, we have operated over 40 projects in nearly all continents.



2015

UNGC  
Advanced Level



2019

Member of the 2018  
Dow Jones  
Sustainability Indices  
(DJSI) in the World  
Oil and Gas Upstream  
& Integrated Industry  
for the sixth consecutive  
year and the second  
time as Industry Leader

From the very beginning, PTTEP, a Thai E&P\* company, has executed every operational activities in line with internationally accepted standards. Also, PTTEP has taken social and environmental aspects into our consideration while pursuing our business goals.

\* E&P - Exploration and Production

Looking back on our first days of operation, PTTEP developed the idea of sustainability from day one. Since establishment in 1985, we aimed to be a “Green Organization” with emphasis on environmental management. Later, we have applied the United Nations’ sustainable development principles that cover the areas of economic, social, and environment as well as several other international sustainability assessment criteria, including the Dow Jones Sustainability Indices (DJSI), to formulate the organization’s sustainability management framework.

In 2011, PTTEP became an Active Participant of the United Nations Global Compact (UNGC) which reflected our commitment to adhere to the UNGC’s ten principles. The aim of the initiative was to gain cooperation from all parties in the improvement of human rights, labour, environment, and anti-corruption practices. The company has been at Advanced Level

since 2015, indicating our compliance to UNGC’s most-stringent criteria.

Over the years, PTTEP has been committed to transparent operations with equitable and fair treatment to all stakeholders, good governance, business ethics and adherence to the UN’s Universal Declaration of Human Rights. PTTEP has also regularly raised employee awareness on compliance through our PTTEP good corporate governance and business ethics.

For over three decades, we have been proud of our commitment to energy security and sustainability. We are aware of the importance of all stakeholders and the responsibility to improve the well-being of communities and society and environmental conservation. Therefore, PTTEP gives importance to the formulation of a sustainability framework and strategies that will support business growth and create long-term values for all stakeholders.



# From “We” to “World”, to Become a Sustainable Organization and the Pride of Thailand

In 2018, PTTEP introduced a new vision to become the “Energy Partner of Choice” and conducted a review on our Sustainable Development framework in accordance with the new vision. The framework comprises of three main components namely: High Performance Organization (HPO) or “Be Smart”, Governance, Risk Management and Compliance (GRC) or “Be Good”, and Stakeholder Value Creation (SVC) or “Be Responsible”. The balance of these three components will support PTTEP’s journey towards sustainability. The framework corresponds

with our “EP SPIRIT” corporate values; Explorer, Passion, Synergy, Performance Excellence, Innovation, Responsibility for Society, Integrity and Ethics, and Trust and Respect.

Operating under the Sustainable Development framework, PTTEP is confident that this strong foundation as well as conscious consideration of all stakeholders’ interests will enable us to maintain energy security, deliver value, and foster sustainability for the wider world.







From “We” to “World”



**HPO**  
High Performance  
Organization

- Put in place international standard work processes and continuous improvement in work efficiency
- Constantly inspire the development of innovation and technology
- Emphasize human resources development
- Focus on safety, security, occupational health, and environmental management

**GRC**  
Governance,  
Risk Management  
and Compliance

- Be committed to proper, transparent, and fair business operations
- Strictly comply with laws and regulations
- Adhere to Good Corporate Governance and Business Ethics principles and appropriate risk management

**SVC**  
Stakeholder  
Value Creation

- Be conscious of all stakeholders' expectations
- Create long-term sustainable value in response to stakeholders' expectations

Under our Sustainable Development framework, PTTEP has developed clear and concrete strategies to support our journey towards sustainability.

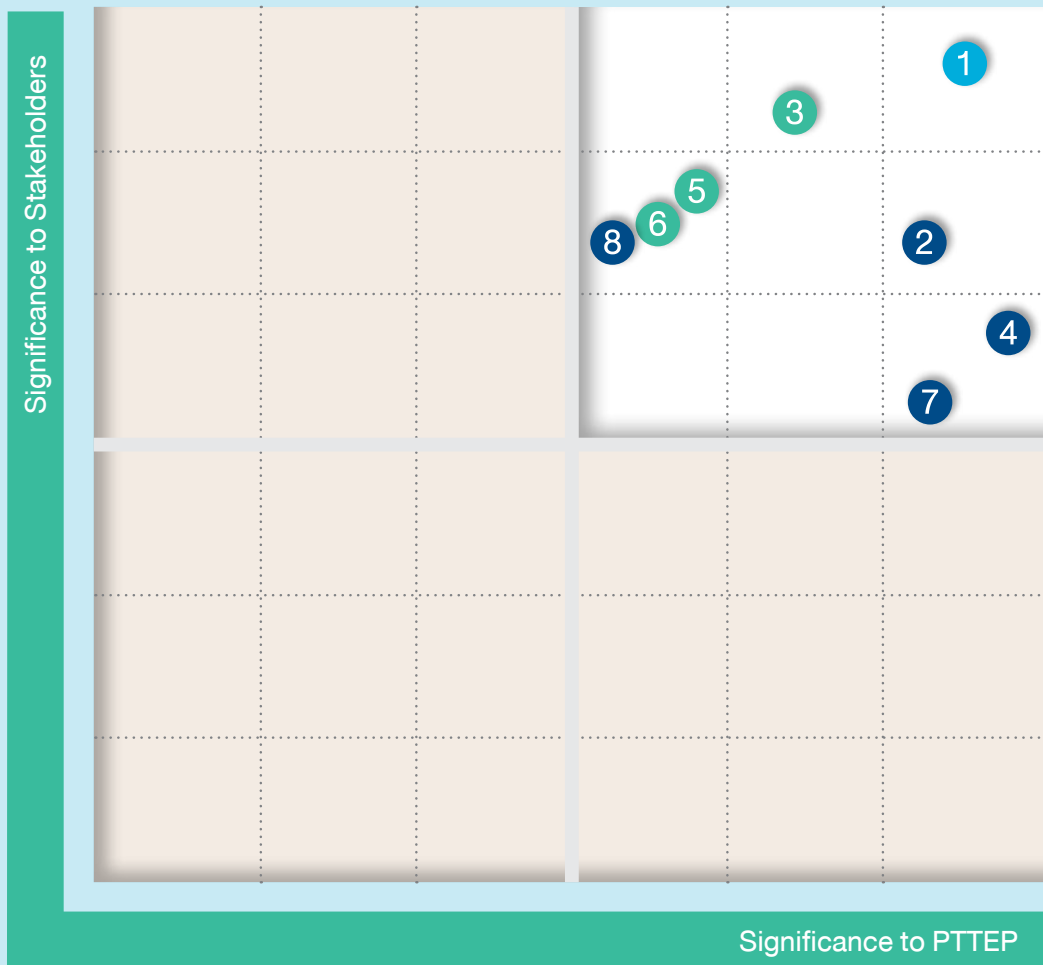
# Our Sustainable Development

In 2019, PTTEP developed the sustainability strategy following the Sustainable Development framework and strived to respect all stakeholders, namely government agencies, shareholders, financial institutions, joint venture partners, suppliers and customers, business partners, society and communities, as well as employees and executives. We are open to their opinions, expectations, and perspectives that concern material issues to identify opportunities and risks that must be addressed and prepared for future challenges.

The stakeholders' perspectives and views were then prioritized and linked to issues that support the company objectives. The results of the materiality assessment are as follows:



## The Results of the Materiality Assessment in 2019



**HPO**  
High Performance Organization

- 2 Increasing Petroleum Reserves
- 4 Human Resource Preparation
- 7 Technology and Innovation
- 8 Occupational Health and Safety

**GRC**  
Governance, Risk Management and Compliance

- 1 Governance, Risk Management and Compliance

**SVC**  
Stakeholder Value Creation

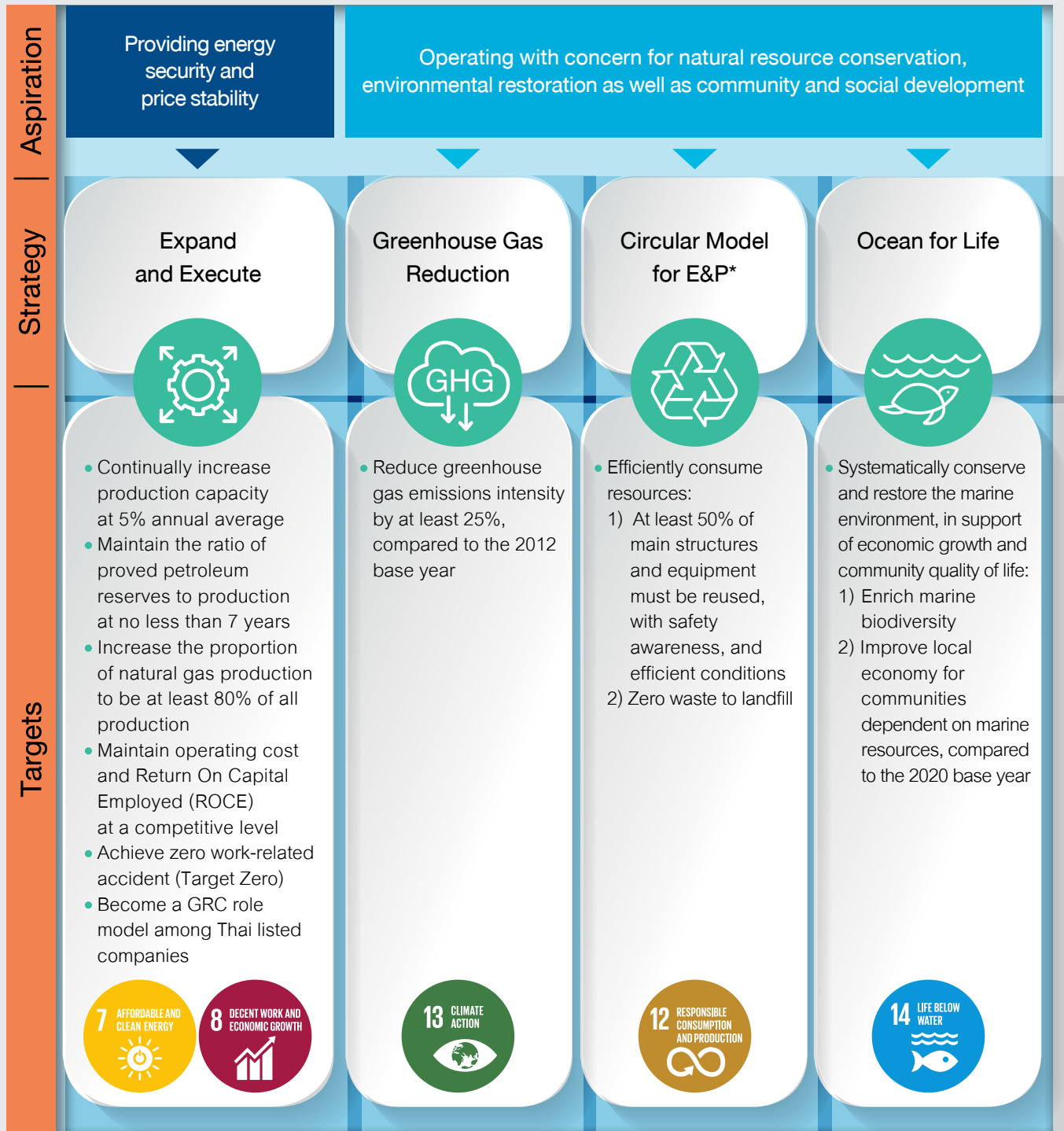
- 3 Lower Carbon Future
- 5 Contribution to Communities and Society
- 6 Environmental Management

### Shared Expectations of PTTEP and Stakeholders from the 2019 Assessment

“PTTEP shall maintain competitiveness and good corporate governance in ensuring national energy security amid energy transition within the context of limited natural resources. PTTEP should also take a leading role in the conservation and restoration of the marine environment which is presently in a state of degradation and becoming a global concern.”

## Sustainability Strategy and Long-Term Targets (2030)

PTTEP prioritized the material issues and formulated sustainability strategy and corporate long-term targets (2030) in four dimensions, which also supported the United Nations Sustainable Development Goals (UN SDGs)



In addition to the corporate-level sustainability strategy and long-term targets, PTTEP recognizes the importance of social development projects in operating areas. We commit to continuing the implementation of social development projects that appropriately meet the needs of the stakeholders in each location in four main areas: basic needs, education, environment, and culture. Our projects include the Crab Hatchery Learning Center project, the Mobile Health Check program in the Republic of the Union of Myanmar, SIOLA Pre-school Development project in the Republic of Indonesia, Waste to Energy project in Thailand, and etc. In 2019, PTTEP implemented over 140 social development projects, covering all operating areas.

\* E&P - Exploration and Production









## Expand and Execute Strategy



In strengthening national energy security and price stability to correspond to current domestic and global energy contexts, PTTEP focuses on a proactive strategy to enhance the organization's competency in order to prepare for future challenges including the increasing role of alternative energy sources and disruptions from other technology.

**Targets**

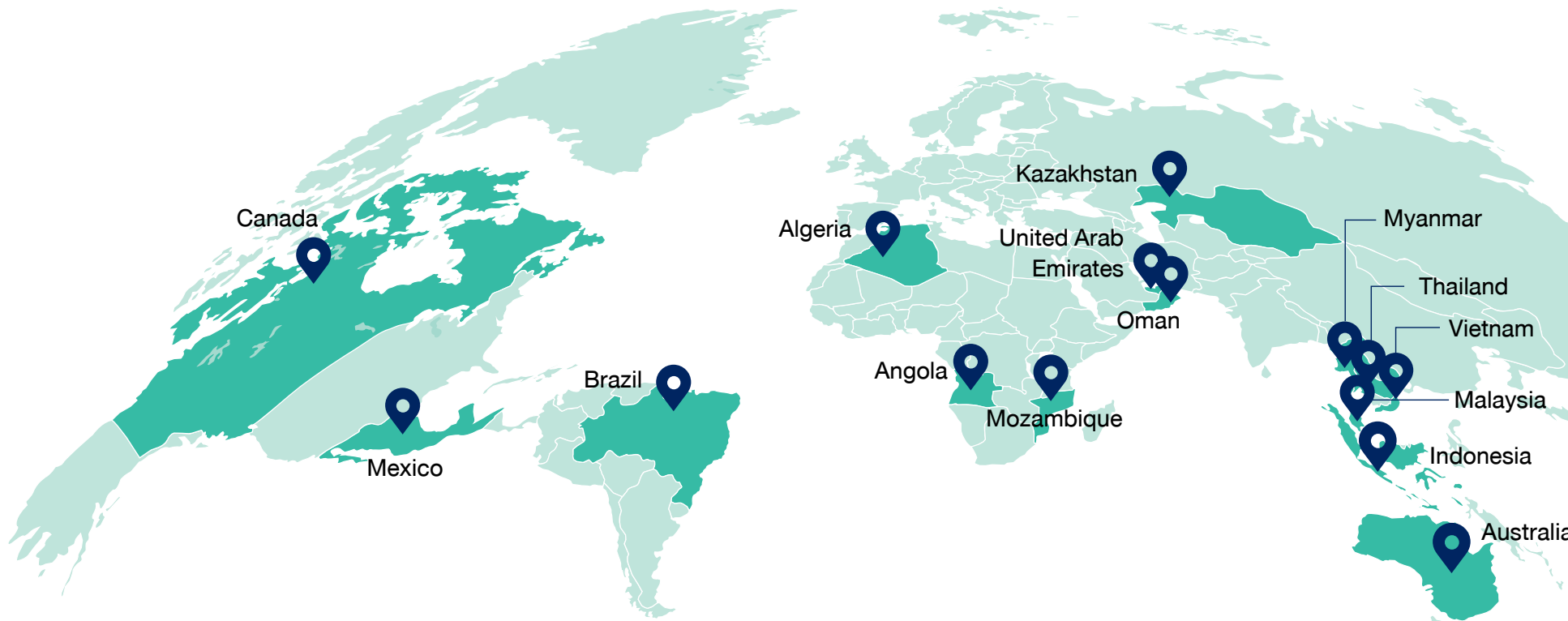
-  Continually increase production capacity at 5% of annual average
-  Maintain the ratio of proved petroleum reserves to production at no less than 7 years
-  Increase the proportion of natural gas production to be at least 80% of all production
-  Maintain operating cost and Return on Capital Employed (ROCE) at a competitive level
-  Achieve zero work-related accident (Target Zero)
-  Become a GRC role model among Thai listed companies

Proactive strategy focuses on 2 elements:



## Business Overview

PTTEP's core business is petroleum exploration and production, with operations and investments in Thailand and overseas. As of December 31, 2019, PTTEP had 47 petroleum exploration and production projects in 15 countries.



### Myanmar

- **Zawtika Project**  
Participation Interest: 80%  
Operator: PTTEP
- **Yadana Project**  
Participation Interest: 25.5%  
Operator: Total
- **Yetagun Project**  
Participation Interest: 19.31784%  
Operator: Petronas
- **Myanmar M3 Project**  
Participation Interest: 80%  
Operator: PTTEP
- **Myanmar M11 Project<sup>4</sup>**  
Participation Interest: 100%  
Operator: PTTEP
- **Myanmar MD-7 Project**  
Participation Interest: 50%  
Operator: PTTEP
- **Myanmar MOGE 3 Project**  
Participation Interest: 77.5%<sup>5</sup>  
Operator: PTTEP

### Thailand

- **Bongkot Project**  
Participation Interest: 66.6667%  
Operator: PTTEP
- **S1 Project**  
Participation Interest: 100%  
Operator: PTTEP
- **PTTEP 1 Project**  
Participation Interest: 100%  
Operator: PTTEP
- **B6/27 Project**  
Participation Interest: 100%  
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%<sup>9</sup>  
Operator: PTTEP
- **B8/32 & 9A Project**  
Participation Interest: 25.001%  
Operator: Chevron
- **G4/48 Project**  
Participation Interest: 5%  
Operator: Chevron
- **G1/61 Project**  
Participation Interest: 60%<sup>10</sup>  
Operator: PTTEP
- **G2/61 Project**  
Participation Interest: 100%<sup>10</sup>  
Operator: PTTEP

<b>Canada</b> <ul style="list-style-type: none"> <li>• <b>Mariana Oil Sands Project</b> Participation Interest: 100% Operator: PTTEP</li> </ul>	<b>Mozambique</b> <ul style="list-style-type: none"> <li>• <b>Mozambique Area 1 Project</b> Participation Interest: 8.5% Operator: Total<sup>1</sup></li> </ul>	<b>Kazakhstan</b> <ul style="list-style-type: none"> <li>• <b>Dunga Project<sup>2</sup></b> Participation Interest: 20% Operator: Total</li> </ul>	<b>Angola</b> <ul style="list-style-type: none"> <li>• <b>Block 17/06 Project<sup>2</sup></b> Participation Interest: 2.5% Operator: Total</li> </ul>
<b>Mexico</b> <ul style="list-style-type: none"> <li>• <b>Mexico Block 12 (2.4) Project</b> Participation Interest: 20% Operator: PC Carigali Mexico</li> <li>• <b>Mexico Block 29 (2.4) Project</b> Participation Interest: 16.67% Operator: Repsol Exploración México</li> </ul>	<b>Brazil</b> <ul style="list-style-type: none"> <li>• <b>Potiguar Project<sup>2</sup></b> Participation Interest: 50% Operator: PTTEP</li> <li>• <b>Barreirinhas AP1 Project</b> Participation Interest: 25% Operator: Shell Brasil</li> <li>• <b>Brazil BM-ES-23 Project</b> Participation Interest: 20% Operator: Petrobras</li> </ul>	<b>Oman</b> <ul style="list-style-type: none"> <li>• <b>PDO (Block 6) Project<sup>2</sup></b> Participation Interest: 2% Operator: Petroleum Development Oman</li> <li>• <b>Mukhaizna (Block 53) Project<sup>2</sup></b> Participation Interest: 1% Operator: Occidental Petroleum</li> </ul>	<b>United Arab Emirates</b> <ul style="list-style-type: none"> <li>• <b>Abu Dhabi Offshore 1 Project<sup>3</sup></b> Participation Interest: 30% Operator: Eni Abu Dhabi B.V.</li> <li>• <b>Abu Dhabi Offshore 2 Project<sup>3</sup></b> Participation Interest: 30% Operator: Eni Abu Dhabi B.V.</li> </ul>

<b>Algeria</b> <ul style="list-style-type: none"> <li>• <b>Algeria 433a &amp; 416b Project</b> Participation Interest: 35% Operator: GBRB</li> <li>• <b>Algeria Hassi Bir Rekaiz Project</b> Participation Interest: 24.5% Operator: PTTEP</li> </ul>	<b>Vietnam</b> <ul style="list-style-type: none"> <li>• <b>Vietnam 9-2 Project</b> Participation Interest: 25% Operator: HV JOC</li> <li>• <b>Vietnam 16-1 Project</b> Participation Interest: 28.5% Operator: HV JOC</li> <li>• <b>Vietnam B &amp; 48/95 Project</b> Participation Interest: 8.5% Operator: Petrovietnam</li> <li>• <b>Vietnam 52/97 Project</b> Participation Interest: 7% Operator: Petrovietnam</li> </ul>	<b>Malaysia</b> <ul style="list-style-type: none"> <li>• <b>Malaysia Project<sup>6</sup></b> Participation Interest: 6.4 - 80%<sup>7</sup> Operator: PTTEP<sup>7</sup></li> </ul>	<b>Indonesia</b> <ul style="list-style-type: none"> <li>• <b>Natuna Sea A Project</b> Participation Interest: 11.5% Operator: Premier Oil</li> </ul>
<b>Australia</b> <ul style="list-style-type: none"> <li>• <b>PTTEP Australasia Project</b> Participation Interest: 90 - 100%<sup>8</sup> Operator: PTTEP</li> </ul>	<b>Overlapping Area</b> <ul style="list-style-type: none"> <li>• <b>MTJDA Project</b> Participation Interest: 50% Operator: CPOC</li> <li>• <b>G9/43 Project</b> Participation Interest: 100% Operator: PTTEP</li> </ul>		

- Phase of Exploration
- Phase of Development
- Phase of Production
- Phase of Exploration/ Development/ Production

1 On September 30, 2019, the acquisition transaction between Anardarko Petroleum Corporation and Occidental Petroleum Corporation was completed, together with the acquisition of African assets between Occidental Petroleum Corporation and Total. Total has officially become the operator of Mozambique Area 1 Project.  
 2 On June 17, 2019, PTTEP signed the Share Purchase Agreement to acquire a 100% stake in Partex Holding B.V. from Calouste Gulbenkian Foundation. The conditions to closing prescribed in the agreement were completed in November 2019.  
 3 PTTEP was selected as the successful bidders for the exploration and production rights of two offshore blocks in United Arab Emirates, named Offshore 1 and Offshore 2 and signed the Concession Agreement with Abu Dhabi National Oil Company on January 12, 2019.

4 On September 26, 2019, PTTEP submitted a request to terminate and return the exploration block of Myanmar M11 Project after fulfillment of the requirements of the Production Sharing Contract. The termination will be effective after receiving the official approval from the Government of the Republic of the Union of Myanmar.  
 5 On February 28, 2019, PTTEP received the approval from the Government of the Republic of the Union of Myanmar to receive the transfer of the participating interest in MOGE 3 Project from other partners. As a result, PTTEP's participating interests increased from 75% to 77.5% and PTTEP is the operator of the project.  
 6 On March 21, 2019, PTTEP signed the Share Sale and Purchase Agreement to acquire 100% of Murphy Oil Corporation's business in Malaysia, the conditions precedent to closing prescribed in the agreement were completed in July 2019. Subsequently, PTTEP has grouped and named investments of all projects in Malaysia under "Malaysia Project".

7 Malaysia Project holds many petroleum blocks where PTTEP as Operator has various participation interest from 42 - 80%, except one area named Gumusut-Kakap (GK) in Sabah K Block where PTTEP is joint venture partner with participation interest of 6.4%, and Shell is the Operator.  
 8 PTTEP Australasia Project holds many petroleum blocks which have varying participation interests ranging from 90 - 100%.  
 9 PTTEP holds directly and indirectly 80.48% participating interest in Sinphuhorm Project after the acquisition of 33.8% and 39% stakes in APICO from Tatex and Coastal Energy in 2019, respectively. APICO has 35% participating interest in Sinphuhorm Project.  
 10 PTTEP was awarded the rights of petroleum exploration and production for Block G1/61 and G2/61 in December 2018 and signed the Production Sharing Contracts on February 25, 2019.

## Business Expansion in 2019

In 2019, PTTEP expanded our business operations through various projects. The signing of production sharing contracts for Bongkot and Erawan fields, the acquisition of Murphy Oil Corporation's assets in Malaysia, the securing of the petroleum exploration and production rights for 2 blocks off Peninsular Malaysia, the partnership with Eni Company Limited in winning the bid for exploration blocks in the United Arab Emirates, 100% takeover of Partex Holding B.V. which has a business stronghold in the Middle East, and the purchase of APICO LLC's shares in support of Sinphuhorm Project development to serve electricity generation in the Northeast of Thailand.

For exploration, PTTEP discovered a large volume of gas in the Sarawak SK410B project in Malaysia, which offers an opportunity for petroleum production and an increase in our petroleum reserves. Additionally, PTTEP implemented the operation transition plan for Bongkot and Erawan projects as well as other newly acquired projects with an intention to ensure smooth transfer of operations and maintain production volume as planned.



With a proactive strategy in 2019, PTTEP succeeded in achieving both Return On Capital Employed (ROCE) at 11%, which was higher than the industry average and the cost per unit of energy production, which was kept at a competitive level compared to that of other petroleum exploration and production companies in Asia. Meanwhile, the Proved Reserved to Production Ratio (R/P) was at 7.5 years, which was higher than the 7-year target. However, the proportion of natural gas production accounted for 73% of all production which was lower than a long-term company target of 80%.

Ensuring such successes requires competency and readiness of human resources, effective management in all areas as well as the development and application of technology and innovation in enhancing operational efficiency. Good corporate governance, risk management, and strict compliance with laws and regulations are the key foundation to ensure the efficient, transparent, and accountable execution. In 2019, the performance in these aspects are as follows:

## Factors to Success



### Enhancing Employee Competency

- Continuous improvement of executives' and employees' competency through various development programs, raising average competency by 4.15%, above the 3% target.
- Improved executives' and employees' competency in digital and new ways of working in preparation for business expansion and digital transition through various ENTERPRISE\* projects, such as Talent Game, iLearn and Digital Academy.
- Implemented 360 degree evaluation assessment for comprehensive reflection of employees' working behaviors.
- The launch of WeConnect application to facilitate human resource management services.

\* ENTERPRISE is a project to transform the organization, work processes, and corporate culture.



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“Having served PTTEP for more than ten years, I am proud to be a part of the organization which plays a vital role in energy exploration, a key to drive the country forward. Throughout the years, PTTEP has continually emphasized human resource development, encouraging employees to join training programs and embracing new ideas so that we can improve our work”

.....

**Ms. Daranee Kijkannuntasri**  
 Manager,  
 Financial Consolidation Section



.....

“I started my career at PTTEP’s office in Myanmar. I participated in the Individual Development Program (IDP) which is an excellent training program as it allows employee to have experience in other fields of work like engineering and human resources. I had the opportunity to work in the HR division and learned about recruitment, remuneration, and competency management. I am currently working in employee relations division. For two years and seven months, I have learned many things I never dreamt of if I had worked for other companies in my country. I am confident that the knowledge gained from the IDP program will support my career once I return to my country.”

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**Mr. Brang Lawt Aung**  
 An employee in the Republic of the Union of Myanmar who participated in Individual Development Program (IDP) Human Resources Division

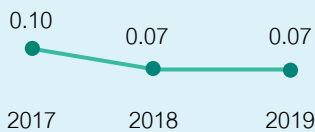




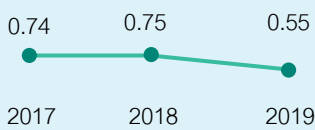
## Occupational Health and Safety

PTTEP promoted a Safety, Security, Occupational Health and Environment (SSHE) culture, as well as continuously improved SSHE management system to ensure the highest level of safety for all employees and contractors. In 2019, safety statistics improved and was in line with the International Association of Oil and Gas Producers (IOGP) average.

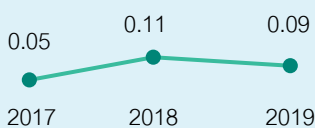
- Lost Time Injury Frequency (LTIF): 0.07 cases per million hours worked



- Total Recordable Injury Rate (TRIR): 0.55 cases per million hours worked



- Loss of Primary Containment Rate (LOPCR): 0.09 cases per million hours worked



.....

“I have full confidence in safety when working with PTTEP. I have exercised PTTEP executives’ policy on stop work authority that gives employees and contractors “authority and responsibility” to stop work when facing unsafe acts or work conditions that might lead to accidents. The “4 Stops” campaign promotes: 1. Stop yourself, 2. Stop your friend, 3. Stop using, and 4. Stop doing - when it is unsafe. I am exercising this in my work and everyday life.”

.....

### Mr. Kritsanarat Wimaro

Scaffold Installation Supervisor,  
CES Engineering and  
Maintenance Services Co., Ltd.



.....

“Creating a safe work environment is one of PTTEP’s most important arrangement for employees and contractors, working for the company. Promoting the use of stop work authority when it appears unsafe is a proactive measure in dealing with the risks before they cause problems or lead to accidents. It helps create a culture of safety at work.”

.....

### Mr. Satawat Chaiyasit

API Standard Inspector,  
Thai NDT PCL.



### Supply Chain Management and Sustainable Development of Suppliers

- Increased proportion of green procurement to 11% of total procurement value
- Supported local suppliers that developed products and services to meet PTTEP’s standards and requirements
- Put in place vendor and supplier management measures and assessment to ensure their compliance with requirements and international standards
- Ensured transparent and fair procurement process by increasing the proportion of suppliers selected through the bidding process to 83% of procurement spending in 2019
- Managed inventory using a centralized database to identify stock items. Used items in good condition and reusable are returned to the central storage to reduce purchase volumes, procurement processes, and time
- Increased vessels’ cargo deck utilization to 88% on average to ensure the efficient consumption of marine gas oil




### Financial Management

- Applied Blockchain technology for international payment transfers to reduce errors, costs, and processing time, and importantly raise transparency and security
- Applied virtual account to achieve higher automation in the work process, thus reducing work time and human errors
- Revised accounting, financial and tax policies to align with the organization’s expansion and international standards
- Regularly communicated with investors to ensure better understanding




### Governance, Risk Management and Compliance (GRC)

- Revised workplan to align with the result from GRC Maturity Level assessment and communicated to related parties
- Revised GRC processes related to M&A and new business establishment to support PTTEP’s business direction
- Improved GRC reporting and revised the reporting topics to cover important issues, such as IT security





## Greenhouse Gas Reduction Strategy

Global warming and climate change have been the key and urgent issues at both national and global levels, with their significant implications on economic, social, and environmental aspects. PTTEP is committed to operating responsibly to mitigate possible impacts under a target to reduce greenhouse gas emissions intensity by at least 25% by 2030, from the 2012 base year.

In 2019, PTTEP maintained our emphasis on improving the production process and initiating new technology development projects to help reduce greenhouse gas emissions. As a testament of success in the past years, the emissions intensity decreased by 14% compared to the 2012 base year with the reduction of greenhouse gas 256,498 tonnes of CO<sub>2</sub> equivalent. The success was attributable to the following projects:



2030 Target



Reduce greenhouse gas emissions intensity by at least 25% compared to the 2012 base year



## Flare Gas Recovery and Utilization

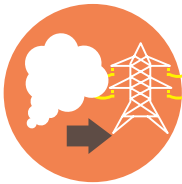
In 2019  
Greenhouse Gas Emissions  
reduced by  
**194,124**  
tonnes of CO<sub>2</sub> equivalent

2019 projects



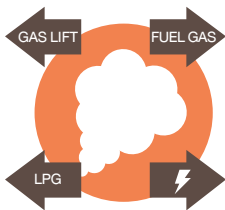
- Recovered excess gas from condensate to production process by installing Flare Gas Recovery Unit (FGRU) at Greater Bongkot South (GBS) project.

Greenhouse Gas Emissions  
reduced by  
**117,095**  
tonnes of CO<sub>2</sub> equivalent



- Sold flare gas at the Sao Thian-A production station at S1 project to a local power producer who supplies power to communities.

Greenhouse Gas Emissions  
reduced by  
**37,597**  
tonnes of CO<sub>2</sub> equivalent



- Recovered gas from outstations and sent it to the main pipeline at S1 project's Nong Toom-A production station for the transfer to the flow station. This process reduced gas combustion at outstations and the gas was recycled as gas lift and Liquefied Petroleum Gas (LPG) which was sold to PTT, and other small buyers.

Greenhouse Gas Emissions  
reduced by  
**23,645**  
tonnes of CO<sub>2</sub> equivalent

- Applied more-efficient membranes and reduced CO<sub>2</sub> emissions: In 2019, PTTEP switched to use new membranes for flare gas separation process at Arthit and Greater Bongkot South fields in the Gulf of Thailand. The membranes increased the efficiency of CO<sub>2</sub> separation from natural gas.

CO<sub>2</sub> Emissions  
reduced by  
**12,578**  
tonnes of CO<sub>2</sub> equivalent

- Installed additional gas ejector at the flow station of S1 project, an onshore petroleum production field, to recover flare gas.

Greenhouse Gas Emissions  
reduced by  
**3,210**  
tonnes of CO<sub>2</sub> equivalent

## Energy Efficiency

In 2019  
Greenhouse Gas Emissions  
reduced by  
**62,374**  
tonnes of CO<sub>2</sub> equivalent

2019 projects

- Reduced the use of cooling system's water pump to improve efficiency.

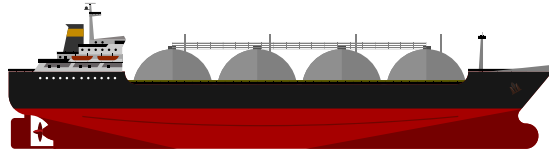
Greenhouse Gas Emissions  
reduced by  
**5,913**  
tonnes of CO<sub>2</sub> equivalent

- Use waste heat from exhaust gas to generate steam.

Greenhouse Gas Emissions  
reduced by  
**10,988**  
tonnes of CO<sub>2</sub> equivalent



- Improved marine transportation efficiency to reduce logistics costs and greenhouse gas emissions through 2 main approaches:



- Maintained efficiency and reduced logistics operating cost by, for example, maximizing vessels' cargo deck space utilization to control marine gas oil consumption.

In 2019, PTTEP's cargo space utilization rate was **88%**  
.....  
Greenhouse Gas Emissions reduced by **39,104** tonnes of CO<sub>2</sub> equivalent

- Proceeded with Smart Marine Model Project in the Republic of the Union of Myanmar, through the Centralized Vessel Utilization Management system.

Fuel consumption was reduced by **2.07** million liters  
.....  
Greenhouse Gas Emissions reduced by **6,368** tonnes of CO<sub>2</sub> equivalent

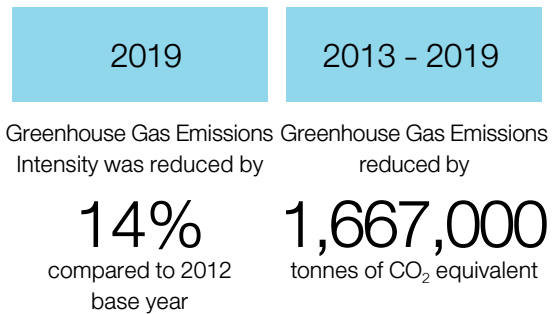
## Methane Leakage



Methane is a highly potent greenhouse gas that contributes to global warming more than CO<sub>2</sub>. Therefore, the company focuses on Methane gas detection and maintenance of where the leaks are found, which helps reduce greenhouse gas emissions.

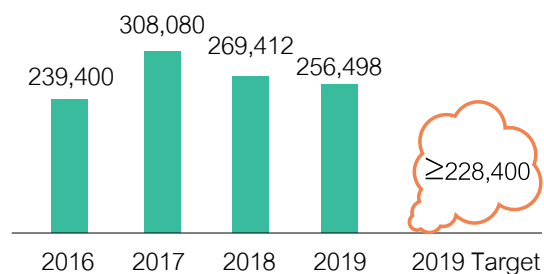
To achieve greenhouse gas reduction goal, PTTEP has emphasized research and development of Carbon Capture Utilization and Storage (CCUS) technology, in parallel with greenhouse gas reduction activities.

While greenhouse gas emissions from operations was continuously reduced, PTTEP extended our focus to benefit the community and the environment. Flare Gas Utilization for Community Agricultural Product and Environment project was launched in cooperation with the Department of Mineral Fuels, Ministry of Energy and Nong Toom-A Community in Kong Krailat District, Sukhothai Province where S1 project is located. Under this project, excess associated gas from the crude oil production process at Nong Toom-A Production Station, 1 km away from the community, was sold to Nong Toom Banana Processing Cooperative at a price lower than LPG market price. It also reduced greenhouse gas emissions by more than 5,000 tonnes of CO<sub>2</sub> equivalent per year. In addition, in 2019, PTTEP conducted Phase 1 carbon storages study on a reforestation project started in 2013. It covered 52,500 rais of the forest and indicated that the forest stored 1.4 tonnes of CO<sub>2</sub> per rai, or a total of 73,500 tonnes per year.



### Reduction Volume of Greenhouse Gas Emissions from Production Processes

(tonnes of CO<sub>2</sub> equivalent)





## Circular Model for E&P\* Strategy

PTTEP realizes the importance of natural resources and accordingly emphasizes strategy that maximizes natural resources and reduces waste. Work processes were redesigned and resources were reused and recycled. The target is to reuse at least 50% of main structures and equipment which are retained at appropriate, safe, and efficient conditions by 2030. PTTEP also aims for zero waste to landfill, so as to minimize environmental impacts from waste handling before it goes to landfill.

PTTEP also promotes efficient and eco-friendly use of resources and energy at head office in Bangkok and upcountry offices. In 2017, PTTEP head office was first presented the Green Office Award: Excellent Level (G-Gold) from the Department of Environmental Quality Promotion. Since then, PTTEP has received this award for our other offices: Petroleum Development Support Base in Songkhla Province in 2018 and Petroleum Development Support Base in Ranong Province in 2019. One of the activities under this project concerned the reduced use of resources. The provision of single-use plastic bottled water at all conference rooms is banned, helping instill awareness in environmental conservation among employees.

 **2030 Targets**



At least 50% of main structures and equipment must be reused with appropriate, safe and efficient conditions

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Zero waste to landfill, with the following sub-targets:

	2020 Hazardous Waste to Landfill <b>= 0</b>
	2025 Industrial Waste to Landfill <b>= 0</b>
	2030 Total Waste to Landfill <b>= 0</b>



\* E&P - Exploration and Production

## Highlight Projects

### Study on Drill Cuttings as Alternative Material for Roadworks

PTTEP systematically manages production waste in accordance with international standards and circular economy concept. We have conducted research on methods and technologies that will generate value and maximize the efficiency of the waste disposal process. One interesting project is a study on the use of rocks and soils generated from our drilling activities (drill cuttings) as an alternative material for road construction and maintenance. This material was previously regarded as waste and disposed by way of high-temperature incineration in cement plants. PTTEP collaborated with the Department of Rural Roads, Ministry of Transport and Ministry of Energy's Department of Mineral Fuels to conduct a feasibility study on using drill cuttings as an alternative material. The project not only benefited the construction and maintenance in PTTEP's surrounding communities, but also supported the maximization of resource utilization under the circular economy concept and PTTEP's sustainability strategy.

This study began in 2018 and continues to the present. The initial results showed that drill cuttings, considered waste in the production process, was suitable and safe as material for road construction. PTTEP and concerned agencies plan a pilot test at the S1 project and PTTEP Technology and Innovation Centre (PTIC) at Wang Chan Valley, Rayong Province, which is situated in the area of Eastern Economic Corridor of Innovation (EECi). The pilot test is scheduled for the third quarter of 2020.



## Rotation of Mobile Facilities for Onshore Petroleum Production Stations at S1 Project

To achieve optimum efficiency, production facilities at the S1 project were designed and operated to be mobile, to replace permanent production stations. There are two types of S1 project mobile facilities:

### 1) Mobile Production Facility (MPF):

For petroleum production at sites where there is no production station or pipeline. Currently there are 16 MPFs at S1 project.

16  
MPFs



### 2) Mobile Production Test Unit (MPTU):

For petroleum well testing, to assess potential and assist future production planning. Currently, there are 10 MPTUs at S1 project.

10  
MPTUs



S1 project implemented various initiatives to extend the life time of production equipment. For example, abandoned production site equipment was modified and used at new sites. Old equipment was repaired and retained as emergency spare parts. Technology was introduced to prolong the life of various equipment such as the use of non-metallic pipes and the study of corrosion inhibitors.



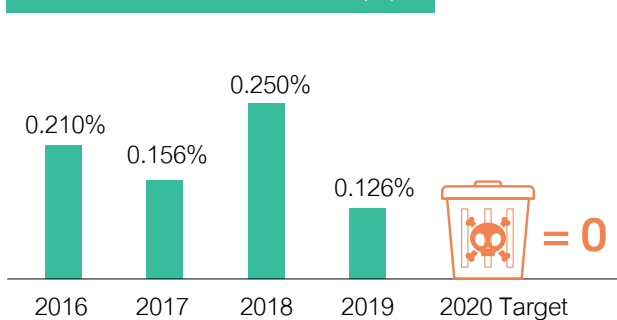


For offshore projects, PTTEP plans to reuse topside platforms from depleted wells to reduce the imports of materials and equipment to maximize resource value. The topside reuse will start with Arthit Project in 2021.



Aside from adjusting work processes in accordance with the circular economy concept, PTTEP extends this effort to neighboring communities. For example, used materials and equipment in good and safe condition from S1 project, such as metal pipes and barrels, were donated to various communities and government offices for public use. PTTEP also takes pride in promoting alternative energy to the community through the production of cooking gas from household waste. At the end of 2019, PTTEP had installed 241 biogas digesters for communities near Sinphuhorm project in Udon Thani Province. Additionally, the company built the Ban Thap Hai Biogas Learning Center to pass on knowledge to interested parties. PTTEP has also expanded the project to cover communities near Zawtika project in the Republic of the Union of Myanmar.

A hazardous waste to landfill (%)



On waste management, PTTEP has applied the 3R principles (Reduce, Reuse, Recycle) to achieve maximum efficiency in resource utilization. This has resulted in a continuous reduction of waste to landfill. In 2019, offshore petroleum production fields in the Gulf of Thailand had no hazardous waste to landfill. In 2020, PTTEP aims to achieve zero hazardous waste to landfill target at all operating units.



## Ocean for Life Strategy



Oceans are sources of natural resources that nurture human lives. However, marine ecosystems are facing multiple challenges, including water quality, waste, and diminishing biodiversity which directly affect the quality of life of coastal communities and indirectly affect many more lives on earth.

PTTEP, whose operations are mostly offshore, realizes that we are bound to best protect the seas where we operate. The “Ocean for Life” strategy was formulated to reaffirm PTTEP’s determination to be a leader in conserving and restoring natural resources and marine ecosystems through a combination of biodiversity management approaches. These include the monitoring and restoration of degraded habitat, increasing marine species, with an economic value to serve as food sources, and promoting sustainable resource utilization. All lead to a better quality of life for communities that depend on marine resources.

### 2030 Targets

Systematically conserve and restore the marine environment, to support economic growth and community quality of life



Enriching marine biodiversity, compared to the 2020 base year



Improve local economy for communities, dependent on marine resources, compared to the 2020 base year

## Highlight Projects

### Decommissioning for New Lives under the Sea



Decommissioning of installations and facilities is part of the life cycle of the exploration and production value chain which occurs at the end of the concession. It is a challenging mission both in terms of management and operating in accordance with the safety standard as well as social and environmental best practices. To handle this challenge, PTTEP set up a decommissioning team in 2015 to outline the decommissioning process, to assess the technology and feasibility of various approaches to be considered for decommissioning work, to achieve optimum efficiency, and to minimize any possible social and environmental impacts.

PTTEP has conducted research and feasibility studies on several projects in preparation for future decommissioning. One of them was the laying of artificial coral reefs, composed from metal structures at Koh Pha Ngan in 2013. The project was the result of good cooperation between the Department of Marine and Coastal Resources, the Petroleum Institute of Thailand Foundation, petroleum business operators and local community leaders and residents. Four artificial reef structures were placed in the Gulf of Chalok Lam, Koh Pha Ngan Sub-district, Koh Pha Ngan District, Surat Thani Province. A year later, several sessile such as bivalves, sea urchins, *Balanus* sp., and bryozoa were spotted, with striped sea urchins being the most frequently seen.

Another feasibility study was carried out in 2017 on transforming petroleum production jackets into artificial reefs the Rig to Reef project, in collaboration

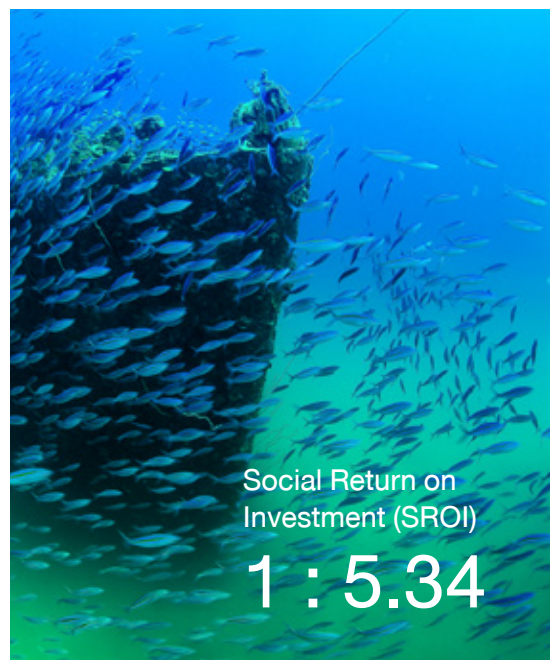


with the Petroleum Institute of Thailand Foundation, petroleum operators, academic institutions, and concerned government agencies, namely the Department of Mineral Fuels, Department of Fisheries, Department of Marine and Coastal Resources, Marine Department and the Royal Thai Navy. Rig to Reef project is one of the decommissioning options, which requires environmental impact assessment and approval from the Department of Mineral Fuels and other related the agencies, to ensure best approach and true benefits for society and related communities. The Rig to Reef project is an approach not only to maximize the value of decommissioned structures, but also to help conserve and restore marine natural resources. It now serves as a habitat and sanctuary for marine lives, enhances bio-diversity, as well as offers benefits to the academic, tourism, and fishery communities.

## From Royal Ships to Underwater Learning Sites, the Final Mission for the Thai Sea

Responding to the phenomenon of “Coral Bleaching” that created a knock-on effect on marine lives, in 2011, PTTEP, in collaboration with the Department of National Parks, Wildlife and Plant Conservation; Department of Marine and Coastal Resources, local agencies, local communities and the Royal Thai Navy, initiated the “H.T.M.S. Underwater Learning Sites” project. H.T.M.S. Prab was laid on the seabed near Koh Ngam Noi, Chumphon Province, and H.T.M.S. Sattakut was laid on the seabed near Koh Tao, Surat Thani Province. Both serve as alternative diving spots in those areas allowing natural coral reefs to recover from bleaching and also becoming research sites on marine biodiversity.

The two sites have become popular diving spots, generating income of over THB 59 million for local communities and business operators or a total of approximately THB 472 million since beginning. In 2018, PTTEP released a book and a short TV documentary to raise awareness among tourists and divers as well as the general public on the importance and benefits of these two man-made diving sites.





### Sea Turtle Conservation Project, to Raise Survival Rates

The number of sea turtles in Thailand has declined and their extinction may come soon because of several natural and man-made factors. Without conservation, sea turtles might completely disappear from the Thai seas. In 2017, PTTEP thus supported the Royal Thai Navy's Sea Turtle Conservation Center in Sattahip District, Chonburi Province. A Memorandum of Understanding (MoU) was signed between PTTEP and the Royal Thai Navy to enhance sea turtle conservation and promote conservation knowledge.

Under the MoU, PTTEP supported the renovation and modernization of the nursery and hospital building, the only one of its kind in Asia to align with international standards on sea turtle nursing and treatment prior to release to the sea, to raise their survival rate. PTTEP provided the center with medical equipment, organized an exhibition, and prepared learning kits on sea turtle conservation. It also sponsored the center's landscape improvements. The center is now an eco-tourism destination.

Moreover, PTTEP has encouraged its employees and executives to volunteer in sea turtle conservation activities, such as, the cleaning of turtle ponds, turtle shell scrubbing, and the release of baby sea turtles to the sea.

2019



21,482

Accumulated number of baby sea turtles were nursed and treated

"Thanks to the medical equipment provided by PTTEP, the hospital enjoys a greater capacity in treating sea turtles. As diagnosis can be done faster, treatment becomes faster and so does the survival rate of sea turtles"



2,234

Accumulated number of turtles were treated due to beaching and injuries caused by trawls and other natural causes

**Sub Lieutenant Kornkamol Kitikamara**  
Veterinarian at the Sea Turtle Conservation Center, Royal Thai Navy



Total visitors to the Sea Turtle Conservation Center

922,793

#### The Plan for 2020



The support to the Sea Turtle Conservation Center in Songkhla Province, through the collaboration with the Second Naval Area Command, a unit will be set up at the Songkhla Naval Base to support the conservation of the Thai seas and this endangered species.

## Crab Hatchery Learning Center: Passing on Knowledge and Sustainably Raising Fishermen's Income

The declining number of marine animals' lives with an economic value such as "Crab" affected fishermen's income and a number of households had to turn to other livelihoods. PTTEP recognized the severity of the problem and the importance of restoring the abundance and biodiversity of the marine ecosystems. In 2013, PTTEP in partnership with the Ban Hua Khao Community, Institute of Coastal Aquaculture, and Rajamangala University of Technology Srivijaya, Songkhla Province, to establish "Ban Hua Khao Crab Hatchery Learning Center" at Ban Hua Khao Sub-district, Singhanakhon District, Songkhla Province, to cultivate knowledge on crab hatchery.

Three more learning centers were established in Ban Phang Sai, Sathing Phra District, Songkhla Province and Ban Panare, Panare District, Pattani Province, and Na Saton Sub-district, Hua Sai District, Nakhon Si Thammarat Province, with the construction work completed in December 2019. The three centers at Songkhla and Pattani Province have welcomed more than 10,000 visitors. The accumulated number of juvenile crabs returned to nature has exceeded 1 billion. To restore marine resources and support communities in a sustainable manner, PTTEP has collaborated with marine and coastal resources conservation networks. Currently, there are 33 networks in Songkhla, Pattani and Nakhon Si Thammarat Province, covering 25 conservation areas that stretch over 18 square kilometers.



Social Return on  
Investment (SROI)

**1 : 2.29**

## Baseline Study of Microplastics in the Gulf of Thailand's Offshore

Thailand has recognised the need for the management of ocean waste, as seen in the collaboration on this issue with many organizations including the Department of Marine Science, Kasetsart University. They have conducted a study on microplastics in nearshore areas like those in Rayong Province and Pattaya City. However, the study did not cover offshore waters due to high costs and the difficulty in collecting seawater samples.

PTTEP, with offshore projects such as Arthit, Greater Bongkot North and Greater Bongkot South, has supported the Department of Marine Science, Kasetsart University since 2019, in studying microplastics in offshore waters of the Gulf of Thailand. This is the first national baseline study. The results are believed to help both the government and private sectors in formulating measures against ocean waste, and will create large-scale social benefits, in line with PTTEP's sustainability management principle.



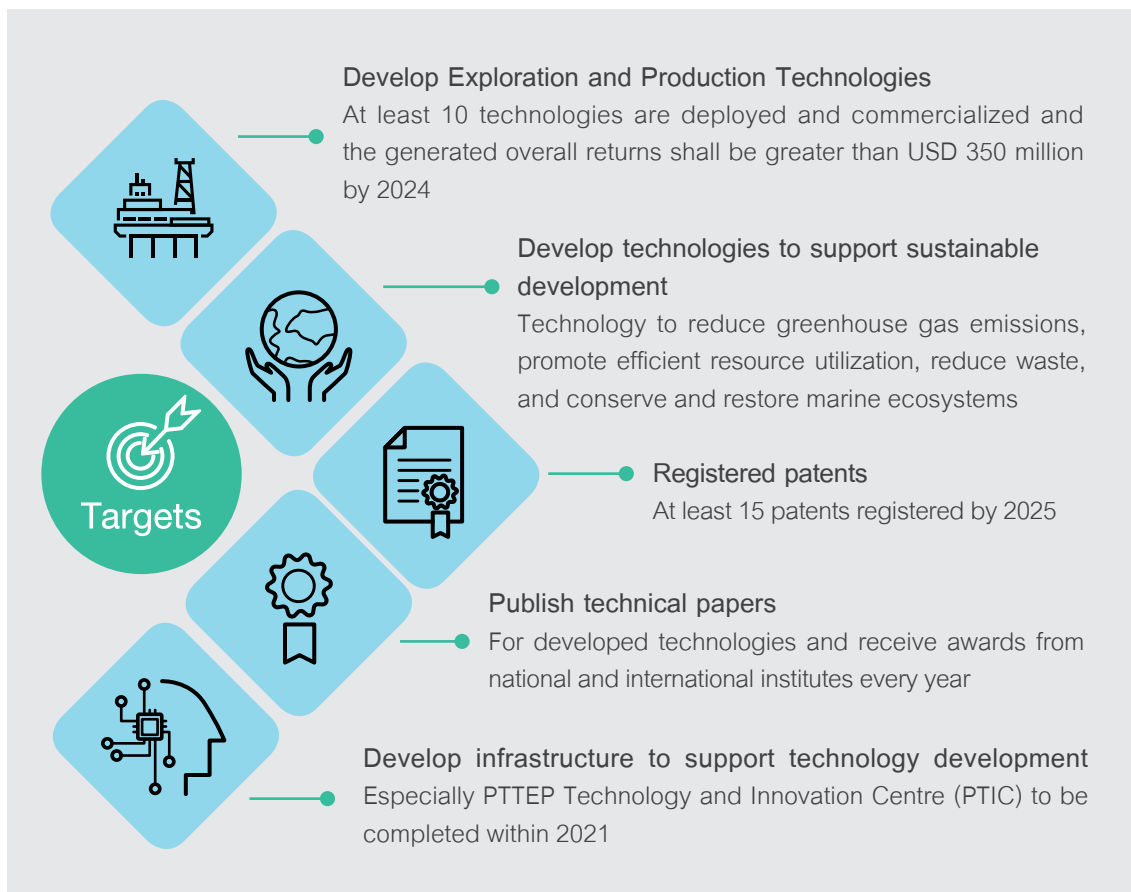
# Towards a Sustainable Organization for a Sustainable World

To achieve our goal of becoming a sustainable organization amid business challenges and trends of energy transition, PTTEP is fully aware that, apart from the sustainability strategy, emphasis must be placed on the development of technology and innovation as well as collaboration and networking with other organizations and government agencies.

## Technology and Innovation Development






Technology and innovation development is crucial in enhancing work efficiency, and preparing the company for changes and risks, that may arise from technological advances and demand for alternative energy. Therefore, the company has allocated three percent of annual net income to support the technology and innovation development.

PTTEP sets the following five targets to consistently drive technology and innovation development:



## Achievements in 2019

PTTEP's technology and innovation development roadmap proceeded as planned in 2019, with several projects showing faster-than-expected progress. The achievements are summarized below:

 <p><b>Development progress</b></p> <ul style="list-style-type: none"> <li>• 8 projects at the prototype development phase</li> <li>• 2 projects at the pilot phase</li> <li>• 2 projects being deployed</li> </ul>  <ul style="list-style-type: none"> <li>• 11 intellectual property applications were submitted: 9 patents, 2 software copyrights, 1 patent from previous submission was also granted in 2019</li> <li>• 12 research papers were published in international journals and academic conferences</li> <li>• 1 award received</li> </ul>	 <p><b>Improvement of technology development management as well as the online management system, and intellectual property management procedures for efficient execution</b></p>  <p><b>Application of digital technology, such as cloud data storage, in E&amp;P* process and business operations, to save cost, time, and resources while increasing efficiency and agility</b></p>	 <p><b>Technology development plan in short and long terms for 5 core functions</b></p> <ul style="list-style-type: none"> <li>• Advanced Exploration</li> <li>• Enhanced Oil Recovery</li> <li>• Unlock High CO<sub>2</sub> Reserves</li> <li>• Condensate Contaminant Treatment</li> <li>• Decommissioning</li> </ul>
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## Collaboration and Networking

Collaboration and networking are highly essential for operations today and sustainable growth in the future. Apart from collaboration networks in the business dimension, PTTEP also focuses on fostering collaboration and networks in community development, social and environmental dimensions. Such collaboration is geared towards the creation of innovation and knowledge for efficient implementation, in support of the sustainability-oriented National Economic and Social Development Plan, including the United Nations Sustainable Development Goals (UN SDGs).

Examples of PTTEP's activities in the development of collaboration networks include: the establishment of PTTEP Technology and Innovation Centre (PTIC) at Wang Chan Valley, Rayong Province, where the Eastern Economic Corridor of Innovation (EECi) is located; contributions to the national development of science, technology, and innovation through support to Kamnoetvidya Science Academy School (KVIS), and Vidyasirimedhi Institute of Science and Technology (VISTEC). Moreover, PTTEP also recognizes the importance of fostering knowledge and research networks with other leading companies and organizations, to create new knowledge and apply it in addressing national issues effectively and concretely. In 2019, PTTEP conducted 81 research and development projects, in cooperation with over 15 public and private organizations.

Moreover, PTTEP is a member of sustainability-oriented networks at both international and national level including United Nations Global Compact (UNGC) membership at Advanced level, Thailand Business Council for Sustainable Development (TBCSD), Thailand Responsible Business Network (TRBN), and Global Compact Network Thailand (GCNT).

\* E&P - Exploration and Production



# Stakeholder Value Creation

To achieve our vision to become an “Energy Partner of Choice”, in 2019, PTTEP created and passed on value to six major stakeholder groups through the allocation of resources in six areas and the work processes that support the Company’s vision and strategy. The results are as follows:

## Input

	<ul style="list-style-type: none"> <li>Debt to equity policy &lt;0.5</li> <li>Shareholders’ equity* USD 11,841 million</li> <li>Interest bearing debt* USD 3,442 million</li> <li>Credit ratings BBB+ (S&amp;P), Baa1 (Moody’s), BBB+ (Fitch), AAA (TRIS)</li> </ul>
	<ul style="list-style-type: none"> <li>Natural resources</li> <li>Energy consumption: 26 million gigajoules</li> <li>Water consumption: 47 million cubic meters</li> <li>Environmental management expenses: over USD 8 million</li> </ul>
	<ul style="list-style-type: none"> <li>47 projects in 15 countries</li> <li>Total procurement value: USD 965 million</li> <li>Over 70 initiatives to increase efficiency, and reduce production cost</li> </ul>
	<ul style="list-style-type: none"> <li>4,449 employees with more than 10 nationalities</li> <li>2,573 Suppliers</li> <li>Employee development and training: 43 hours/person/year</li> <li>Skills and experiences of suppliers, contractors, and business partners</li> </ul>
	<ul style="list-style-type: none"> <li>Expenses of corporate social responsibility projects: USD 11.16 million</li> <li>11,196 employee volunteer hours</li> <li>Activities to build networks of environmental conservation and social development, with a focus on engagement of stakeholders at all levels</li> </ul>
	<ul style="list-style-type: none"> <li>Technology and innovation development budget: USD 24 million</li> <li>Executives and working team tasked to oversee corporate technology and innovation development</li> <li>Researchers and employees who operate the development projects</li> <li>Collaboration with 15 external organizations to develop technology and innovation</li> </ul>

**Energy Partner of Choice**  
through competitive performance and innovation for long-term value creation

## Vision and Strategy

- Expand and Execute
- Greenhouse Gas Reduction
- Circular Model for E&P\*\*
- Ocean for Life
- Governance, Risk Management and Compliance

## Output / Impact

Stakeholder

### Efficient fund-raising process to support strategic growth at a reasonable financial cost as well as competitive and sustainable returns

- Operating revenue: USD 6,413 million
- Earnings before interest, tax, depreciation and amortization (EBITDA): USD 4,354 million
- Net profit: USD 1,569 million
- Dividend payout: 49% or Dividend yield: 4.82%
- Unit cost: USD 31.7 per BOE
- Return on Capital Employed (ROCE): 11% (higher than the average of E&P\*\* industry in Asia)
- Royalty fee and taxes: USD 1,636 million

PTTEP delivered competitive and sustainable returns to shareholders and the government through a strong financial structure. This was achieved through efficient fund raising, aligned with risks and opportunities due to volatility in the energy industry. The returns reflected the company’s ability to maintain adequate liquidity for operations and investment opportunities. With appropriate financial costs, PTTEP achieved worthwhile, consistent, and competitive profitability and dividends.



### Reduced greenhouse gas emissions intensity to mitigate global warming impacts and maximize the efficiency of natural resource utilization with deep concern for the environment

- Reduced greenhouse gas emissions: 256,498 tonnes of CO<sub>2</sub> equivalent
- Saved and recycled energy: 3 million gigajoules
- Reused and recycled waste: 77%
- Reused and recycled water: 12%
- No. of research projects on green technology: 12

PTTEP reduced and prevented possible environmental impacts from PTTEP’s operations as well as building trust and confidence among neighbouring communities, through the implementation of Safety, Security, Health and Environment (SSHE) Management System aligned with ISO14001:2015 at all operating areas.



### Focused on business development and expansion by increasing natural gas production capacity, exploration and development activities, and applying efficiency and cost-saving technology, to maintain competitiveness and sustainable growth

- Total production of natural gas: 0.69 trillion cubic feet (111 million BOE)
- Total production of crude oil, LPG and Condensate: 41 million barrels
- Proved Reserve: 1,140 million barrels of oil equivalent
- The proportion of natural gas production accounted for 73% of total production

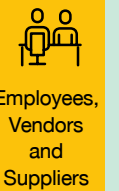
PTTEP maintained and increased production capacity in response to demand and to manage the production costs at a competitive level. In addition, PTTEP sought to increase petroleum reserves to expand business growth and support corporate growth strategy.



### Enhanced organizational capability and safety culture to pursue corporate excellence and prepare employees for future growth

- Lost time injury frequency rate: 0.07 cases per million hours worked
- 100% of all employees completed their individual competency development plans
- Employee competency level increased by 4.15% per year on average

PTTEP was committed to creating safety culture, enhancing employee competency and achieving high-performance organization status. PTTEP emphasized employee competency development to prepare them for changes and business growth. Employees were prepared to become next generation leaders to ensure business continuity. Suppliers’ capability was also enhanced for greater work efficiency, transparency, and mutual growth.



### Systematically restored marine natural resources for local economic growth and jointly develop and create value for communities and society, leading to mutual and sustainable growth

- 143 social development projects, focusing on 4 main themes (basic needs, education, environment, and culture)
- Enrich marine natural resources and increase biodiversity through over 60 species, through H.T.M.S. Underwater Learning Site project which generates over THB 59 million in annual income for local communities and business operators
- Fishermen’s income increased THB 60,000\* per household per year due to Crab Hatchery Learning Center project
- Community gained higher income and better quality of life
- Stakeholders express trust and cooperation

PTTEP ensured fertile marine resources and community economic growth. PTTEP also sought to build relationship with communities and society by listening to their opinions, expectations, and their cooperation in CSR projects which would improve the livelihood of communities and society.



### Delivered competitive technology for E&P\*\* and steer social and environmental projects with technology and innovation

- 81 projects in the development processes
- 5 accumulated projects have been deployed
- Accumulated intellectual properties as the following categories: 4 granted patents, 4 registered software copyrights and 20 pending patent applications
- Accumulated returns at USD 65 million as a result of in-house E&P\*\* technology
- Generating revenue from new businesses based on in-house technology development, including AI and Robotics Venture Company Limited, revenue from commercialized technology reached USD 5.3 million in 2019

With the application of technology and innovation, PTTEP enhanced business competency and opportunities, as well as capability in tackling the challenges today and tomorrow in the economic, social, and, environmental dimensions.



\* Average balance between YE 2018 and YE 2019

\*\* E&P - Exploration and Production

\* Information as of 2018

# Our Affirmation on Sustainable Values

PTTEP, with the aforementioned implementation of strategy under the Sustainable Development framework, believes that while delivering energy security we continue to create long-term value for all stakeholder groups. We delivered on economic, social, and environmental value to society, in line with the United Nations Sustainable Development Goals (UN SDGs)

“PTTEP affirms our intention to continually foster sustainable growth in economic, social, and environmental dimensions. We stand ready to cooperate with partners from all sectors in order to create long-term value for all stakeholder groups, for the benefits of the country and society at large as stated in the company’s vision to become the Energy Partner of Choice”



# Awards and Recognition



## Sustainability Performance



Member of the 2018 Dow Jones Sustainability Indices (DJSI) in the World Oil and Gas Upstream & Integrated Industry for the sixth consecutive year and the second time as Industry Leader

SAM

Gold Class, the SAM Sustainability Award in The Sustainability Yearbook 2020

SAM

Member of the FTSE4Good Index Series for the fourth consecutive year

FTSE Russell



FTSE4Good

Best Sustainability Awards 2019

The Stock Exchange of Thailand (SET)

Thailand Sustainability Investment Awards 2019 for the fourth time

The Stock Exchange of Thailand (SET)



## Corporate Governance

The NACC Integrity Awards  
The National Anti-Corruption Commission (NACC)

Rated "Excellent" and received 5 of the National Corporate Governance Committee's symbols, Corporate Governance Report of Thai Listed Companies

Thai Institute of Directors Association (IOD)

Board of the Year Award 2018 - Silver (market capitalization over THB 100 billion)

Thai Institute of Directors Association (IOD)

The Human Rights Awards (the state enterprise sector)

Department of Rights and Liberties Protection, Ministry of Justice

Asia's Icon on Corporate Governance Award for the seventh consecutive year

Corporate Governance Asia Magazine

Asia's Best CEO Award for the second consecutive year

Corporate Governance Asia Magazine



## Corporate Social Responsibility



- || Best Practice Awards 2019 -
- The Forest Restoration for Eco-Learning at Sri Nakhon Khuean Khan Park Project

Foundation for Thai Society

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- || AREA Awards 2019,
- Winner in Social Empowerment - The Crab Hatchery Learning Center Project

Enterprise Asia

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- || Global CSR Awards 2019,
- Gold Level in Best Community Program - SIOLA Project

The 11<sup>th</sup> Annual Global CSR Summit and Awards 2019

- || Gulf Sustainability and CSR Awards 2019, Winner in Best Community Development - The Crab Hatchery Learning Center Project

Gulf Sustainability and CSR Awards 2019

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- || Global CSR Awards 2019,
- Platinum Level in Best Country CSR Excellence - Best in Thailand

The 11<sup>th</sup> Annual Global CSR Summit and Awards 2019

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- || BAZNAS Award 2019,
- Best CSR Campaign - The H.T.M.S. Learning Site Project

BAZNAS Award 2019

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- || Global Good Governance (3G) Awards 2019,
- Winner in Best CSR Campaign - The H.T.M.S. Learning Site Project

Cambridge IFA

- || Gulf Sustainability and CSR Awards 2019,
- Winner in Overall CSR - The Crab Hatchery Learning Center Project

Gulf Sustainability and CSR Awards 2019

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- || Global CSR Awards 2019,
- Gold Level in Best Environmental Excellence - PTTEP Teenergy Project

The 11<sup>th</sup> Annual Global CSR Summit and Awards 2019

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- || Asia - Pacific Stevie Awards 2019, Silver Level in Innovation in Community Relations - The H.T.M.S. Learning Site Project

Stevie Awards Organization

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- || Energy and Environment Foundation Global CSR Awards 2019,
- Platinum Level in CSR - The Waste to Energy Project

Energy and Environment Foundation





## Environmental Management



- || Thailand Energy Awards 2019
  - Department of Alternative Energy Development and Efficiency (DEDE), Ministry of Energy

- || LESS (Low Emissions Support Scheme) Award
  - Letter of Recognition for the third consecutive year
  - The Thailand Greenhouse Gas Management Organization (TGO)

- || Green Meeting Certificates for PSB Songkhla (Plus Level) and RSB Ranong (Standard Level)
  - Thailand Business Council for Sustainable Development (TBCSD)



- || 2019 Green Office Award at the Excellence (G-Gold) Level
  - Department of Environmental Quality Promotion, Ministry of Natural Resources and Environment



- || 2019 Green Procurement Certificate for the third consecutive year
  - Thailand Environmental Institute (TEI)



## Investor Relations

- Outstanding Investor Relations Awards

The Stock Exchange of Thailand (SET)

- Asia's Best CFO Award for the sixth consecutive year

Corporate Governance Asia Magazine

- Best Investor Relations Company (Thailand) Award for the seventh consecutive year

Corporate Governance Asia Magazine



## Human Resources Management



- Thailand's Best Employer Brand Award

Employee Branding Institute and World HRD Congress

- Best Use of Technology for Recruitment Award

Employee Branding Institute and World HRD Congress



# Survey of Readers' Opinions

## Your suggestions are valuable for the improvement of future 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 assessment of PTTEP Sustainability Report 2019

- |                      |                            |                              |                           |                                    |
|----------------------|----------------------------|------------------------------|---------------------------|------------------------------------|
| Completeness         | <input type="radio"/> High | <input type="radio"/> Medium | <input type="radio"/> Low | <input type="radio"/> Dissatisfied |
| Topics               | <input type="radio"/> High | <input type="radio"/> Medium | <input type="radio"/> Low | <input type="radio"/> Dissatisfied |
| Straightforwardness  | <input type="radio"/> High | <input type="radio"/> Medium | <input type="radio"/> Low | <input type="radio"/> Dissatisfied |
| Report design        | <input type="radio"/> High | <input type="radio"/> Medium | <input type="radio"/> Low | <input type="radio"/> Dissatisfied |
| Overall satisfaction | <input type="radio"/> High | <input type="radio"/> Medium | <input type="radio"/> Low | <input type="radio"/> Dissatisfied |

**3** Please choose the top three material issues which influence PTTEP sustainability

- |  |   |
|--|---|
| <input type="radio"/> Governance, Risk Management and Compliance (GRC) | <input type="radio"/> Contribution to Communities and Society |
| <input type="radio"/> Increasing Petroleum Reserves                    | <input type="radio"/> Environmental Management                |
| <input type="radio"/> Lower Carbon Future                              | <input type="radio"/> Technology and Innovation               |
| <input type="radio"/> Human Resource Preparation                       | <input type="radio"/> Occupational Health and Safety          |
|  | <input type="radio"/> Others (please specify) .....           |

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

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.....

**5** Which option best describes you as a stakeholder?

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

Thank you very much for your contribution



# Survey of Readers' Opinions

Sustainability Report 2019

บริการธุรกิจตอบรับ 

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