

Executive Summary

PTTEP has operated through the strategies, “EXPAND” and “EXECUTE”, to create and achieve sustainable growth. In 2019, PTTEP’s continual achievements in operation and expansion include the successful bidding of petroleum exploration and production rights for Block G1/61 (Erawan field) and Block G2/61 (Bongkot field) in Gulf of Thailand; the acquisition of Murphy’s business in Malaysia; the acquisition of Partex Holding B.V. (Partex) who holds major investments in the largest producing oil asset in Oman; the significant discovery of gas in Sarawak SK 410B Project in Malaysia; the Final Investment Decision (FID) of the Mozambique Area 1 Project and the Algeria Hassi Bir Rekaiz Project. As a result, PTTEP has hit a record average sales volume in 2019 of 350,651 barrels of oil equivalent per day (BOED) and expects the compound annual growth rate (CAGR) of sales volume during 2020 – 2025 to be at 6%. PTTEP’s proved reserves increased to 1,140 million barrels of oil equivalent (MMBOE) at end of 2019, resulting in a reserves life (proved reserves to production ratio) of 7.5 years as targeted.

In 2020, PTTEP plans to allocate a greater focus on “EXECUTE” which entails maintaining sales volume from legacy assets; ensuring smooth operational transitions of recently acquired assets i.e. G1/61 Project, G2/61 Project, assets in Malaysia and under Partex group, ensuring development projects to deliver first production as planned, progressing SK410B’s milestone into FID stage; and accelerating exploration activities of projects in Malaysia and Myanmar for long-term reserves addition.

With the objective to become a truly “Sustainable Organization”, PTTEP’s Sustainable Development Framework (SD Framework) is aligned with international practices under the concept, FROM “WE” to “WORLD”, for sustainable growth and sustainable value creation to all stakeholders. The SD Framework is structured to drive the organization along with the strategy “EXPAND” and “EXECUTE”, with three main components including High Performance Organization (HPO), Governance, Risk Management and Compliance (GRC) and Stakeholder Value Creation (SVC), in line with the vision of being the “Energy Partner of Choice”

For 2019, PTTEP reported net income of 1,569 MMUSD, an increase of 40% compared to the previous year. This is mainly driven by higher sales volume as a result of the additional stake in Bongkot and business acquisitions of both Murphy’s business in Malaysia and Partex Holding. In addition, PTTEP’s financial structure remains robust and equipped to accommodate new investment opportunities as reflected from the positive cash flows generated from operations of 3,540 MMUSD and the healthy EBITDA margin of 71%. As of year-end 2019, PTTEP reported total assets of 22,202 MMUSD, of which 3,023 MMUSD was cash and short-term investments, while total liabilities were reported at 10,361 MMUSD of which 3,442 MMUSD was interest-bearing debt. Total shareholders’ equity ended at 11,841 MMUSD with debt to equity ratio at 0.29.

Table of key financial results

(Unit: Million US Dollar)	2019	2018	% Inc. (Dec.) YTD	Q3 2019	Q4 2019	Q4 2018	% Inc. (Dec.) QoQ	% Inc. (Dec.) YoY
Total Revenue	6,413	5,459	17	1,593	1,841	1,557	16	18
Sales Revenue	6,046	5,203	16	1,494	1,755	1,411	17	24
EBITDA	4,354	3,860	13	1,054	1,188	1,024	13	16
Profit (loss) for the period	1,569	1,120	40	358	384	269	7	43
Basic earnings (loss) per share (Unit: US Dollar)	0.38	0.27	39	0.09	0.09	0.07	0	29
Profit (loss) from normal operation	1,445	1,215	19	303	379	283	25	34
Profit (loss) from non-recurring items	124	(95)	>100	55	5	(14)	(91)	>100



Economic Overview in 2019

Crude Oil Price

Crude oil price is one of the major factors affecting the Company's performance. In 2019, average Dubai crude price fell to \$63.5 per barrel, lower than 2018 average price of \$69.7 per barrel (Source: Platts). Crude price was also volatile and reached the highest at the level of \$70 per barrel in the first half of this year. This was mainly due to US sanctions against Iran over its nuclear program which caused the uprising in the Strait of Hormuz, an important passageway for Middle East crude oil exports. Crude price then fell and remained at the level of \$60 per barrel however, pressured by concerns on the global economy, the uncertainty from US-China trade war, and Brexit. Consequently, manufacturing and trade numbers of major countries continuously declined and generated the lowest global oil demand growth in 8 years. In addition, increased global oil supply contributed to the price pressure, driven mainly by US production growth after completion of multiple oil pipelines in 2H/2019.

However, during Q4/2019, Dubai crude price gradually recovered and closed at \$67.3 per barrel by year end as demand-supply balance started to improve. On the demand side, global economic figures slightly recovered as tensions from the US-China trade war started to ease. In addition, there was less concern on the supply side as OPEC and non-OPEC members agreed on a deeper production cut to 1.7 million barrels per day from 1.2 million barrels, in 2020. Meanwhile, tense geopolitics in the Middle East significantly increased supply disruption risks, especially after the drone attack incident on Saudi Arabia's oil facilities in September 2019. US production also showed signs of lower-than-estimated growth as oil companies became more financially disciplined and thus less aggressive on drilling activities due to concerns on global economic outlook.

Liquefied Natural Gas (LNG)

For the LNG Market in 2019, the average Asian spot price decreased to 5.51 USD per MMBTU, mainly driven by the falling oil price and the oversupply situation in the market as a result of additional volumes from new projects sanctioned in the past 5 years. This year's supply had increased by 44 MTPA compared to last year, mainly attributable to LNG projects in the US, Australia, and Russia with total production capacity of 360 MTPA while LNG demand remained at 351 MTPA, driven by higher demand from China and India.

Thailand's Energy Demand

Thailand's energy demand from January to October 2019 was reported at 2.17 million BOED, an increase of 0.1% over the same period last year (Source: EPPO, The Ministry of Energy) due to increases in private and government investment. However, both import and export levels have declined. For energy consumption by fuel types, the energy usage from oil and natural gas increased while the usage of coal, lignite, hydro, and imported electricity decreased.

Exchange Rates (Thai Baht against US Dollar)

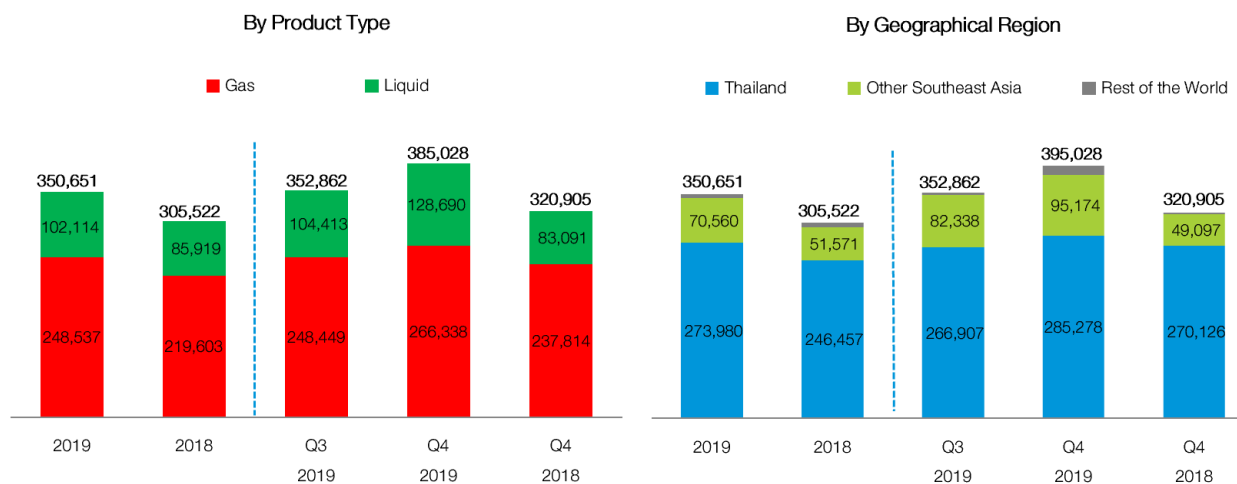
In 2019, THB outperformed against USD, strengthening from 32.45 at end of 2018 to 30.15 by end of 2019. The Bank of Thailand is closely monitoring the situation and has introduced balancing monetary measures to support Thailand's export capabilities and foreign investments level. Such measures include two policy rate reductions during the year and measures to support fund flows and THB conversion. THB continues to strengthen however, driven mainly by global economic instability from the intensified US-China trade war and Federal Reserve's rate cuts which weakened the USD. These factors directed capital flows into safe assets, which include Thailand due to Thailand's political stability from clarity in government establishment at the beginning of year. Additionally, Thailand maintains a current account surplus, due to a larger import reduction over export reduction, and a high FX reserve level relative to other countries in the region.

In terms of financial performance, PTTEP is affected by THB fluctuations mainly in the form of income tax filing due to the difference in tax filing currency (THB) and functional currency (USD) according to accounting standards. However, in April 2019, amendments were made on relevant tax laws, that allow tax to be filed in the company's functional currency, after obtaining Revenue Department's approval. This will reduce impact of FX movements. PTTEP has received such approval and has switched the tax filing currency to USD according to the Petroleum Income Tax Act since Q2/2019. However, for other companies in PTTEP's Group, tax filings continue to be in THB until receiving further approval from Revenue Department; as a result, the impact of foreign exchange volatility on financial statements remains but in a reduced magnitude.

Financial Performance

Average Sales Volume and Selling Price

Unit: Barrels of Oil Equivalent per Day



Average selling price and Dubai crude oil price (Unit : US Dollar)	2019	2018	% Inc. (Dec.) YTD	Q3 2019	Q4 2019	Q4 2018	% Inc. (Dec.) QoQ	% Inc. (Dec.) YoY
Average selling price (/BOE)	47.24	46.66	1	46.03	48.28	47.79	5	1
Liquid price (/BOE)	61.18	67.40	(9)	58.77	61.94	66.01	5	(6)
Gas price (MMBTU)	6.92	6.42	8	6.78	6.95	6.90	2	1
Average Dubai crude oil price (/BBL)	63.51	69.65	(9)	61.26	62.03	68.30	1	(9)

For the year ended 2019 compared with the year ended 2018

For 2019, average sales volume of PTTEP and its subsidiaries (the “Group”) increased to 350,651 barrels of oil equivalent per day (BOED) when compared with the year ended 2018 (In 2018: 305,522 BOED). The increase was primarily from Bongkot Project due to the additional acquisition of participating interest, the acquisition of Murphy’s business in Malaysia and acquisition of Patex Holding B.V. (Partex). The average selling price increased to 47.24 USD/BOE (in 2018: 46.66 USD/BOE).

For the Fourth quarter of 2019 compared with Third quarter of 2019

In Q4/2019, the Group had an average sales volume of 395,028 BOED. An increase from Q3/2019 of 352,862 BOED was primarily from the Bongkot Project, as there is no shutdown activities in Q4/2019 while there were shutdown days from maintenance activities in Q3/2019. In addition, the increase in sales volumes was due to the acquisition of Partex in Q4/2019 and an increase in crude oil sales from Malaysia Project. The average selling price in Q4/2019 increased to 48.28 USD/BOE (Q3/2019: 46.03 USD/BOE).

For the Fourth quarter of 2019 compared with Fourth quarter of 2018

When compared the average sales volume for Q4/2019 to Q4/2018 of 320,905 BOED, the average sale volume increased primarily due to the acquisition of Murphy’s business in Malaysia and acquisition of Partex in Q3/2019 and Q4/2019 respectively, and from the Bongkot Project, as there was no shutdown activities in Q4/2019 while there were shutdown days from maintenance activities in Q4/2018. The average selling price in Q4/2019 also increased to 48.28 USD/BOE (Q4/2018: 47.79 USD/BOE).

Overall Operating Results

For the year ended 2019 compared with the year ended 2018

For 2019, the Group had a net profit of 1,569 MMUSD, an increase of 449 MMUSD or 40% from a net profit in 2018 of 1,120 MMUSD. The net profit consists of the profit from normal operation of 1,445 MMUSD and profit from non-recurring items of 124 MMUSD.

The profit from normal operation for the year ended 2019 was 1,445 MMUSD, an increase of 230 MMUSD from a profit for the year ended 2018 of 1,215 MMUSD. The reason was primarily due to an increase in sales revenue of 843 MMUSD from increases in an average sales volume and selling price. However, total expenses increased mainly from an increase in depreciation, depletion and amortization expenses of 178 MMUSD due to an increase in average production from the acquisition of additional participating interest in Bongkot project in Q2/2018 and the acquisition of Murphy's business in Malaysia during Q3/2019, as well as an increase in operating expenses of 106 MMUSD, mainly due to the acquisition of Murphy's business in Malaysia. Moreover, exploration expenses increased 82 MMUSD from an increase in exploration wells written-off.

With the consideration of the profit from non-recurring items of 2019, the Group reported a profit of 124 MMUSD, an increase of 219 MMUSD when compared with 2018 which reported a loss of 95 MMUSD. The reason was primarily due to Thai Baht against US Dollar in 2019 was more appreciation than in 2018, resulting in a decrease of income taxes expenses relating to changes in foreign exchange rate of 187 MMUSD, offsetting with a reversal of income taxes benefits balance relating to functional currency which was previously recognized as of 31 December 2018 for the Company amounting to 60 MMUSD in accordance with the announcement of Petroleum Income Tax Act (No.9) B.E. 2562 in April 2019, as well as, there was a gain on exchange rate of 109 MMUSD in 2019, while the Group recognised a loss on such transaction of 19 MMUSD in 2018. Besides, the Group did not recognize loss on assets divestment (Montara field) in 2019, while there was a recognition of such transaction of 58 MMUSD in 2018, as well as, there was a derecognition of deferred tax assets in Australia amounting to 54 MMUSD. However, there was a loss on financial derivatives of 109 MMUSD in 2019, while the Group recognized gain from such transaction of 14 MMUSD in 2018, mainly from forward contract and oil price hedging instrument.

For the Fourth quarter of 2019 compared with Third quarter of 2019

For Q4/2019, the Group reported a net profit of 384 MMUSD, an increase of 26 MMUSD or 7% from a net profit in Q3/2019 of 358 MMUSD. The net profit consists of the profit from normal operation of 379 MMUSD and profit from non-recurring items of 5 MMUSD.

The profit from normal operation for Q4/2019 was 379 MMUSD, an increase of 76 MMUSD when compared with the profit for Q3/2019 of 303 MMUSD. The reason was primarily due to an increase in sales revenue of 261 MMUSD from increases in average sales volume and selling price. However, there was an increase in total expenses mainly from an increase in operation expenses of 100 MMUSD, primarily from the recognition of expenses from Malaysia Project and Partex group due to the acquisition of Murphy's business in Malaysia, as well as, the acquisition of Partex Holding B.V. Depreciation, depletion and amortization expenses increased 66 MMUSD due to an increase in production from Malaysia project and Bongkot project, as well as, Patex group from acquisition of Partex Holding B.V.

With the consideration of the profit from non-recurring items of Q4/2019 of 5 MMUSD, a decrease of 50 MMUSD when compared with the profit for Q3/2019 of 55 MMUSD. The reason was primarily due to the recognition of loss on financial derivatives of 41 MMUSD in Q4/2019, while the Group recognized gain from such transaction of 22 MMUSD in Q3/2019, mainly due to an oil price hedging and forward contract. However, income tax expenses decrease 29 MMUSD, mainly due to higher of an appreciation of Thai Baht against US Dollar in Q4/2019 when compared with Q3/2019.

For the Fourth quarter of 2019 compared with Fourth quarter of 2018

When compared a net profit for Q4/2019 with the same period last year which reported a net profit of 269 MMUSD, the Group had an increase in profit of 115 MMUSD or 43%, which can be separated to the following.

The profit from normal operation for Q4/2019 was 379 MMUSD, an increase of 96 MMUSD when compared with a profit for Q4/2018 of 283 MMUSD. The reason was primarily due to an increase in sales revenue of 344 MMUSD from increases in an average sales volume and selling price. However, there was an increase in total expenses, primarily from an increase in operating expenses of 112 MMUSD, mainly due to the acquisition of Murphy's business in Malaysia and acquisition of Partex Holding B.V. The depreciation, depletion and amortization expenses increased 94 MMUSD, mainly due to the acquisition of Murphy's business in Malaysia and higher production volume from Bongkot project.

With the consideration of the profit from non-recurring items of Q4/2019, the Group reported a profit of 5 MMUSD, an increase of 19 MMUSD when compared with Q4/2018 which reported a loss of 14 MMUSD. The reason was primarily due to an appreciation of Thai Baht against US Dollar in Q4/2019, while there was a depreciation of Thai Baht against US Dollar in Q4/2018, resulting in a decrease of 45 MMUSD in income tax expense relating to changes in foreign exchange rate and there was an increase in gain on exchange rate of 38 MMUSD. Besides, the Group did not recognize loss on assets divestment (Montara field) and the derecognition of deferred tax assets in Australia in Q4/2019, while there were recognition of such transactions in Q4/2018. However, the Group recognized loss on financial derivatives of 41 MMUSD in Q4/2019, while there was a gain on such translation of 72 MMUSD in Q4/2018 which mainly due to oil price hedging.

Operating Results by Segments

Net Profit (loss)	2019	2018	% Inc. (Dec.) YTD	Q3 2019	Q4 2019	Q4 2018	% Inc. (Dec.) QoQ	% Inc. (Dec.) YoY
(Unit: Million US Dollar)								
Exploration and production	1,342	954	41	292	395	229	35	72
Thailand	1,236	1,073	15	298	343	303	15	13
Overseas	106	(119)	>100	(6)	52	(74)	>100	>100
- Other Southeast Asia	132	59	>100	4	68	18	>100	>100
- Australia	(15)	(151)	90	(7)	(1)	(89)	86	99
- America	(10)	(27)	63	(3)	(2)	(5)	33	60
- Africa	14	(0.2)	>100	4	(7)	2	>(100)	>(100)
- Others	(15)	-	(100)	(4)	(6)	-	(50)	(100)
Misdream	1	-	100	-	1	-	100	100
Pipeline transportation	292	230	27	72	62	7	(14)	>100
Head office and others	(66)	(64)	(3)	(6)	(74)	33	>(100)	>(100)
Total	1,569	1,120	40	358	384	269	7	43

For the year ended 2019 compared with the year ended 2018

For 2019, the Group reported a net profit of 1,569 MMUSD, an increase of 449 MMUSD or 40% from a net profit of 1,120 MMUSD in 2018, primarily due to an increase of Exploration and Production segment in Thailand of 163 MMUSD, Australia of 136 MMUSD and Other Southeast Asia of 73 MMUSD.

Exploration and Production segment

- Thailand

For 2019, Thailand segment reported a net profit of 1,236 MMUSD, an increase of 163 MMUSD or 15% from a net profit of 1,073 MMUSD in 2018, primarily due to an increase in sales revenue, mainly from an increase in average sales volume, while there was an increase in depreciation, depletion and amortization expenses which mainly derived from the acquisition of additional participating interests of the Bongkot Project in Q2/2018, as well as, there was an increase in income tax expense of 60 MMUSD, derived from a reversal of income tax benefits relating to functional currency for the Company in accordance with the announcement of Petroleum Income Tax Act (No.9) B.E. 2562 in April 2019.

- Australia

For 2019, Australia segment reported a net loss of 15 MMUSD, a decrease of 136 MMUSD or 90% from a net loss of 151 MMUSD in 2018, primarily due to there was no recognition of loss on assets divestment (Montara field) and no derecognition of deferred tax assets in Australia in 2019, while there were such transactions in 2018.

- Other Southeast Asia

For 2019, Other Southeast Asia reported a net profit of 132 MMUSD, an increase of 73 MMUSD or more than 100% from a net profit of 59 MMUSD in 2018, primarily due to the acquisition of Murphy's business in Malaysia during Q3/2019.

For the Fourth quarter of 2019 compared with Third quarter of 2019

In Q4/2019, the Group reported a net profit of 384 MMUSD, an increase of 26 MMUSD or 7% from a net profit of 358 MMUSD in Q3/2019, primarily due to an increase of the Exploration and Production segment in Other Southeast Asia of 64 MMUSD and Thailand of 45 MMUSD, while there was a decrease in Head Office and Others segment of 68 MMUSD.

Exploration and Production segment

- **Other Southeast Asia**

In Q4/2019, Other Southeast Asia reported a net profit of 68 MMUSD, an increase of 64 MMUSD or more than 100% from a net profit of 4 MMUSD in Q3/2019, primarily due to the acquisition of Murphy's business in Malaysia and a decrease in exploration expenses as there was no exploration wells written-off in Q4/2019.

- **Thailand**

In Q4/2019, Thailand segment reported a net profit of 343 MMUSD, an increase of 45 MMUSD or 15% from a net profit of 298 MMUSD in Q3/2019, primarily due to an increase in sales revenue, mainly from increases in average sales volume and selling price, while there was an increase in depreciation, depletion and amortization expenses.

Head Office and Others segment

In Q4/2019, Head Office and Others segment reported a net loss of 74 MMUSD, an increase of 68 MMUSD or more than 100% from a net loss of 6 MMUSD in Q3/2019, primarily due to a decrease in financial derivatives (recognized loss in Q4/2019 while recognized gain in Q3/2019), mainly from oil price hedging and forward contracts.

For the Fourth quarter of 2019 compared with Fourth quarter of 2018

In Q4/2019, the Group reported a net profit of 384 MMUSD, an increase of 115 MMUSD or 43% from a net profit of 269 MMUSD in Q4/2018, primarily due to an increase of the Exploration and Production segment in Australia of 88 MMUSD, Other Southeast Asia of 50 MMUSD and Thailand of 40 MMUSD, while there was a decrease of Head Office and Others segment of 107 MMUSD.

Exploration and Production segment

- **Australia**

In Q4/2019, Australia segment reported a net loss of 1 MMUSD, a decrease of 88 MMUSD or 99% from a net loss of 89 MMUSD in Q4/2018, primarily due to there was no recognition of loss on assets divestment (Montara field) and no derecognition of deferred tax assets in Australia in 2019, while there were such transactions in Q4/2018.

- **Other Southeast Asia**

In Q4/2019, Other Southeast Asia reported a net profit of 68 MMUSD, an increase of 50 MMUSD or more than 100% from a net profit of 18 MMUSD in Q4/2018, primarily due to the acquisition of Murphy's business in Malaysia during Q3/2019.

- **Thailand**

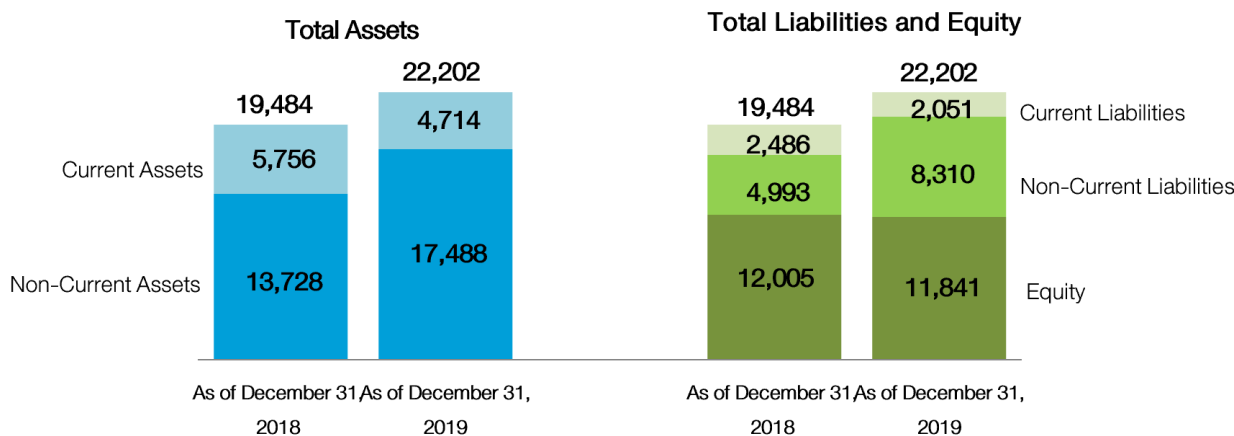
In Q4/2019, Thailand segment reported a net profit of 343 MMUSD, an increase of 40 MMUSD or 13% from net profit of 303 MMUSD in Q4/2018, primarily due to an increase in sales revenue, mainly from an increase in average sales volume, while there were increases in operation expenses and depreciation, depletion and amortization expenses.

Head Office and Others segment

In Q4/2019, Head Office and Others segment reported a net loss of 74 MMUSD, a decrease of 107 MMUSD or more than 100% from a net profit of 33 MMUSD in Q4/2018, primarily due to a decrease in financial derivatives (recognized loss in Q4/2019 while recognized gain in Q4/2018), mainly from oil price hedging.

Financial Position

Unit: Million US Dollar



Assets

As at December 31, 2019, the Group had total assets in the amount of 22,202 MMUSD, an increase of 2,718 MMUSD from total assets as at December 31, 2018 of 19,484 MMUSD, primarily due to;

- (1) Current assets, which were primarily comprised of cash and cash equivalents, short-term investments, account receivable – parent company, account receivable and investments in trading securities, decreased 1,043 MMUSD mainly due to decreases in short-term investments of 621 MMUSD, cash and cash equivalents of 357 MMUSD and other accounts receivable of 350 MMUSD.
- (2) Non-current assets, which were primarily comprised of exploration and production assets in joint venture projects being recognized as part of the property, plant and equipment, exploration and evaluation assets and goodwill, increased 3,760 MMUSD mainly due to increases in assets being recognized as part of property, plant and equipment, intangible assets and exploration and evaluation assets of 2,076 MMUSD and goodwill of 817 MMUSD, primarily due to the acquisition of Murphy’s business in Malaysia and acquisition of Partex, as well as an increase in deferred tax assets of 499 MMUSD.

Liabilities

As at December 31, 2019, the Group had total liabilities of 10,361 MMUSD, an increase of 2,882 MMUSD from total liabilities as at December 31, 2018 of 7,479 MMUSD, primarily due to;

- (1) Current liabilities, which were primarily comprised of income tax payable, accrued expenses, short-term provision and other current liabilities, decreased 435 MMUSD mainly due to a decrease in deferred considerations acquired through business acquisition of 466 MMUSD.
- (2) Non-current liabilities, which were primarily comprised of provision for decommissioning costs, debentures and deferred tax liabilities, increased 3,317 MMUSD mainly due to an issuance of new debentures 1,167 MMUSD and an increase in long-term borrowing of 718 MMUSD, as well as, increases in provision for decommissioning costs and deferred tax liabilities of 724 MMUSD and 577 MMUSD, respectively, mainly due to the acquisition of Murphy’s business in Malaysia and acquisition of Partex.

Capital Structure

As of December 31st, 2019, the capital structure consisted of 11,841 MMUSD in shareholders’ equity and 10,361 MMUSD in total liabilities.

Relative to the previous year, shareholders’ equity decreased by 164 MMUSD, from 12,005 MMUSD on December 31, 2018, to 11,841 MMUSD. The decrease was primarily a result of the Company’s redemption of 969 MMUSD worth of subordinated perpetual capital debentures, as well as the Company’s dividend payments of 698 MMUSD for the Company’s second-half-year-operations of 2017 and first-half-year-operations of 2018.

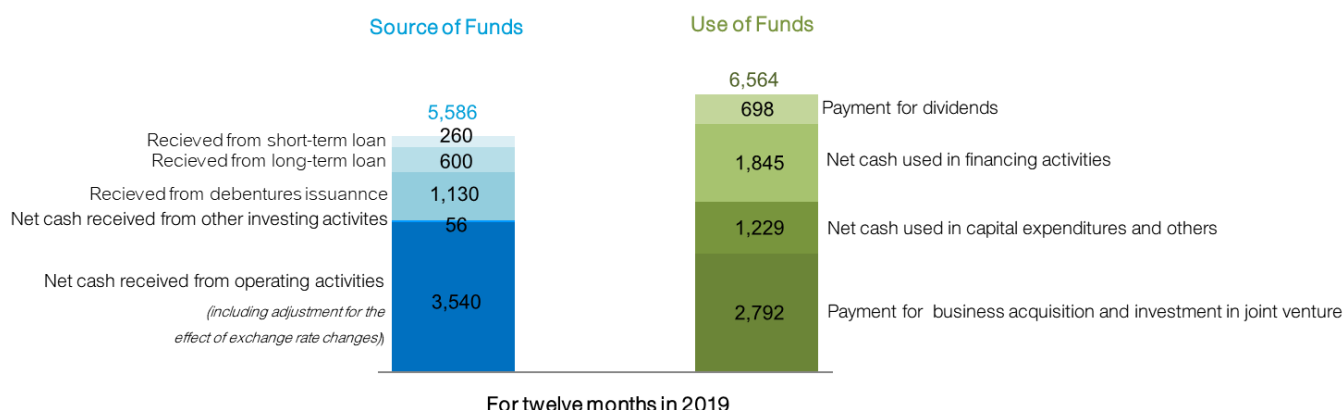
The Company's Total Liabilities of 10,361 MMUSD comprised 3,442 MMUSD worth of interest-bearing debt, carried at a weighted average cost of 4.41% per annum, and having a weighted average maturity of 13.84 years, of which 100% were denominated in USD, and 18% were floating-rate debt.

During 2019, PTTEP Group redeemed, issued, offered and sold debentures per the following details:

- In May and June of 2019, the Company redeemed in full, on the maturity dates, its 5,000 MMTHB, and 8,200 MMTHB senior unsecured debentures, respectively.
- In June of 2019, the Company and its wholly-owned subsidiary, PTTEP Treasury Centre Company Limited (PTTEP TC), redeemed in full, 500 MMUSD in principal amount of their subordinated perpetual capital debentures per the companies' rights under the terms, conditions in the bond indenture.
- In June of 2019, PTTEP TC issued senior unsecured guaranteed debentures to institutional and high net-worth investors for a total amount of 15,000 MMTHB. The debentures have a tenor of 3-years, bear a fixed interest rate of 2.26% per annum and are fully guaranteed by the Company.
- In October of 2019, PTTEP TC drew-down the entire amount of its 600 MMUSD club loan facility with commercial banks. The loan bears a floating-interest rate of 6-month LIBOR plus a margin of 0.87% per annum, and is full guaranteed by the Company.
- In December of 2019, PTTEP TC carried out a liability management exercise, repurchasing 469 MMUSD in principal amount of its subordinated perpetual capital debentures, and leaving 31 MMUSD outstanding. Concurrently, PTTEP TC issued 650 MMUSD in principal amount of 40-year senior unsecured guaranteed debentures to foreign institutional investors. The debentures have a fixed coupon of 3.903% per annum, and are fully guaranteed by the Company. PTTEP TC subsequently exercised its rights to redeem all of the remaining subordinated perpetual capital debentures in January 2020 at a redemption price in accordance with the terms, conditions and methods prescribed in the bond indenture.

Cash Flows

Unit: Million US Dollar



As at December 31, 2019, the Group had cash and cash equivalents, including short-term investments in the form of bank fixed deposit with a maturity of more than three months, but within twelve months of 3,023 MMUSD, a decrease of 978 MMUSD from cash and cash equivalents as at December 31, 2018 of 4,001 MMUSD.

Sources of funds in the amount of 5,586 MMUSD primarily came from Net cash received from operating activities as a result of the positive net cash flows from sales revenues, offset with cash payments for expenditures and income taxes expenses and Net cash received from financing activities derived from the issuance of the senior guaranteed debentures and long-term borrowing.

Uses of funds in the amount of 6,564 MMUSD primarily came from Net cash used in business acquisition and investment in joint venture including additional investments in exploration and production assets, primarily for investing in the S1 Project and the Zawtika Project. The Net cash used in financing activities were mainly from the redemption of the subordinated capital debentures and the repayment of the unsecured and unsubordinated debentures, as well as the payment of dividend for the second half of 2018 and for the first half of 2019.

Key Financial Ratios

	2019	2018	Q3 2019	Q4 2019	Q4 2018
Profitability Ratio (%)					
EBITDA to revenue from sales	70.65	72.68	69.15	66.74	71.08
Return on equity	13.16	9.53	12.26	13.16	9.53
Net profit margin	24.47	20.51	23.64	24.47	20.51
Leverage Ratio (Times)					
Debt to equity	0.29	0.16	0.18	0.29	0.16
Debt to EBITDA	0.62	0.63	0.49	0.62	0.63

Remark:

- EBITDA to revenue from sales = Profit before deduction of interest, tax and depreciation to revenue from sales including revenue from pipeline transportation
- Return on equity = Net profit for the past 12 months to average equity
- Net profit margin = Net profit to total revenue (for the past 12 months)
- Debt to equity = Interest Bearing Debt to equity
- Debt to EBITDA = Average Interest Bearing Debt to profit before deduction of interest, tax and depreciation for the past 12 months

Operational Highlights



Thailand and Southeast Asia



Middle East



America



Australia



Africa

At the end of 2019, PTTEP has over 40 projects with domestic and international operations in 15 countries, with total proved reserves of 1,140 million barrels of oil equivalent (MMBOE) and probable reserves of 507 MMBOE. The following are key project highlights.

Projects in Southeast Asia

PTTEP's primary operational base is in Southeast Asia, with projects located in Thailand, the Republic of the Union of Myanmar (Myanmar), Malaysia, the Socialist Republic of Vietnam (Vietnam), and the Republic of Indonesia (Indonesia). In 2019, the average sales volume from projects in Thailand is approximately 274,000 BOED, accounting for 78% of total sales volume. Average sales volume from other countries in this region increased to approximately 71,000 BOED, which accounted for 20% of total sales volume, due mainly to the acquisition of Murphy's business in Malaysia in mid-2019.

- Projects in Thailand

The majority of PTTEP's projects in Thailand, both located in the Gulf of Thailand and onshore, are in the *production phase*. Key activities of the main producing projects are as follows. The **Bongkot Project**, **Contract 4 Project** and **Arthit Project** maintained production volumes as planned. The **S1 Project** continued to drilled additional production wells with the plan to maintain production levels at around 30,000 BPD for the next 3 years. In 2019, the project has average sales volume of approximately 31,000 BPD. **G1/61 Project** (Erawan field) and **G2/61 Project** (Bongkot field) have commenced in preparation phase which includes planning for exploration drilling, initiating construction of production platform and gas pipelines, and other studies to ensure gas production in accordance with the minimum volume stated in the production sharing contract (PSC) of 700-800 MMSCFD starting in 2022-2023 onwards. PTTEP has closely coordinated with the existing concessionaire and the Department of Mineral Fuels to ensure a smooth operational transition.

- Projects in Myanmar

The key *producing project* in Myanmar is the **Zawtika Project** located in the Gulf of Moattama. The project has completed the drilling of the first exploration well in the western area and is in the process of drilling its second exploration well to ensure production continuity. The project received approval for the Field Development Plan of Phase 1D from the Government of Myanmar. In 2019, the project has an average natural gas sales volume of 297 MMSCFD (approximately 48,000 BOED). Projects in *exploration phase* are highlighted and detailed as follows. The **Myanmar M3 Project** has submitted a revised Field Development Plan to the Government of Myanmar in Q4/2019 to align with the Gas to Power plan. The **Myanmar MD-7 Project** is in the process of preparing for an exploration well to be drilled in Q1/2020. The **Myanmar M11 Project** completed the drilling of an exploration well in Q2/2019 with no commercial reserves found and thereby submitted a request to relinquish the block in late Q3/2019 for Myanmar Government's approval. For the **Myanmar MOGE 3 Project**, four wells were drilled in 2019 and evaluated to have no commercial reserves and thus were written off.

- Projects in Malaysia

The *producing projects* in Malaysia include the **Block K Project**, consisting of Kikeh, Siakap North-Petai (SNP) and Gumusut-Kakap (GK) fields which are producing oil fields located in the deep water of offshore Sabah. In 2019, the Kikeh Subsea Gas Lift – Phase 1 Project, which is an Improved Oil Recovery (IOR) project for the Kikeh subsea production system to optimize the reserves recovery level, was successfully completed. The project has average production volume in 2019 for crude oil of approximately 27,000 BPD¹. The **Sarawak SK309 and Sarawak SK311 Project** are oil and gas producing fields located in the shallow water of offshore Sarawak. Both projects have started gas production from the 2 infill gas development wells drilled in the first half of 2019. The projects have a total average production volume in 2019 for crude oil and condensate of approximately 26,000 BPD¹ and natural gas around 270 MMSCFD (approximately 46,800 BOED)¹.

Development Projects in Malaysia are as follows. **Block H Project**, located in the deep water of offshore Sabah with capacity of 270MMSCFD, is under development with the first gas expected in Q3/2020. The subsea infrastructure is under construction and scheduled to be completed by Q2/2020. The Petronas Floating LNG host facility that will receive gas from the Block H Project is currently being constructed and remains on schedule for February 2020 sail-away. *Exploration Projects* in Malaysia are highlighted as follows. The **Sarawak SK410B Project**, received an approval to extend its exploration period to three years, until Q1/2023. The project is currently preparing for additional drilling of an appraisal well to evaluate further upside potential in Q2/2020 along with studying for options on filed development plan. The **Sarawak SK314A** also received an approval to extend its exploration period to three years, until 2022. The **Sarawak SK417 Project**, the **Sarawak SK438 Project**, the **Sarawak SK405B**, the **PM407 Project**, and the **PM 415 Project** are currently being evaluated for petroleum potential and prepare for exploration drilling in 2020-2021.

- Projects in Vietnam

The key *Producing Project* is the **Vietnam 16-1 Project**, located offshore in the southeastern region. The project is currently preparing to drill an appraisal well in Q1/2020 to maintain production plateau. In 2019, the project has an average sales volume for crude oil and natural gas of approximately 16,000 BPD and 7 MMSCFD (approximately 1,700 BOED) respectively. For *Exploration Projects*, the **Vietnam B & 48/95 Project** and the **Vietnam 52/97 Project**, located offshore, are currently in the negotiation process on commercial terms in order to push forward the Final Investment Decision (FID). The projects are expected to have its first gas by end of 2023 with production capacity gradually ramping up to 490 MMSCFD.

Projects in the Middle East

PTTEP's projects in this region are located in Sultanate of Oman (Oman) and United Arab Emirates (UAE).

Projects under *production phase* in this region include the **PDO (Block 6) Project** which is the largest producing oil asset in Oman, covering an area of approximately one-third of the country. The project has an average production volume in 2019 for crude oil of approximately 618,000 BPD¹. The **Mukhaizna (Block 53) Project** is a large producing onshore oil field located in southern Oman. In 2019, the project has an average production volume of approximately 109,000¹ BPD. Both projects are obtained from the acquisition of Partex Holding B.V. (Partex) which was completed on 4 November 2019.

Middle East projects under *exploration phase* are located offshore in the north-west of Abu Dhabi, UAE. The **Abu Dhabi Offshore 1 Project** is currently being evaluated for petroleum potential for future exploration. The **Abu Dhabi Offshore 2 Project**, is currently being evaluated for petroleum potential to prepare for drilling of one exploration well in 2020.

¹ The average production and sales volumes per day are calculated from the completion date of acquisition transaction.

Projects in the Americas

PTTEP's exploration projects in this region are located in Canada, the Federative Republic of Brazil (Brazil) and United Mexican States (Mexico).

The **Mariana Oil Sands Project**, located in Alberta, Canada, is currently under evaluation for an appropriate development plan.

Projects in Brazil include the **Barreirinhas AP1 Project** located in the Barreirinhas Basin, offshore of the northeastern region of Brazil, and the **Brazil BM-ES-23 Project** located offshore in the Espirito Santo basin, east of Brazil. Both projects are currently being evaluated for petroleum potential.

Projects in Mexico include the **Mexico block 12 (2.4) Project** located in the Mexican Ridges, western Gulf of Mexico and the **Mexico block 29 (2.4) Project**, located in the Campeche, southern Gulf of Mexico. Both projects received an exploration plan approval from the National Hydrocarbons Commission in Mexico and are currently being evaluated for petroleum potential for further commencement according to the approved exploration plan. Mexico block 29 (2.4) Project is in process of preparation for 2 exploration wells to be drilled in 2020.

Projects in Australia

PTTEP projects in this region include only the **PTTEP Australasia Project**, which is located in the Commonwealth of Australia (Australia) and consists of 8 permits.

The divestment of the **Montara Field** was completed on 28 September 2018. The operatorship transfer was completed and approved by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

The **Cash Maple Field** is in the *exploration phase*. The field is currently under evaluation for the appropriate development plan. The **AC/P54 in Orchid Field** completed drilling of an exploration well in 2019 with successful results. The well encountered gas and condensate with net pay thickness of around 34 meters. The project plans to include its development along with the Cash Maple Field.

Projects in Africa

PTTEP projects in this region are located in the People's Democratic Republic of Algeria (Algeria) and the Republic of Mozambique (Mozambique).

The **Algeria 433a and 416b Project**, both of which are in the *production phase*, are located onshore in the eastern part of Algeria. In 2019, the projects have an average production volume of approximately 18,000 BPD.

The **Algeria Hassi Bir Rekaiz Project**, which is in the *development phase*, is located onshore in the eastern part of Algeria. The project has started development on Phase 1 following the conclusion with partners and an approved development plan by the government. Development activities of the project have commenced since March 2019 with expected first oil production for the initial phase of around 10,000-13,000 barrels per day (BPD) in 2021. In the second phase, production capacity is planned to ramp up to around 50,000-60,000 BPD in 2025.

The **Mozambique Area 1 Project**, which is in the *development phase*, is a large LNG project located in offshore Mozambique. Key project highlights in 2019 is the FID announcement to develop the Golfinho-Atum field with the onshore LNG facility of the initial two liquefaction trains, a total nameplate capacity of 12.88 MTPA. The project has successfully secured the long-term LNG sales of 11.1 MTPA with key LNG buyers in both Asia and Europe. The project issued the Notice to Proceed (NTP) for both EPCI Offshore Installation and EPC Onshore Construction Contract. Currently, the contractor has entered the area and has started construction. The project is in the process of procuring LNG container ship. Presently, the project financing process is ongoing, with the plan for first cargo by 2024.



Company Strategy

Portfolio Management

PTTEP operated through a very successful 2019 on the “EXPAND” and “EXECUTE” strategies reflected in areas of business acquisition, namely the acquisition of both Murphy’s business in Malaysia and Partex Holding B.V. (Partex) whose main investment is in the Middle East, and exploration activities namely the gas discovery of Lang Lebah field in the Sarawak SK410B Project. For 2020, PTTEP plans to allocate greater focus on the implementation of the “EXECUTE” strategy, with the following key guiding principles.

- (1) **EXPAND: Strategy to focus growth in strategic investment areas and diversify into energy related businesses for long-term sustainability**
- **Coming-Home Strategy:** PTTEP remains committed to expanding businesses in key strategic areas of Thailand and Southeast Asia and continues to pursue the Gas Value Chain business in Myanmar in the form of Gas-to-Power.
 - **Strategic Alliance Strategy:** PTTEP continues to search for investment opportunities in the Middle East through forming strategic alliances.
 - **New Business Investment Strategy for Sustainability:** PTTEP continues focus on energy-related technological innovation as well as R&D capabilities that complement existing and future businesses.
- (2) **EXECUTE: Strategy to increase sales volume of legacy assets and maintain competitive advantage**
- **Accelerating activities in exploration projects located in Myanmar and Malaysia:** PTTEP plans for an appraisal campaign for Sarawak SK410B Project and aims to accelerate field development in order to maximize asset value and further increase petroleum reserves.
 - **Creating more value from existing assets:** PTTEP continues to apply advanced technology to our operations in the S1 Project, such as pilot testing Enhanced Oil Recovery (EOR) technology, expanding hydraulic fracturing campaigns and improving facilities and liquid handling capacities. In addition, the Company is also planning to utilize the new PTTEP Seismic Processing Center (PSPC) to improve seismic imaging.
 - **Maintaining cost competitiveness:** PTTEP has applied digital technologies such as Artificial Intelligence (AI) and Machine Learning (ML) to reduce costs and increase production efficiency.
 - **Executing the transitions of Bongkot, Erawan and newly acquired assets:** PTTEP is actively engaging all stakeholders to ensure smooth operational transitions during handovers.
 - **Driving the development of key international projects:** PTTEP focuses on monitoring and supporting the development of key projects including the Mozambique Area 1 project and Algeria Hassi Bir Rekaiz project.

Capital Management

PTTEP places great importance on effective financial management by focusing on building financial discipline and maintaining a robust capital structure. As of end of 2019, the Company maintained a strong liquidity position with cash on hand of approximately USD 3 billion. The debt-to-equity ratio is 0.29x which is in line with the Company’s financial policy of 0.50x, indicating adequate liquidity for planned production levels, expenses to accelerate the development of projects and exploration activities in accordance with investment plans, and new business opportunities.

In addition, the Company has implemented liability management activities with respect to its USD denominated bonds to optimize efficiency in accordance with the current investment landscape. Details are as follows.

- (1) On 6 December 2019, the company repurchased approximately 469 million of USD denominated subordinated perpetual capital securities, which were previously issued and offered to offshore investors in the aggregate principal amount of USD 500 million with a fixed interest rate of 4.6 percent per annum. After completion of the repurchase of the Subordinated Notes, the Company has exercised the right to redeem all of the remaining notes in accordance with the conditions and methods prescribed for the Subordinated Notes on 10 January 2020.

- (2) The Company issued USD denominated senior notes to offshore investors in the aggregate principal amount of USD 650 million on 6 December 2019, with the fixed interest of 3.903% per annum maturing on 6 December 2059.

Sustainable Development

PTTEP aligns its Sustainable Development policy with global practice and UN standards. In 2019, PTTEP was selected, for the sixth consecutive year, as a member of Dow Jones Sustainability Index (DJSI) in the Oil and Gas Upstream & Integrated Industry sector and has been named the Industry Leader in this category for the second time. PTTEP was elected as a constituent of the FTSE4Good Index Series for the fourth consecutive year and received the SET Awards 2019 in Best Sustainability Awards from the Stock Exchange of Thailand (SET). Additionally, PTTEP received the first-place award as the 2019 Role Model Organization on Human Rights in the state enterprise category from the Department of Rights and Liberties Protection, Ministry of Justice. Finally, PTTEP received the NACC Integrity Awards from The National Anti-Corruption Commission (NACC).

The above success reflects PTTEP's commitment to operating under the concept of FROM "WE" to "WORLD" by conducting business sustainably while delivering value to all stakeholders and expanding the benefits of sustainability to the community, society and environment both domestically and internationally. In 2019, PTTEP operated through 3 major components of the sustainable development framework which includes High Performance Organization – HPO; Governance, Risk Management and Compliance – GRC; and Stakeholders Value Creation – SVC.

High Performance Organization In addition to implementing the “EXPAND” and “EXECUTE” strategies with targeted production growth at 5 percent per year on average and reserves life (R/P ratio) of at least 7 years to achieve sustainable growth, PTTEP also supports Research & Development (R&D) and encourages technological application and innovation to increase efficiency of exploration and production activities. In 2019, key projects which are in progress are as follows:

- **Technology for petroleum exploration and production enhancement**
 - Electromagnetic for subsurface fluid movement monitoring: pilot testing is now in progress in Sirikit oil field.
 - Adsorbent development for CO₂ removal in natural gas: the prototype design is now in progress.
 - Advanced filter development for condensate treatment: the prototype development of the advanced filter and the construction of the testing facility is now in progress.
- **Technology for green practices**
 - In-line pipe surface sampling tool for subsea pipeline decommissioning: the sampling tool development for pilot testing is now in progress.
 - CO₂ conversion to high valued product to reduce GHG emission: the prototype design is now in progress.
 - Carbon nanotube produced from flare gas to reduce GHG emission: the development of carbon nanotube producing unit for pilot testing is in progress.
- **PTTEP Technology and Innovation Center (PTIC):** PTTEP has commenced the construction project of the PTTEP Technology and Innovation Center (PTIC) in the Eastern Economic Corridor of Innovation (EECI) area. The PTIC design phase and the site preparation for construction are now in progress.

Moreover, PTTEP has an environmental management system which is a subset of PTTEP's Safety, Security, Health and Environment Management System (SSHE MS) with a focus on loss prevention. In the last quarter of 2019 PTTEP had a Lost Time Injury Frequency (LTIF) score of 0.07 and a Total Recordable Incident Rate (TRIR) score of 0.55. The Company's performance on both safety indicators is in line with the average of the members of the International Association of Oil and Gas Producers (IOGP).

Governance, Risk Management and Compliance PTTEP is committed to conducting business with accuracy, transparency, fairness and strict compliance with laws and regulations, as well as adhering to the principles of good governance and appropriate risk management. In 2019, significant operating results are as follows:

- Adjust the organization's plans to be in line with the GRC Maturity Level assessment results and communicate to employees for better understanding in this area, as well as integrate GRC reports to cover increasingly important issues.
- Improve GRC operations related to Mergers and Acquisitions (M&A) and the establishing of new businesses to be in line with PTTEP's business growth with a focus on appropriate corporate governance according to company policy, including strict compliance with laws of the countries where the company has invested in, which has reflected a clearer GRC management practice.

Long-Term Stakeholders Value Creation In 2019, PTTEP's social development strategy is based on Stakeholder Value Creation, with a continued focus on fundamental needs. The Company expanded its success to society in multiple areas and repositioned to operate under the Social Enterprise model to continuously benefit the community e.g. increase crab hatchery learning centers and expand the Marine Resources Conservation Network in Songkhla. In addition, the Company has provided a patient support staff training program. The first trainee class has started working at hospitals and has paid back to the fund.

Moreover, PTTEP aims to become a Low Carbon Footprint organization, and has aimed to reduce its greenhouse gas (GHG) emissions by a minimum of 25% by the year 2030 with 2012 as the base year. The Company plans to achieve the target through projects that recycle excess and flare gases and reduce methane leakages from production processes.

Future Business Outlook

Energy Outlook

Global energy consumption continues to rely heavily on energy from fossil fuel (including crude oil, natural gas and coal) which contributes about 81% of global energy consumption in 2019. It is forecasted that, in the next 30 years, fossil fuel will remain the primary energy source making up 72% of global energy consumption while renewable and nuclear energy consumption will increase to 21% and 5% respectively (Source: IHS Markit). Demand for natural gas and LNG is likely to increase from global economic growth and power generation sector as governments in various countries, especially China, have implemented a policy to encourage cleaner energy consumption from natural gas, instead of coal. Crude oil consumption is expected to grow continuously but at a much lower rate of 0.3% average annual growth, mainly from the expansion of the petrochemical industry and heavy-duty transport sectors. However, crude oil consumption in passenger cars is expected to decrease significantly due to higher fuel efficiency in passenger cars and increasing usage of electric vehicles. Additionally, the demand for renewable energy, especially solar and wind energy, is likely to increase in many countries due to increasing supports from governments to tackle pollution and global warming problems, as well as advances in power generation technology and economies of scale.

For Thailand, the Government has finalized the new Power Development Plan (PDP 2018) and expects that by 2037, the end of the plan's coverage, natural gas will become the major power source for electricity, comprising 53% of all energy consumption attributable to its cost-efficiency. According to the plan, renewable energy is expected to make up 20%.

PTTEP continues to highly prioritize natural gas which aligns well with the world's transition towards cleaner energy. The Company remains committed to developing large natural gas projects in the Company's portfolio such as the SK410B Project and Mozambique Area 1 Project. Moreover, PTTEP continues to seek investment opportunities in the gas value chain business in Myanmar in the form of Gas-to-Power. In addition, PTTEP continues to place importance in technological applications, especially in Robotics and Artificial Intelligence (AI) which can be used to enhance competitiveness and provide business opportunities that may exist in the future global energy industry landscape.

Oil Price Outlook

For 2020, average Dubai crude prices is expected to be in the 60-70 USD per barrel range, reflecting decreased concerns on the oversupply situation as OPEC+ has agreed to cut production from the agreed level by an additional 0.5 million barrels per day in 2020 and the US imposing more sanctions on Iran.

On the demand perspective, although the aftermath of the IMO2020 regulations led to an increase in crude oil demand, the limiting of Sulphur content in bunker fuel used in marine transportation could affect the demand for high-Sulphur crude such as Dubai. Trading and manufacturing numbers are expected to grow slightly in 2020 due to concerns on global economic slowdown. Although US-China trade war has shown signs of improvement from the signing of phase 1 trade deal, new trade tensions between US and EU (i.e. tariff on EU projects) have emerged and should be monitored together with a potential no-deal Brexit. Above factors could negatively impact crude demand growth in 2020.

In summary, the key factors to monitor in the near-term are the US trade war tensions with China and Europe, Brexit, geopolitical tensions in the Middle East that could lead to the hike in crude prices in the short-term. If the violence in the Middle East escalates into a regional war affecting the production and exports of crude oil, then crude prices could be higher than anticipated.

LNG Market

The oversupply situation of Global LNG market is expected to continue into 2020 with total production capacity from existing and upcoming LNG projects to increase by approximately 8% to 390 million tons, while demand for LNG is anticipated to stabilize at 373 million tons. The crude oil prices in the world market are likely to fluctuate in 2020, which could affect LNG price. The average Asian Spot LNG price is expected to be in the range between 4.5 - 6.9 USD/MMBTU and may be higher if the hostility between the United States and Iran escalates causing concerns over the possibility of lower LNG supply from the Middle East, especially from Qatar, if the Strait of Hormuz is closed. Moreover, additional positive factors supporting LNG prices include higher-than-expected LNG demand in Asian Market especially from China and India, supply disruption from existing LNG projects coupled with the lack of FIDs over 2016-2017 which will result in significantly decreased LNG supply growth during 2022 – 2024. Nonetheless, the market could start to balance in 2024.

Thai Economy and Foreign Exchange Outlook

The Bank of Thailand expects 2020 GDP growth at 2.8%, which is lower than previous estimation and may be further revised downward, mainly due to continuous export growth contraction following the demand slowdown of trading partner economies from intensified trade tension. Public spending and private investments also expanded at slower than expected paces. However, the recovery of the tourism sector is likely to continue due to public stimulus measures.

2020 USDTHB is expected to further strengthen and move within range 29.00 - 31.00. Prolonged economic risks support investors' allocation in safe-haven assets including THB due to its financial stability from current account surplus and high FX reserves. Looking ahead requires monitoring the effectiveness on Bank of Thailand's policy measures aimed at maintaining THB stability. Other key monitoring events include geopolitical tensions between US and the Middle East, US Federal Reserve monetary policy, US election results and US-China trade war, all of which will impact the direction of fund flows and exchange rate in 2020.

PTTEP has adopted the natural hedge method to manage FX risk by matching USD and USD-linked revenues from petroleum products with major USD expenses. The remaining FX risk exposures from non-USD revenues and expenses are managed by utilizing financial hedging instruments such as forwards and cross currency swaps. In addition, FX impact on income tax is reduced due to the change in PTTEP's tax filing currency. Moreover, interest rate volatility does not materially impact the Company's financial performance as 82% of total interest-bearing debt is fixed rate.

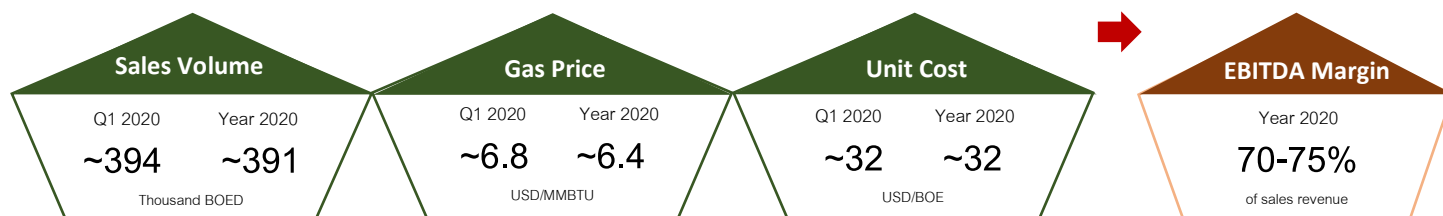
Other important factors that affect the Company's operations

IMO 2020 Regulations. the International Maritime Organization (IMO) agreed to limit Sulphur content in all marine fuels to 0.5% (from current 3.5%) effective on 1 January 2020 onwards. As a result, demand of High Sulphur Fuel Oil (HSFO) is expected to decrease significantly and HSFO's price had started to drop dramatically in Q4/2019. According to PTTEP's gas sale agreement especially in the Gulf of Thailand, HSFO is one of the factors accounted in the gas pricing formula which will lead to a risk of lower gas price. However, the company expects minor impact this year since PTTEP's gas price formula is partly linked to fuel oil and referred to an average historical price of past 6 to 24 months. In addition, PTTEP has also hedged a portion of sales volume against the volatility of HSFO. From 2022 onwards, PTTEP expects a material decrease of the impacts according to gas selling price of Bongkot and Erawan under the new production sharing contracts linked to Dubai crude price.

Enactment of the Revenue Code Amendment Act (No. 50) B.E. 2562 and the Petroleum Income Tax Amendment (No. 9) B.E. 2562 in April 2019, which will allow tax filing to be done in the company's functional currency other than Thai Baht. This will subsequently reduce the impact of foreign exchange volatility on financial statements. In Q2/2019, PTTEP received approval to change the currency for tax filing under Petroleum Income Tax and had recognized its effect. However, for other companies in PTTEP's Group, tax filings continue to be in Thai Baht; as a result, the impact of foreign exchange volatility on financial statements remain but in a reduced magnitude.

PTTEP's performance outlook for 2020

PTTEP's performance depends on three major factors including Sales volumes, Gas price and Unit cost with the guidance summary as follows;



Note: 1. The sales volume includes the sales volume from ADNOC Gas Processing (AGP) which was part of the acquisition of Partex completed in November 2019.

2. The assumption is based on average Dubai price in 2020 of 60 USD/BBL and average HSFO-Dubai spread in 2020 of 13 USD/BBL

Sales volume:

PTTEP expects the average sales volume for the Q1/2020 and for the full-year of 2020 to be approximately 394,000 and 391,000 barrels of oil equivalent per day, respectively. This is a result of the acquisition of Murphy's business in Malaysia and the acquisition of Partex which was completed in July and November 2019 respectively.

Sales price:

- PTTEP's liquid prices will fluctuate according to global crude prices.
- PTTEP's gas price formulas are partially linked to oil prices with reference to average historical prices ranging from the past 6 to 24 months. The average gas price for Q1/2020 and the full-year of 2020 are estimated at approximately 6.8 and 6.4 USD/MMBTU respectively, reflecting the adjustment of selling price in accordance to global crude prices.
- Outstanding volume of oil price hedging at the end of 2019 is approximately 13 million barrels; the Company, however, consistently monitors crude oil price movements and has the flexibility to adjust its hedging plan as appropriate.

Unit Cost:

For Q1/2019 and the full-year of 2020, PTTEP expects to be able to maintain unit cost at around 32 USD/BOE, in line with planned investments and activities.