

Management's Discussion and Analysis (MD&A) and operating results

For the first quarter of 2019 ended March 31, 2019

Executive Summary

Unit : Million Baht	1Q2018	4Q2018	1Q2019	%Inc. (Dec.)	
				YoY	QoQ
Sales Revenue	532,972	617,417	550,874	3.4%	(10.8%)
EBITDA	90,116	64,443	80,523	(10.6%)	25.0%
Net income	39,788	19,538	29,312	(26.3%)	50.0%
Earnings per share (Baht/share)	1.38	0.67	1.02	(26.1%)	52.2%

In the First quarter of 2019 (1Q2019), PTT and its subsidiaries reported net income of Baht 29,312 million, 50.0% increased or by Baht 9,774 million from the fourth quarter of 2018 (4Q2018) of Baht 19,538 million. This resulted mainly in net stock gain of the Petrochemical and Refining businesses in 1Q2019, following the rise in crude oil price. (Crude oil prices at the end of 4Q2018 and 1Q2019 were recorded at US\$ 52.9 and 67.2 per barrel, respectively). Nevertheless, most of petroleum crack spreads and petrochemical spreads both olefins and aromatics in 1Q2019 were lower. The performance of oil business increased mainly from gross profit, thanks to lower stock loss in this quarter. Additionally, Petroleum Exploration and Production Business improved from lower operating expenses as well as lower income taxes. Even though, the gas business group recorded the decrease in its performance following the lower gross profit of PTT's Gas Separation Plant (GSP) business as well as the Natural Gas Sales and Marketing businesses (S&M), following lower average selling prices. In this quarter, PTT group had higher loss on derivatives from PTT Exploration and Production Public Co., Ltd. (PTTEP) and PTT International Trading Ltd. (PTTT) versus lower selling and administrative, lower depreciation, lower income tax expenses as well as higher unrealized gain on foreign exchange from foreign currency loan.

In 1Q2019, PTT and its subsidiaries had net income of Baht 29,312 million, 26.3% drop or Baht 10,476 million from the first quarter of 2018 (1Q2018) of Baht 39,788 million. This resulted in the soften performance of Petrochemical and Refining businesses from the lower petroleum crack spread in almost all products except fuel oil spread as well as lower olefins spreads. In 1Q2019, there was stock gain according to the rise in crude oil price as aforementioned. In comparison with the same period of last year, crude oil price in 1Q2018 was stable. The Aromatics business performance increased from higher paraxylene (PX) spread. The gas business group recorded its soften performance according to the lower gross profit of PTT's GSP business and S&M business due to higher natural gas cost. Though, the profit from normal operation of Petroleum Exploration and Production Business increased from the rise in both average selling prices and sales volume while there was higher income tax expenses in E&P business. This resulted in the decrease in the overall performance of Petroleum Exploration and Production Business. In 1Q2019, PTT group recorded higher depreciation and amortization expenses according to PTT Exploration and Production Public Co., Ltd. (PTTEP)'s acquisition of 22.22% participating interest in Bongkot project in June 2018. Besides, there were higher loss on derivatives and lower foreign exchange gain due to less appreciation of Thai Baht against US Dollar in 1Q2019 when compared with 1Q2018, while PTT Group had lower income tax expenses.

As of 31 March 2019, PTT and its subsidiaries had the total assets amounting to Baht 2,521,101 million of which Baht 1,183,061 million was the property plant and equipment. Whereas the total liabilities were recorded at Baht 1,156,962 million including the interest bearing debt amounting to Baht 638,376 million and the total shareholders' equity of Baht 1,364,139 million.

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## Economic Overview in the first Quarter of 2019

The world economy in 1Q2019 expanded at a faster pace than 4Q2018. Specifically, US economic growth accelerated on the back of a large build-up in inventories and lower trade deficits. However, concerns about the economy looking close to stalling due to challenges including financial-market volatility at the start of 2019 and a five-week government shutdown led the Federal Reserves (the Fed) at its March 2019 meeting to leave its policy rate unchanged at 2.25-2.5%, and signal no rate hikes for the remainder of 2019. Meanwhile, economic growth continued in the euro area amid record-low policy rates, with factors weighing on growth including production slowdowns at German carmakers caused by revised auto emissions standards, yellow-vest protests in France, and Brexit indecision and paralysis. As for China, economic growth remained stable in 1Q2019, in line with the government's target of 6-6.5%, amid Beijing's measures to mitigate threats to growth from the trade conflict with the US. The International Monetary Fund (IMF) in March 2019 revised down its global growth forecast for 2019 to 3.3% from its January 2019 forecast of 3.5%.

According to the International Energy Agency (IEA) report in April 2019, global oil demand in 1Q2019 averaged at 99.5 million barrels per day (MMBD) decreasing from 4Q2018, which was at 99.6 MMBD due to warmer weather than normal winter season and caused lowering the demand, but increasing from 1Q2018 which was at 98.5 MMBD resulted from higher demand from Middle East and Asia countries.

Unit :	1Q2018	4Q2018	1Q2019	%increase(decrease)	
				YoY	QoQ
US\$/barrel					
Average Dubai crude oil price	63.9	67.4	63.5	(0.6%)	(5.8%)
Average Gasoline Crack Spread	13.7	4.7	3.7	(73%)	(21.3%)
Average Diesel Crack Spread	14.8	14.8	12.8	(13.5%)	(13.5%)
Average FO Crack Spread (180 – 3.5%S)	-4.9	1.4	0.6	>100%	(-57.1%)

Average Dubai crude oil price in 1Q2019 was at US\$63.5 per barrel, decreasing from US\$67.4 per barrel and US\$63.9 per barrel in 4Q2018 and 1Q2018 respectively. It is resulted from US temporarily issued waivers on the Iran oil sanction for 8 partner countries and rising of US shale oil production resulting in higher supply. In addition, an uncertainty in US and China trade agreement and global economic slowdown also pressuring oil price.

Petroleum product prices in Singapore spot market has average Gasoline crack spreads in 1Q2019 was at US\$3.7 per barrel, decreasing from 4Q2018 and 1Q2018 at US\$4.7 per barrel and US\$13.7 per barrel respectively amid stable demand and rising export supply from US, China and Singapore causing high inventories. Meanwhile, average Diesel crack spreads in 1Q2019 was US\$12.8 per barrel decreasing from US\$14.8 per barrel in 4Q2018 and 1Q2018 amid lower demand from China e.g. during Chinese New Year Holiday which increases an export amount. Average Fuel oil crack spreads in 1Q2019 was US\$0.6 per barrel, slightly decreasing from US\$1.4 per barrel in 4Q2018 as lower bunker demand during New Year Holiday and Chinese New Year Holiday. However, the spread was increasing from US\$-4.9 per barrel in 1Q2018 from higher demand as a result of last year lower product price and from lower supply from Venezuela and Iran.

Dubai crude cracking margin in Singapore in 1Q2019 averaged US\$3.2 per barrel, decreasing from US\$4.2 per barrel and US\$7.0 per barrel in 4Q2018 and 1Q2018 respectively, amid oversupply of gasoline and lower demand from long holidays in several countries.

Petrochemical prices of Olefins and Aromatics in 1Q2019 decreased from 4Q2018. High density polyethylene (HDPE) and polypropylene (PP) prices lowered due to weaken demand following declining activities during the Chinese New Year, while inventory in China was sufficient. The uncertainties of economic slowdown and US-China trade dispute also resulted in the Olefins prices decreased. For Aromatics, the benzene (BZ) price decreased due to its underlying fundamental, whereas production from all processes remained steady with lower turnarounds, high inventory in China, uneconomical arbitrage from Asia to US, and scheduled turnaround of styrene monomer (SM) in Asia also affect the price. PX price decreased from 4Q2018 due to more supply from startup of an idle plants in China since 2015, and mega-capacity plants in China coming online soon. However, the PX price still higher than 1Q2018 as polyester demand remained high.

Unit : US\$/ton	1Q2018	4Q2018	1Q2019	%Inc.(Dec.)	
				YoY	QoQ
HDPE: CFR SEA	1,379	1,207	1,093	(20.7%)	(9.4%)
PP: CFR SEA - Film	1,270	1,215	1,127	(11.3%)	(7.2%)
BZ: FOB Korea	891	694	590	(33.8%)	(15.0%)
PX: CFR Taiwan	963	1,141	1,080	12.1%	(5.4%)

Thai economy in 1Q2019 grew at a slightly slower pace than 4Q2018, following a decline in merchandise exports, in tandem with economic slowdown from the key trading partners, the continued downturn in electronic cycle, and the strengthening Baht. As for tourism, growth expanded at a slower pace, specifically from Chinese tourists, in part because of high base effects from the previous year. Meanwhile, private sector adopted the wait-and-see stance following the political transition with further inventory destocking after an unusual spike in 2018. Private consumption expanded continuously amid rising incomes and elevated level of the household debt, with government measures supporting low-income group. Government spending expanded at an accelerated pace, bolstered by both government and state-enterprise investment. The Fiscal Policy Office (FPO) in April 2019 has revised down its Thai economic growth forecast for 2019 to 3.8% from its previous estimate of 4.0% in January 2019.

## Non-recurring items in the first Quarter of 2019 until present

Summary of non-recurring items in the First Quarter of 2019 are as follows:

<p>January 2019</p>	<ul style="list-style-type: none"> <li>On 3 January 2019, PTTEP had temporarily shutdown Bongkot's operation by a week due to the Tropical Storm "PABUK" entering the Gulf of Thailand. According to aforementioned situation, average sales volume during the period was reduced by 96,700 barrels of oil equivalent per day or accounted less than 1% of 2019 average sales volume per day.</li> <li>GC informed that GC Logistics Solutions Company Limited ("GCL") which is a wholly-owned subsidiary of GC, established a subsidiary company called GC Logistics Solutions (Vietnam) Company Limited ("GCLS VN"). GCLS VN registered on November 16, 2018 and completed its fully capital paid-up on January 10, 2019 with the amount of 200,000 USD, which GCL holds 100%. GCLS VN operates logistics and distribution business in Vietnam.</li> <li>PTTEP MENA Company Limited, a wholly-owned subsidiary of PTTEP, and Eni Abu Dhabi B.V., a wholly owned subsidiary of ENI, the Italian multinational oil and gas company, have been selected as the successful bidders of two offshore blocks named Offshore 1 and 2 which are located in the north-west of Abu Dhabi, United Arab Emirates for exploration and production rights. The consortium has signed Concession Agreement with the Abu Dhabi National Oil Company (ADNOC) on 12 January, 2019, with the participation interest by PTTEP MENA Limited of 30% and Eni Abu Dhabi B.V. (the Operator) of 70%.</li> </ul>
<p>February 2019</p>	<ul style="list-style-type: none"> <li>On 12 February 2019, IRPC Board of Directors Meeting approved its investment in the newly issued shares of 2D Materials Pte. Ltd. ("2DM"), the owner of graphene manufacturing technology and incorporated under the laws of Singapore. This investment is worth of SGD 2 million for 20% of the total issued shares in 2DM. IRPC is in preparation process of the Share Subscription Agreement ("SSA"), the Shareholders' Agreement ("SHA") and/or any other agreements or documents relating to this investment. The completion of this investment is subject to the fulfilment of Conditions Precedents ("CPs") under the SSA by 2DM.</li> <li>On 15 February 2019, PTTEP SP Limited (a subsidiary of PTTEP) signed the Share Purchase Agreement ("SPA") to acquire 33.8% stake in APICO LLC from Tatex Thailand LLC and Tatex Thailand II LLC (Sinphuhorm Project) with total transaction value of approximately USD 64 million. The closing date is expected to be within the first half of 2019.</li> </ul>

PTTEP is currently the operator with a 55% interest in the Sinphuhorm project. After the completion of the transaction, PTTEP's stake (both direct and indirect) in this project will increase to 66.8%.

- On 25 February 2019, PTTEP Energy Development Company Limited (PTTEP ED), a subsidiary of PTTEP, together with MP G2 (Thailand) Limited, a subsidiary of Mubadala Petroleum (Thailand) Holdings Limited, signed the Production Sharing Contract (PSC) in G1/61 (Erawan field) with the holding interest of 60% and 40% respectively. For G2/61 (Bongkot field), PTTEP ED signed the PSC with the holding interest of 100%. PTTEP ED is the operator of both fields.

March 2019

- On 21 March 2019, PTTEP HK Offshore Limited (a subsidiary of PTTEP) signed a Share Sale and Purchase Agreement ("SSPA") to acquire 100% of Murphy Oil Corporation's ("Murphy") business in Malaysia through the equity in two subsidiaries of Murphy; Murphy Sarawak Oil Company Limited ("Murphy Sarawak") and Murphy Sabah Oil Company Limited ("Murphy Sabah"). The total investment of this transaction is USD 2,127 million. These two acquired companies currently hold 5 projects; 2 producing, 1 development and 2 exploration projects with total estimated proved and probable reserves (2P) of approximately 274 million barrels of oil equivalent (BOE), according to working interest.
- On 21 March 2019, PTTEP HK Offshore Limited (a subsidiary of PTTEP) and PETRONAS Carigali Sdn. Bhd. (PCSB) signed Production Sharing Contracts with Petrolia Nasional Berhad (PETRONAS) for exploration and production rights of 2 blocks located in offshore Peninsular in Malaysia.
- On March 25, 2019, PTT Board of Directors passed a resolution for PTT Global management Company Limited ("PTTGM") (a wholly owned subsidiary of PTT) to establish Global Management Holding Co., Ltd. and Siam Management Holding Co., Ltd. with a registered capital not exceeding Baht 36 million and Baht 18 million, respectively. PTTGM holds 100% in those two companies both directly and indirectly. The objectives of these companies are to support PTT's future investment including but not limited to investment under new S-Curve strategy.
- On March 29, 2019 the Civil Court rendered the judgment that the arbitral award be revoked according to RPCG Public Company ("RPCG") filed a motion to the Court owing to the fact that PTT submitted claim with Thai Arbitration Institute requesting RPCG to make payment which was overdue to PTT under the condensate residue purchase and sell agreement in an amount of approximate Baht 1,500 million and interest charged. In addition, in 2017, the arbitral tribunal reached the award by demanding RPCG to make payment in full claimed amount with interest charged to the Company. However, PTT respectfully cannot concur with the Judgment and, therefore

will appeal the Civil Court's judgment with the Supreme Court in accordance with the law.

- PTTEP reported the successful drilling results of the exploration well, Orchid-1 in Permit AC/P54 located in the Timor Sea of Australia are in line with PTTEP's expectation (PTTEP Australasia (Ashmore Cartier) Pty Ltd or PTTEP AAA, a 100% owned subsidiary of PTTEP, is an operator). The well result will be incorporated in development planning of Cash-Maple field, with total of 3.5 TCF resources.
- PTTEP, together with SONATRACH (Algeria's National Oil and Gas Company) and CNOOC Limited, started the development on Phase 1 of Algeria Hassi Bir Rekaiz Project following the conclusion with partners and its approved development plan by ALNAFT (Agence Nationale pour la Valorisation des Ressources en Hydrocarbures – Regulating body of Hydrocarbon Exploration & Production). The development activities commenced in March 2019 and the first oil production for the initial phase of 10,000-13,000 barrels per day (BPD) is expected in early 2021 with a plan for the second phase production capacity ramping up to around 50,000-60,000 BPD in 2025.
- On 26 December, 2018 GPSC has obtained the relevant approval from the Energy Regulatory Commission (ERC) to acquire 69.11% of Glow Energy Public Company Limited (GLOW) shares from the Engie Group. The transaction is subject to the Condition Precedents mainly the sales of GLOW's SPP1 before the acquisition. Thus, on 22 February, 2019, GLOW entered into the Share Purchase Transaction of GLOW SPP1. In addition, on 14 March 2019, Engie transferred its 69.11% stake holding in GLOW to GSPC at the selling price of Bt 91.9906 per share. Currently, GPSC is in the process of the tender offer in the period of 25 March to 17 May 2019 at the offering price of Bt 90.81 per share (the offering price be deducted by dividend receipt amounting to Bt 1.177 per share.) The total amount of investment is approximately Bt 140,000 million.

April 2019

- In January 2019, TOP entered into agreements with GPSC's wholly-owned subsidiary to transfer ownership in the Energy Recovery Unit (ERU) instead of TOP owned investment. ERU is designed its generating capacity of 250 megawatts and steam to supply to CFP's production process and utilize by-products from the CFP project as the main source of fuel. Total value is not exceeding USD 757 million (approximately THB 24,113 million). The construction of the ERU Project will be completed in the third quarter of 2023. In this regard, the transaction has been approved in the 2019 Annual General Meeting of Shareholders of TOP and GPSC on 10 April 2019 and 1 April 2019, respectively.
- The Energy Policy Administration Committee has decided to gradually increase the price of natural gas for public transport by one baht per kg every four months – The

first increase will start from May 16 2019 onwards and the second increase will start from on Sept 16 2019 onwards and the third increase will start on Jan 16 2020 onwards until reaching the total of three baht per kilogram, which will bring the price to 13.62 baht per kg, thus lower the subsidy burden of PTT.

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**Financial Results of PTT and its subsidiaries by Business**

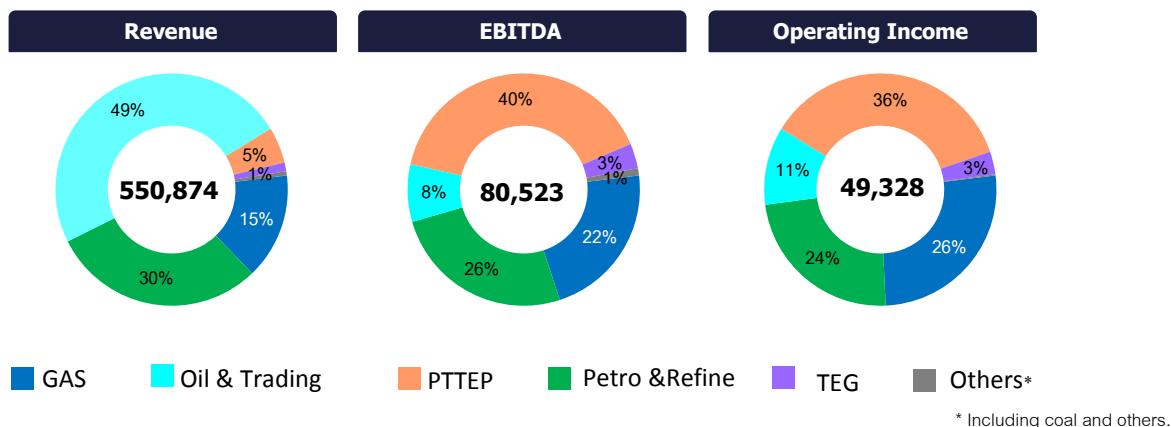
Financial performance of 1Q2019 compared with 1Q2018 and 4Q2018 are summarized as follows:

Unit : Million Baht	Q1/2018	Q4/2018	Q1/2019	% Inc. (Dec.)	
				YoY	QoQ
<b>Sales revenue</b>	<b>532,972</b>	<b>617,417</b>	<b>550,874</b>	<b>3.4%</b>	<b>(10.8%)</b>
: Exploration & Production	37,343	47,263	42,860	14.8%	(9.3%)
: Gas	109,531	131,584	126,139	15.2%	(4.1%)
: Coal	5,157	4,867	4,216	(18.2%)	(13.4%)
: Oil	151,315	151,599	145,883	(3.6%)	(3.8%)
: International trading	257,682	331,492	269,208	4.5%	(18.8%)
: Petrochemical & Refining	266,902	285,132	254,679	(4.6%)	(10.7%)
: Technology and Engineering Business	7,022	7,173	10,439	48.7%	45.5%
: Others	712	616	761	6.9%	23.5%
<b>EBITDA</b>	<b>90,116</b>	<b>64,443</b>	<b>80,523</b>	<b>(10.6%)</b>	<b>25.0%</b>
: Exploration & Production	28,053	34,653	32,812	17.0%	(5.3%)
: Gas	23,244	21,373	17,948	(22.8%)	(16.0%)
: Coal	1,179	2,221	1,209	2.5%	(45.6%)
: Oil	6,318	907	5,729	(9.3%)	>100%
: International trading					
- Excluding effect of FX and derivatives	(127)	(975)	829	>100%	>100%
- Including effect of FX and derivatives	1,250	1,409	613	(51.0%)	(56.5%)
: Petrochemical & Refining	29,172	3,837	20,920	(28.3%)	>100%
: Technology and Engineering Business	1,958	1,394	2,696	37.7%	93.4%
: Others	(260)	(624)	(455)	(75.0%)	27.1%
<b>Depreciation and amortization expenses</b>	<b>28,519</b>	<b>32,682</b>	<b>31,195</b>	<b>9.4%</b>	<b>(4.5%)</b>
<b>Operating Income</b>	<b>61,597</b>	<b>31,762</b>	<b>49,328</b>	<b>(19.9%)</b>	<b>55.3%</b>
: Exploration & Production	15,187	18,419	18,287	20.4%	(0.7%)
: Gas	18,871	16,623	13,333	(29.3%)	(19.8%)
: Coal	619	1,734	378	(38.9%)	(78.2%)
: Oil	5,097	(102)	4,719	(7.4%)	>100%
: International trading					
- Excluding effect of FX and derivatives	(135)	(1,063)	802	>100%	>100%
- Including effect of FX and derivatives	1,242	1,321	586	(52.8%)	(55.6%)
: Petrochemical & Refining	20,686	(5,184)	12,029	(41.8%)	>100%
: Technology and Engineering Business	1,041	386	1,477	41.9%	>100%
: Others	(347)	(708)	(532)	(53.3%)	24.9%
<b>Share of net income from investments in joint ventures and associates</b>	<b>2,472</b>	<b>1,726</b>	<b>1,536</b>	<b>(37.9%)</b>	<b>(11.0%)</b>
<b>Gain on foreign exchange</b>	<b>4,742</b>	<b>1,626</b>	<b>3,875</b>	<b>(18.3%)</b>	<b>&gt;100%</b>
<b>EBIT</b>	<b>71,570</b>	<b>39,144</b>	<b>53,843</b>	<b>(24.8%)</b>	<b>37.6%</b>
<b>Finance costs</b>	<b>6,504</b>	<b>7,182</b>	<b>6,888</b>	<b>5.9%</b>	<b>(4.1%)</b>
<b>Income taxes</b>	<b>8,479</b>	<b>9,551</b>	<b>7,371</b>	<b>(13.1%)</b>	<b>(22.8%)</b>
<b>Net income</b>	<b>39,788</b>	<b>19,538</b>	<b>29,312</b>	<b>(26.3%)</b>	<b>50.0%</b>
<b>Earnings per share (Baht/share)</b>	<b>1.38</b>	<b>0.67</b>	<b>1.02</b>	<b>(26.1%)</b>	<b>52.2%</b>

## Segmentation performance of PTT and its subsidiaries

The details of revenue, Earnings before Interest, Tax, Depreciation and Amortization (EBITDA) and operating income by segmentation of 1Q2019 are as follows;

Unit: Million Baht



### 1. Upstream Petroleum and Gas Business Group

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

	1Q2018	4Q2018	1Q2019	%Inc. (Dec.)	
				YoY	QoQ
Average selling price (US\$/BOE)	44.0	47.8	46.2	5.0%	(3.3%)
Average sales volume (BOED)	293,099	320,905	319,230	8.9%	(0.5%)

### First quarter of 2019 compared with Fourth quarter of 2018

In 1Q2019, sales revenue of PTTEP was Baht 42,860 million, decreasing by Baht 4,403 million or 9.3% from 4Q2018 mainly from the decrease in average selling prices by 3.3% from US\$ 47.8 per barrel of oil equivalent (BOE) in 4Q2018 to US\$ 46.2 per BOE in 1Q2019 and 0.5% slightly decrease in average sales volume from 320,905 barrel of oil equivalent per day (BOED) in 4Q2018 to 319,230 BOED in 1Q2019 primarily from the Bongkot project's maintenance shutdown and the Bongkot's temporary shutdown from Tropical Storm 'PABUK' incident in 1Q2019.

EBITDA in 1Q2019 was Baht 32,812 million, decreasing by Baht 1,841 million or 5.3% mainly from the decrease in gross profit by Baht 3,449 million from the lower sales revenue following the drop in crude oil price despite the decrease in administrative expenses and petroleum royalties by Baht 1,915 million, as well as the decrease in depreciation and amortization expenses by Baht 1,709 million from the Bongkot's maintenance shutdown as aforementioned. As a resulted, operating income in 1Q2019 was Baht 18,287 million, decreasing by Baht 132 million or 0.7%.

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Nonetheless, the overall performance increased by Baht 3,645 million from lower income tax expenses by Baht 6,259 million mainly from an appreciation of Thai Baht against US Dollar in 1Q2019, versus the depreciation of Thai Baht against US Dollar in 4Q2018. In 1Q2019, there was an increase in gain on foreign exchange by Baht 1,273 million versus the higher loss on derivatives by Baht 4,965 million due to oil price hedging transactions. In addition, in 1Q2019, there was no recognition of loss on the Montara field divestment and derecognition of deferred tax assets in Australia versus those transaction be recorded in 4Q2018.

### First quarter of 2019 compared with First quarter of 2018

In 1Q2019, PTTEP reported its sales revenue of Baht 42,860 million, increasing by Baht 5,517 million or 14.8% from 1Q2018. This resulted mainly from 8.9% increase in average sales volume from 293,099 BOED in 1Q2018 to 319,230 BOED in 1Q2019 according to an additional participating interests of 22.22% in the Bongkot field since June 2018 and 5.0% increase in average selling prices from US\$ 44.0 per BOE in 1Q2018 to US\$ 46.2 per BOE in 1Q2019.

EBITDA in 1Q2019 was recorded by Baht 32,812 million, increasing by Baht 4,759 million or 17.0%. The increase in EBITDA was mainly from the increase in gross profit by Baht 5,497 million from the higher sales revenue despite the increase in petroleum royalties by Baht 578 million following the increase in domestic sales revenue. Whereas, there were higher depreciation and amortization expenses by Baht 1,659 million mainly from the 22.22% additional participating interests of the Bongkot project. As a result, 1Q2019 operating income was reported at Baht 18,287 million, increasing by Baht 3,100 million or 20.4%.

In 1Q2019, overall performance dropped by Baht 902 million from an increase in income tax expense regarding the impact from less appreciation of Thai Baht against US Dollar in 1Q2019 than in 1Q2018 as well as the increase in loss on derivatives by Baht 1,216 million due to an oil price hedging.

## Gas Business Group

The details of all product sales volume from GSPs are as follows:

Unit : Ton	1Q2018	4Q2018	1Q2019	% Inc.(Dec.)	
				YoY	QoQ
LPG	714,378	838,498	830,518	16.3%	(1.0%)
Ethane	584,032	595,823	555,281	(4.9%)	(6.8%)
Propane	245,522	236,549	241,799	(1.5%)	2.2%
NGL <sup>1/</sup>	179,331	171,968	166,458	(7.2%)	(3.2%)
<b>Total</b>	<b>1,723,263</b>	<b>1,842,838</b>	<b>1,794,056</b>	<b>4.1%</b>	<b>(2.6%)</b>

Note:<sup>1/</sup> include Pentane

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

Unit : US\$ per Ton	1Q2018	4Q2018	1Q2019	% Inc.(Dec.)	
				YoY	QoQ
LPG <sup>1/,4/</sup>	524	531	460	(12.2%)	(13.4%)
Ethylene <sup>2/</sup>	1,244	883	928	(25.4%)	5.1%
Propylene <sup>2/</sup>	987	936	839	(15.0%)	(10.4%)
HDPE <sup>2/</sup>	1,379	1,207	1,093	(20.7%)	(9.4%)
PP <sup>2/</sup>	1,270	1,215	1,127	(11.3%)	(7.2%)
Naphtha <sup>3/</sup>	525	583	467	(11.1%)	(19.9%)

Note:<sup>1/</sup> Contract Price (CP) 50:50

<sup>2/</sup> South East Asia - Spot Price

<sup>3/</sup> MOP Singapore (MOP'S)

<sup>4/</sup> The National Energy Policy Council (NEPC) had resolution to fully liberalize LPG by cancelling price setting of LPG ex GSP and refinery from LPG Pool Price, and changed to Imported Parity or LPG Cargo + X (freight cost), effective on Aug 31, 2017. In case of GSP, The National Energy Policy Office (NEPO) had resolution to collect margin to oil stabilization fund between LPG Cargo + X and LPG ex GSP + 1 \$/ton and will compensate if LPG Cargo + X lower than LPG ex GSP -1 \$/ton effective on July 6, 2018.

## First quarter of 2019 compared with Fourth quarter of 2018

In 1Q2019, gas business reported its sales revenue of Baht 126,139 million, decreasing by Baht 5,445 million or 4.1% from 4Q2018. This was resulted mainly in a decrease in sales revenue of PTT's GSP business unit as a result of declining average selling prices following reference petrochemical prices, which HDPE and PP price decreased by 9.4% and 7.2% respectively. In addition, the decrease in overall GSP's sales volume (including NGL derived from Dew Point Control units) was from 1,842,838 tons in 4Q2018 to 1,794,056 tons in 1Q2019 or 2.6%, especially Ethane due to planned turn down of the gas separation plant unit 1 (GSP 1).

Sales revenue of PTT's S&M business units decreased due to the lower average selling prices in 1Q2019 compared with 4Q2018 according to the lower referenced fuel oil prices. Whereas, the average natural gas sales volume (calculated at heating value of 1,000 BTU per cubic foot) increased by 40 standard cubic feet per day (MMSCFD) from 4,707 MMSCFD in 4Q2018 to 4,747 MMSCFD in 1Q2019 or 0.8% mainly from

independent power producer (IPP) and small power plant (SPP) from higher demand during the warmer weather than usual.

NGV business unit had higher loss in the gross margin mainly from higher natural gas cost. In 1Q19, NGV's selling prices to private cars was Baht 16.21 per kg and the selling prices to taxi and public cars was Baht 10.62 per kg.

In 1Q2019, EBITDA and operating income of gas business group was reported by Baht 17,948 million and Baht 13,333 million, decreasing by Baht 3,425 million and Baht 3,290 million respectively. This was resulted from lower gross margin of GSP business due to the decline in average selling prices following referenced petrochemical prices. In addition, S&M business declined mainly from lower average selling price following referenced fuel oil price (decreasing by 6.9%), and higher pooled gas price. Moreover, PTT's gas subsidiaries decreased mainly from PTT Natural Gas Distribution Co., Ltd. (PTTNGD) following the lower average selling prices, despite increased PTT LNG Co., Ltd. (PTTLNG) performance from higher revenue recognition of LNG terminal 1 at its full capacity of 10 million ton per annum.

### First quarter of 2019 compared with First quarter of 2018

In 1Q2019, gas business reported sales revenue of Baht 126,139 million, increasing by Baht 16,608 million or 15.2%. This was primarily resulted from the higher sales revenue of S&M business according to an increase in average selling prices following higher gas price and the rise in average natural gas sales volume (calculated at heating value of 1,000 BTU per cubic foot) 103 MMSCFD from 4,644 MMSCFD in 1Q2018 to 4,747 MMSCFD in 1Q2019 or 2.2% mainly from higher gas demand of power producer customers due to warmer weather than in 1Q2018. On the other hand, GSP's gas demand was lower due to planned turn down of GSP 1.

In addition, sales revenue of PTT's GSP business unit increased due to overall sales volume increased from 1,723,263 tons in 1Q2018 to 1,794,056 tons in 1Q2019 or 4.1% especially from LPG versus GSP's sales volume in other products and those overall average selling prices decreased.

EBITDA and operating income of gas business group in 1Q2019 was reported by Baht 17,948 million and Baht 13,333 million, decreasing by Baht 5,296 million and Baht 5,538 million respectively. The lower gross margin of PTT's GSP was due to higher gas cost and the decrease in average selling prices of the referenced petrochemical prices; HDPE and PP price decreased by 20.7% and 11.3%, respectively. S&M business reported lower performance mainly from industrial customers due to significant increase in pooled gas cost. Moreover, NGV loss increased from the higher natural gas cost despite the sales volume decreased. Though, the selling prices of taxi and public cars uplifted from Baht 10.00 per kg to Baht 10.62 per kg since 16 May 2018 resulted in higher selling price. However, in 1Q10, PTT's gas subsidiaries reported better performance from PTTLNG according to its increased revenue as aforementioned.

## Coal Business

	1Q2018	4Q2018	1Q2019	%Inc. (Dec.)	
				YoY	QoQ
Newcastle index price (US\$ per ton)	101.5	104.4	95.9	(5.5%)	(8.1%)
Average selling price (US\$ per ton)	79.9	70.6	65.6	(17.9%)	(7.1%)
Sales volume (million tons)	2.1	2.1	2.0	(4.8%)	(4.8%)

### First quarter of 2019 compared with Fourth quarter of 2018

In 1Q2019, sales revenue of coal business was Baht 4,216 million, decreasing by Baht 651 million or 13.4% compare with 4Q2018 mainly due to the decrease of average selling prices by US\$ 5.0 per ton or 7.1% from US\$ 70.6 per ton to US\$ 65.6 per ton in 1Q2019, following the decrease of Newcastle reference prices by 8.1%. In addition, sales volume decreased by 0.1 million tons or 4.8% from 2.1 million tons in 4Q2018 to 2.0 million tons in 1Q2019 from lower sales volume of Sebuk, due to awaiting for government approval to export.

EBITDA in 1Q2019 was Baht 1,209 million, decreasing by Baht 1,012 million or 45.6% mainly from the decrease in gross profit following lower revenue as aforementioned. The operating income in 1Q2019 was Baht 378 million, decreasing by Baht 1,356 million following EBITDA, including the increase of depreciation and amortization expense by Baht 344 million. However, there were payback of tax lawsuit case from the Indonesian Supreme Court in 1Q2019 following the settled of past tax lawsuits, resulted to overall performance improved.

### First quarter of 2019 compared with First quarter of 2018

Sales revenue in 1Q2019 was Baht 4,216 million, decreasing by Baht 941 million or 18.2% mainly due to decrease in the average selling prices from US\$ 79.9 per ton in 1Q2018 to US\$ 65.6 per ton in 1Q2019 or by US\$ 14.3 per ton, 17.9%. According to the enforcement of the regulation to capitalize the ceiling of coal's selling price for power plants in Indonesia, effective on 1 April 2018 onwards and the decrease of Newcastle referenced price by 5.5%. In addition, sales volume in 1Q2019 slightly decreased by 0.1 million ton or 4.8% from 2.1 million ton in 1Q2018 to 2.0 million ton in 1Q2019 from lower sales volume of Sebuk as aforementioned.

EBITDA in 1Q2019 was Baht 1,209 million, increasing by Baht 30 million or 2.5% mainly due to the decrease in gross profit following lower revenue as aforementioned. Whereas, Operating income in 1Q2019 was Baht 378 million, decreasing by Baht 241 million, compared with 1Q2018 following higher depreciation and amortization expenses by Baht 271 million. In addition, there were payback of past tax lawsuit case in 1Q2019 whereas there were expense in 4Q2018, leading to the improvement in the overall performance.

## 2. Downstream Petroleum Business Group

### Oil Business Group

	1Q2018	4Q2018	1Q2019	%Inc. (Dec.)	
				YoY	QoQ
Average sales volume (Unit: Million Liter)	6,929	6,542	6,656	(3.9%)	1.7%
Average selling prices (Unit: US\$ per barrel)					
Gasoline	77.6	72.1	67.2	(13.4%)	(6.8%)
Aviation	80	83.1	76.5	(4.4%)	(7.9%)
Diesel	78.6	82.2	76.3	(2.9%)	(7.2%)
FO	59	68.8	64.1	(8.6%)	(6.8%)

### First quarter of 2019 compared with Fourth quarter of 2018

In 1Q2019, sales revenue of oil business was Baht 145,883 million, decreasing by Baht 5,716 million or 3.8% from the decrease in the selling prices of most of the products, following global crude oil prices. Whereas, sales volume increased by 114 million liters or 1.7% from 6,524 million liters or equivalent to 447,267 barrels per day in 4Q2018 to 6,656 million liters or equivalent to 465,164 barrels per day in 1Q2019 mainly due to higher demand from aviation fuel during travelling season and diesel during manufacturing season.

EBITDA and Operating income in 1Q2019 recorded at Baht 5,729 million and Baht 4,719 million increasing from 4Q2018 by Baht 4,822 million and Baht 4,821 million, respectively (more than 100%), mainly due to significant decrease in stock loss in 1Q2019 as well as lower advertising expenses and sales promotion, amid lower gross profit of aviation fuel from its selling price structure which is reference to the product price in the previous month (M-1).

### First quarter of 2019 compared with First quarter of 2018

Sales revenue of oil business in 1Q2019 was Baht 145,883 million, decreasing by Baht 5,432 million or 3.6% mainly from lower product selling prices from most products. Also, sales volume decreased by 273 million liters or 3.9% from 6,929 million liters or equivalent to 484,242 barrels per day in 1Q2018 to 6,656 million liters or equivalent to 465,164 barrels per day in 1Q2019, particularly the LPG and diesel products, due to the highly competitive market conditions.

EBITDA and operating income in 1Q2019 were Baht 5,729 million and Baht 4,719 million, decreasing by Baht 589 million and Baht 378 million, respectively, mainly from lower gross profit, particularly aviation fuel which decreased as aforementioned, and from higher stock loss versus the increase in gross profit of Non-oil business from branch expansions.

## International Trading Business Group

Unit : Million Liter	1Q2018	4Q2018	1Q2019	%Inc. (Dec.)	
				YoY	QoQ
Average sales volume	18,554	21,024	20,372	9.8%	(3.1%)

### First quarter of 2019 compared with Fourth quarter of 2018

Sales revenue of international trading business in 1Q2019 was Baht 269,208 million, decreasing by Baht 62,284 million or 18.8% from 4Q2018 due to the decrease in product selling prices in accordance with global oil prices and sales volume also decreased by 652 million liters or 3.1% from 21,024 million liters or equivalent to 1,437,391 barrels per day in 4Q2018 to 20,372 million liters or equivalent to 1,423,778 barrels per day in 1Q2019 due to lower sales volume of out-out Trading activities following a declining demand of refined products, particularly diesel and aviation fuel due to warmer weather-than-normal winter season.

EBITDA and Operating income, adjusted by the effect of foreign exchange rate and derivatives, in 1Q2019 was Baht 613 million and Baht 586 million, decreasing by Baht 796 million and Baht 735 million, respectively mainly due to lower domestic condensate price, started decreasing since year end 2018, which affect to the margin of domestic condensate decreased from the pressure of referenced price as US exported more light crude which is the substitute products.

### First quarter of 2019 compared with First quarter of 2018

In 1Q2019, sales revenue of international trading business was Baht 269,208 million, increasing by Baht 11,526 million or 4.5% which resulted from the rise in sales volume by 1,818 million liters or 9.8% from 18,554 million liters or equivalent to 1,296,728 barrels per day in 1Q2018 to 20,372 million liters or equivalent to 1,423,778 barrels per day in 1Q2019 mainly due to higher sales volume of imported crude and condensate for domestic refineries, including the trade expansion in Europe and United State.

EBITDA and operating income, adjusted by the effect of foreign exchange rate and derivatives, in 1Q2019 were Baht 613 million and Baht 586 million, decreasing by Baht 637 million and Baht 656 million, respectively mainly due to lower margin of domestic condensate decreased from the pressure of referenced price as aforementioned.



## Petrochemical and Refinery Business Group

Unit : US\$ per barrel	1Q2018	4Q2018	1Q2019	%Inc. (Dec.)	
				YoY	QoQ
Market GRM	5.15	4.47	2.44	(52.6%)	(45.4%)
Inventory gain (loss)	0.23	(6.17)	1.80	>100%	>100%
Accounting GRM	5.30	(1.85)	4.22	(20.4%)	>100%
Refinery Utilization rate (%)	105.3%	105.3%	105.1%	(0.2%)	(0.2%)

Unit : US\$ per Ton	1Q2018	4Q2018	1Q2019	%Inc. (Dec.)	
				YoY	QoQ
<b>Olefins</b>					
Naphtha (MOPJ)	581	568	519	(10.7%)	(8.6%)
HDPE	1,379	1,207	1,093	(20.7%)	(9.4%)
HDPE - Naphtha	798	639	573	(28.2%)	(10.3%)
LLDPE	1,241	1,098	1,037	(16.4%)	(5.6%)
LLDPE - Naphtha	660	530	518	(21.5%)	(2.3%)
LDPE	1,274	1,102	1,046	(17.9%)	(5.1%)
LDPE - Naphtha	694	534	526	(24.2%)	(1.5%)
PP	1,270	1,215	1,127	(11.3%)	(7.2%)
PP - Naphtha	689	647	608	(11.8%)	(6.0%)
<b>Aromatics</b>					
Condensate	573	579	535	(6.6%)	(7.6%)
PX (TW)	963	1,141	1,080	12.1%	(5.4%)
PX (TW) – Condensate	391	562	545	39.4%	(3.0%)
BZ	891	694	590	(33.8%)	(15.0%)
BZ – Condensate	318	115	55	(82.7%)	(52.2%)

### First quarter of 2019 compared with Fourth quarter of 2018

In 1Q2019, sales revenue of petrochemical and refining business was Baht 254,679 million, decreasing by Baht 30,453 million or 10.7% mainly due to the decrease in sales revenue of refining business as average petroleum product prices of all products drop following lower crude oil price compared with the previous quarter. This is due to the continual increase in crude supply from US and resuming production in Libya since December 2018 together with concerned over economic slowdown from unresolved US and China Trade War. Meanwhile, sales volume slightly dropped due to lower utilization rates of refineries decreasing from 105.3% in 4Q2018 to 105.1% in 1Q2019 from the planned turnaround of IRPC's RDCC for 28 days to change the equipment in Catalyst Cooler project.

In addition, overall sales revenue of petrochemical business decreased mainly from Aromatics Business following lower sales volume and BZ and PX product prices. The BZ price dropped due to lower demand of SM and Phenol following several planned turnaround in Asia as well as continuously increase of BZ inventories in

China. The decrease of PX price was due to the higher supply from commercial operation of new Aromatics plant in Saudi Arabia and Vietnam versus high level of PX demand. However, Olefins' sales revenue increased from higher sales volume, despite lower product prices following a declining demand from concern over the impact of the US – China trade war.

EBITDA and operating income of petrochemical and refining business in 1Q2019 were Baht 20,920 million and Baht 12,029 million, increasing by Baht 17,083 million and Baht 17,213 million from 4Q2018, respectively, mainly due to higher stock gain in 1Q2019 and as follow;

- Refinery performance excluding stock gain/(loss) decreased from lower Gross Refining Margin excluding stock gain/(loss) (Market GRM) following the drop in all petroleum product spreads over crude oil price. However, there was stock gain in 1Q2019 of US\$ 1.8 per bbl which was substantially increased from 4Q2018 that had stock loss of US\$ (6.2) per bbl, resulting in higher Accounting GRM from US\$ (1.9) per bbl in 4Q2018 to US\$ 4.2 per bbl in 1Q19. Therefore, the overall Refinery performance improved.
- Petrochemical performance of Olefins and Aromatics excluding stock gain/(loss) decreased from the drop in Olefins Petrochemical performance, mainly from lower product prices (HDPE (10.3%), LLDPE (2.3%), LDPE (1.5%), PP (6.0%)). For Aromatics business, PX and BZ spread over condensate decreased 3.0% and 52.2% respectively. However, there were stock gain and reversal of net realized value of inventory as of 4Q2018 from higher condensate price following crude oil price, led to a slightly increased in Aromatics performance. Therefore, overall Petrochemical performance marginally improved.

### First quarter of 2019 compared with First quarter of 2018

In 1Q2019, sales revenue of petrochemical and refining business was Baht 254,679 million, decreasing by Baht 12,223 million or 4.6% mainly from the drop in sales revenue of refining business due to decreasing in average selling prices of most petroleum products following the drop in crude oil prices, especially a sharp decrease in Gasoline product, despite higher in fuel oil price versus same level of sales volume as 1Q18. Utilization rates of refineries slightly decreased from 105.3% in 1Q2018 to 105.1% in 1Q2019.

In 1Q2019, overall sales revenue of petrochemical business decreased mainly from the Aromatics business; the overall sales volume decrease and BZ product price dropped according to the BZ over supply, despite PX product price increased. However, the Olefins sales revenue in 1Q2019 increased following higher sales volume due to GC's and IRPC's planned maintenance shutdown in 1Q2018, despite considerably lower of product prices. The lower of Olefins product prices in 1Q2019 when compared with 1Q2018, also resulted in high

product prices in 1Q2018 from a rising demand following China’s environmental policy as well as, the concerns over trade war and caused lower demand.

In 1Q2019, EBITDA of petrochemical and refining business was Baht 20,920 million, dropping by Baht 8,252 million, and operating income was Baht 12,029 million, decreasing by Baht 8,657 million, mainly from

- Refinery performance excluding stock gain/(loss) decreased from lower Market GRM following the decrease in almost all petroleum product crack spreads over crude oil except fuel oil spread, especially the Gasoline spread which significantly decreased from oversupply. Whereas, fuel oil spread increased from lower heavy crude supply following Iran sanctions and lower production of Venezuela. Hence, stock gain increased from US\$ 0.2 per bbl in 1Q2018 to US\$ 1.8 per bbl in 1Q2019 following a rise in crude price in 1Q19 compared with 4Q2018, meanwhile 1Q2019 crude price remained stable. Nonetheless, Accounting GRM dropped from US\$ 5.3 per bbl in 1Q2018 to US\$ 4.2 per bbl in 1Q2019, leading to overall Refinery performance decreased.
- Overall Petrochemical performance decreased mainly from lower performance of Olefins business. This resulted in the significant drop of product prices according to US-China trade war (HDPE (28.2%), LLDPE (21.5%), LDPE (24.2%), PP (11.8%)). Whereas, performance of Aromatic business improved from considerably higher PX spread by 39.4% following high downstream demand of polyester chain. However, BZ spread significantly decreased by 82.7% which was pressured by lower crude price and high cumulative supply in the market.

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Technology and Engineering Business Group

Unit: GWh	1Q2018	4Q2018	1Q2019	%Inc. (Dec.)	
				YoY	QoQ
Power Sales Volume	1,208	1,150	2,039	68.8%	77.3%

**First quarter of 2019 compared with Fourth quarter of 2018**

In 1Q2019, sales revenue of Technology and Engineering Business was Baht 10,439 million, increasing by Baht 3,266 million or 45.5% mainly from higher revenue of GLOW following the acquisition of 69.11% stake in GLOW by GSPC since 14 March 2019 and higher sales revenue of Sriracha Power Plant due to the increase in Availability Payment (AP) as there was no major maintenance shutdown in 1Q2019.

EBITDA in 1Q2019 was Baht 2,696 million, increasing by Baht 1,302 million or 93.4% mainly from GPSC due to higher gross profit from higher sales revenue even cost of sales rose in accordance to natural gas costs, and there was no maintenance shutdown in 1Q2019. As a result, 1Q2019 Operating income was Baht 1,477 million, increasing by Baht 1,091 million in line with the increase in EBITDA despite higher depreciation and amortization expense by Baht 211 million mainly from the acquisition in GLOW by GSPC as aforementioned .

**First quarter of 2019 compared with First quarter of 2018**

In 1Q2019, sales revenue of Technology and Engineering Business was Baht 10,439 million, increasing by Baht 3,417 million or 48.7% mainly from higher revenue of GLOW, as a result of the acquisition in GLOW of 69.11% stake by GPSC in 1Q2019 and from higher sales revenue and sales volume. The increase in sales volume supported by less maintenance shutdown of IRPC-CP in 1Q2019 compared with the same period last year.

EBITDA in 1Q2019 was Baht 2,696 million, increasing by Baht 738 million or 37.7% mainly from GPSC due to higher gross profit from the acquisition in GLOW by GPSC despite rising natural gas cost and higher selling and administrative expenses. As a result, 1Q2019 operating income was Baht 1,477 million, increasing by Baht 436 million in line with the increase in EBITDA, although depreciation and amortization expenses increased from the acquisition in GLOW by GPSC.

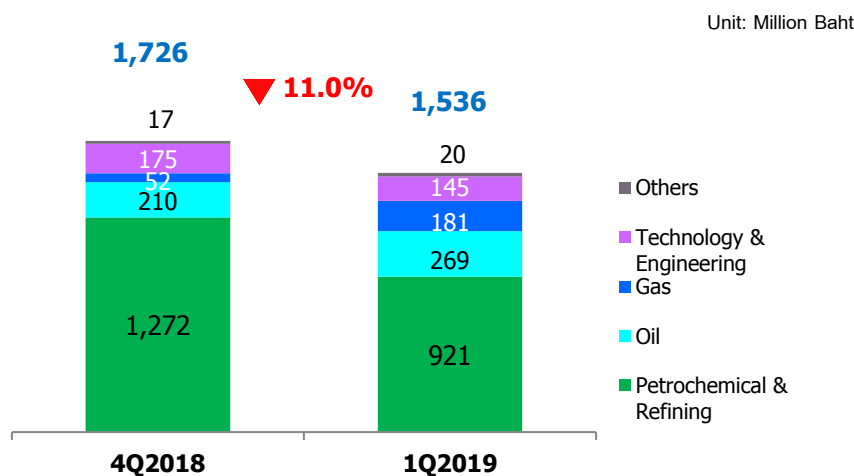
Overall performance of PTT and its subsidiaries

First quarter of 2019 compared with Fourth quarter of 2018

In 1Q2019, sales revenue of PTT and its subsidiaries was Baht 550,874 million, decreasing by Baht 66,543 million or 10.8% mainly from International Trading business and Petrochemical and Refining businesses according to a decrease in product selling prices and sales volume. However, operating performance in this quarter rose mainly from petrochemical and refining businesses and oil business according to their stock gain in 1Q19. Even though, exploration and production business performance decreased due to lower gross margin from lower sales volume and prices. Consequently, EBITDA of PTT and its subsidiaries in this quarter was baht 80,523 million increasing by baht 16,080 million or 25.0%.

The depreciation and amortization expenses of Baht 31,195 million were dropped by Baht 1,487 million or 4.5%, from 4Q2018 of Baht 32,682 million. The decrease in depreciation and amortization was mainly from the lower production volume of Bongkot field, due to its maintenance shutdown and Bongkot's temporary shutdown due to Tropical Storm 'PABUK' incident in 1Q2019.

Share of net income from investments in joint ventures and associates



In 1Q2019, the share of net income from investments in joint ventures and associates was Baht 1,536 million, decreasing by Baht 190 million from Baht 1,726 million in 4Q2018. It was primarily from lower performance of joint ventures in petrochemical and refining business group mainly from the PTT Asahi Chemical Company Limited (PTTAC) (a joint venture of GC) following the lower of Acrylonitrile (AN) and Methyl Methacrylate (MMA) product spread.

In 1Q2019, there was the higher loss on derivatives of Baht 5,971 million from 4Q2018 mainly resulted from commodity hedging contract of PTTT and PTTEP.

The company recorded gain on foreign exchange of Baht 3,875 million in 1Q2019, increasing by Baht 2,249 million from Baht 1,626 million in 4Q2018 mainly due to the increase in Thai Oil's unrealized gain of US Dollar loan, and the increase of PTTEP's realized and unrealized gain on foreign exchange of account receivables as a result of appreciation of Thai Baht against US Dollar in 1Q2019 versus the depreciation of Thai Baht against US Dollar in 4Q2018.

In 1Q2019, there was no non-recurring items, whereas in 4Q2018 recognized non-recurring items as follow: the gain on business acquisition of GC amounting by Baht 1,355 million, loss on Montara field divestment of PTTEP amounting to Baht 678 million as well as the derecognition of deferred tax assets of Montara asset of Baht 1,754 million. Those transactions were recognized as profit attributable to owner of the parent of Baht 950 million.

The corporate income taxes in 1Q2019 was baht 7,371 million decreased by Baht 2,180 million or 22.8% from Baht 9,551 million in 4Q2018. This resulted mainly in the impact from the appreciation of Thai Baht against US Dollar in 1Q2019 versus the depreciation of Thai Baht against US Dollar in 4Q2018.

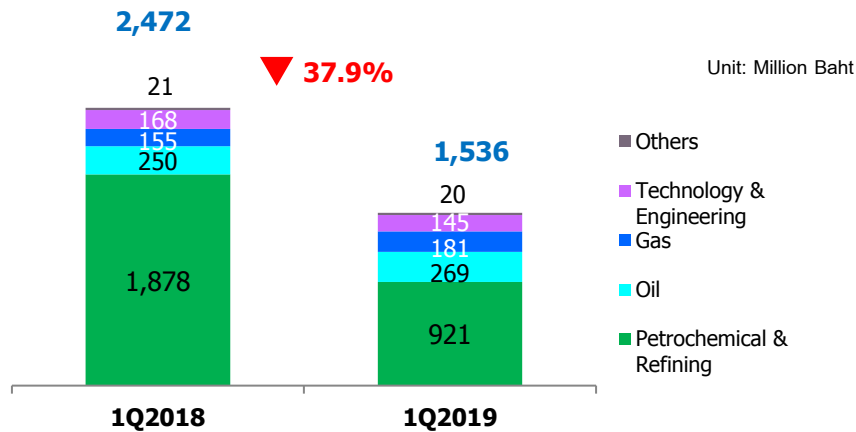
Therefore, PTT and its subsidiaries reported net income in 1Q2019 of Baht 29,312 million, increasing by Baht 9,774 million or 50.0% from 4Q2018 of Baht 19,538 million.

### First quarter of 2019 compared with First quarter of 2018

PTT and its subsidiaries recorded 1Q2019 sales revenue of Baht 550,874 million, increased of Baht 17,902 million or 3.4% mainly from Gas business, International Trading business and Exploration and Production business even sales revenue of petrochemical and refining businesses and oil business decreased. However, overall performance in this quarter decreased mainly from Petrochemical and Refining businesses and gas business meanwhile performance of exploration and production business increased. Consequently, EBITDA of PTT and its subsidiaries in this quarter was Baht 80,523 million, decreasing by baht 9,593 million or 10.6%

In 1Q2019, the company recorded the depreciation and amortization expenses of Baht 31,195 million, increasing by Baht 2,676 million or 9.4% from Baht 28,519 million in 1Q2018 according to PTTEP's acquisition of 22.22% participating interest in Bongkot project.

Share of net income from investments in joint ventures and associates



In 1Q2019, share of net income from investments in joint ventures and associates was Baht 1,536 million, decreasing by Baht 936 million or 37.9% from Baht 2,472 million in 1Q2018 mainly from the lower performance of PTTAC following the drop in AN and MMA product spread.

In 1Q2019, PTT and its affiliates had loss on derivatives of Baht 3,780 million, while it was gain on derivatives of Baht 355 million in 1Q2018, mainly due to commodity hedging contract of PTTT and PTTEP, and financial derivative contracts of IRPC and TOP.

There was gain on foreign exchange, decreasing by Baht 867 million from Baht 4,742 million in 1Q2018 to Baht 3,875 million in 1Q2019. This resulted mainly in the decrease in unrealized gain on foreign exchange from US Dollar loan of PTT due to less appreciation of Thai Baht against US Dollar than in 1Q2018.

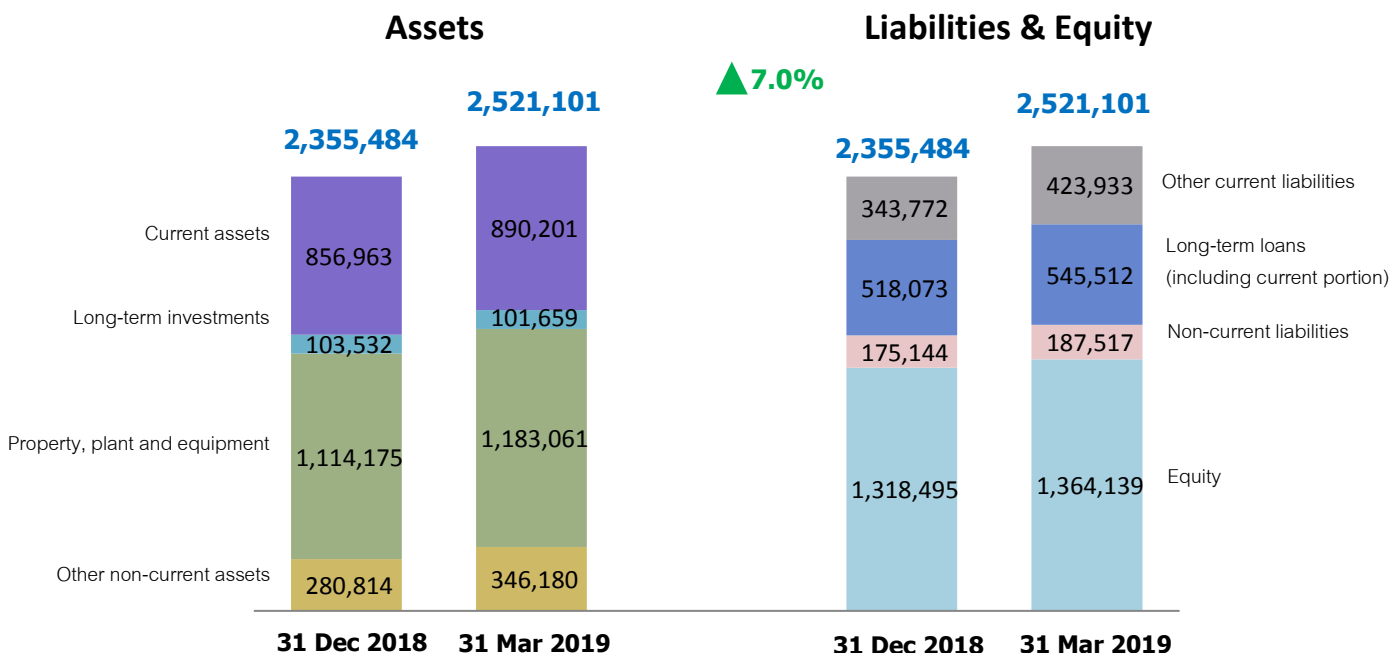
The corporate income taxes in 1Q2019 decreased from Baht 8,479 million in 1Q2018 to Baht 7,371 million or by Baht 1,108 million, 13.1% mainly from the overall performance of PTT group decreased.

Therefore, PTT and its subsidiaries reported net income of Baht 29,312 million in 1Q2019, a decrease of Baht 10,476 million or 26.3% from 1Q2018 of Baht 39,788 million.

The analysis of PTT and its subsidiaries' consolidated financial position

as of March 31, 2019 compared with December 31, 2018

Unit: Million Baht



Assets

As of March 31, 2019, total assets of PTT and its subsidiaries were Baht 2,521,101 million, increasing by Baht 165,617 million or 7.0% compared with December 31, 2018. The increase was mainly from the net effect of the followings:

- : An increase of Baht 33,238 million or 3.9% in current assets was mainly from the followings:
  - Net increase of Baht 16,162 million in cash and cash equivalents and current investment mainly from the rise in operating cash flow from PTT and affiliates including cash inflow from financing for the acquisition in GLOW by GPSC, which affect to the rise in cash.
  - An increase of Baht 10,254 million in trade account receivables mainly due to PTTT's sales volume increased compared with the end of last year.
  - An increase of Baht 8,767 million in Inventory mainly from petrochemical and refining businesses group due to the rise in inventory volume and prices following rising global petroleum price.
  - A decrease of Baht 1,945 million in other current assets mainly from the drop in derivatives asset of affiliates and the decrease in other accounts receivable primarily due to the received from oil stabilization fund and excise tax of PTT.

: A decrease of Baht 1,873 million or 1.8% of long-term investment mainly from the maturity of GC's private investment fund.

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: An increase of Baht 68,886 million or 6.2% in property, plant and equipment was mainly from the acquisition of 69.11% stake in GLOW by GSPC resulted in asset recognition in PTT Group by Baht 71,481 million. Excluding the acquisition transaction as aforementioned, property, plant and equipment of PTT Group decreased mainly from depreciation, amortization and depletion in this period. Although, there was additional investments in exploration and production assets in S1 and Zawtika projects of PTTEP, the additional construction in progress assets of PTT Group, for instance, GC's Olefins Reconfiguration and Propylene Oxide and Polyols, PTT's the 5<sup>th</sup> transmission pipeline project, TOP's Sriracha Building project, New Crude Tanks Construction project, New Jetty 7&8 and Clean Fuel Project, PTTOR's Oil stations expansion and IRPC's Catalyst Cooler project.

: An increase of Baht 65,366 million or 23.3% in other non-current assets was mainly from the increase in goodwill according to the acquisition of 69.11% stakes in GLOW by GPSC.

Liabilities

As of March 31, 2019, PTT and its subsidiaries had total liabilities of Baht 1,156,962 million, increasing by Baht 119,973 million or 11.6% from December 31, 2018, mainly from the followings:

: An increase of Baht 80,161 million or 23.3% in other Current Liabilities primarily from higher short term loan of Baht 67,302 million mainly from GPSC's short term loan according to the acquisition of 69.11% stakes of GLOW by GSPC.

: An increase of Baht 27,439 million or 5.3% in long-term loans (including the current portion within 1 year) mainly from GLOW's long-term loans of Baht 35,421 million which recognized as liabilities of PTT group after the acquisition. Besides, there was additional loans of Baht 5,261 million in this period mainly from GPSC and GC. However, there were repayment of long-term loans and the redemption of debenture amounting to Baht 9,315 million mainly from TOP, GC, GPSC and IRPC. Moreover, the effect of foreign exchange resulted in lower long-term loans by Baht 3,694 million.

: An increase of Baht 12,373 million or 7.1% in non-current liabilities mainly from advance receivable of GLOW which recognized as liabilities of PTT group after the acquisition.

Equity

As of March 31, 2019, PTT and its subsidiaries had total shareholders' equity of Baht 1,364,139 million, increasing by Baht 45,644 million or 3.5% from the year ended 2018, mainly due to the performance of the first three months of PTT and its subsidiaries, which was Baht 29,312 million and non-controlling interest from the acquisition in GLOW by GPSC by 31% amounting to Baht 20,325 million.

## Liquidity

For the three month ended March 31, 2019, PTT and its subsidiaries had net increase in cash and cash equivalents amounting to Baht 47,979 million, and cash and cash equivalents at the beginning of the period was Baht 292,184 million. As a result, cash and cash equivalents at the end of the period was Baht 340,163 million. Details of cash flow by activities are as follows:

	Unit: Million Baht
Net cash provided by operating activities	69,937
Net cash used in investing activities	(77,150)
Net cash provided by financing activities	57,080
Effects of exchange rates on cash and cash equivalents	(8)
Currency translation differences	(1,880)
Net decrease in cash and cash equivalents during the period	<u>47,979</u>
Cash and cash equivalents at the beginning of the period	<u>292,184</u>
Cash and cash equivalents at the end of the period	<u>340,163</u>

Net cash provided by operating activities of Baht 69,937 million was derived from Baht 29,312 million of net profit attributable to owners of the parent, adjusted by net profit to net cash provided (used in) by operating activities. The increase in net cash flow are from operating activities mainly resulted from Baht 31,195 million of depreciation and amortization expenses, Baht 10,272 million of net profit attributable to non-controlling interests, Baht 7,371 million of income taxes, Baht 6,888 million of finance costs, together with the decrease in net operating assets of Baht 7,836 million and income taxes paid of Baht 1,874 million.

Net cash used in investing activities was Baht 77,150 million mainly resulted from the followings:

: The cash outflow of other long-term investments amounting to Baht 70,680 million, mainly from the acquisition of 69.% stake in GLOW by GPSC.

: The cash outflow of investments in property, plant and equipment, investment property, intangible assets, and exploration and evaluation assets amounting to Baht 35,034 million, mainly due to additional investment in exploration and production assets in S1 and Zawtika projects of PTTEP, the additional construction in progress assets of PTT Group, for instance, GC's projects; Olefins Reconfiguration, Propylene Oxide and Polyols, PTT's the 5th transmission pipeline project, TOP's projects; Thaioil Sriracha Building project, New Crude Tanks Construction project, New Jetty 7&8, Clean Fuel Project, PTTOR's Oil stations expansion and IRPC's Catalyst Cooler project.

: The cash inflow of current investments amounting to Baht 26,295 million, mainly from the maturity of fixed deposits of TOP, PTTEP, PTT and GC amounting to Baht 11,309 million, Baht 6,125 million, Baht 6,030 million and Baht 3,084 million, respectively.

Net cash provided by financing activities was Baht 57,080 million, mainly from the followings:

: Cash received from GPSC's short-term loan was Baht 67,281 million for 69.11% stake in GLOW acquisition by GPSC.

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Financial ratios and earnings per share of PTT and its subsidiaries

Financial Ratio	Unit	1Q2018	1Q2019
<u>Profitability Ratios from Continuing Operations</u>			
Gross profit margin	%	14.92	12.59
Net profit margin	%	10.62	7.19
<u>Solvency Ratios</u>			
Interest coverage	Times	12.07	11.99
<u>Earnings per share from Continuing Operations</u>			
Earnings per share	Baht/share	1.38	1.02

Financial Ratio	Unit	Dec 31, 2018	Mar 31, 2019
<u>Liquidity Ratios</u>			
Current ratio	Times	2.11	1.81
Quick ratio	Times	1.50	1.29
<u>Solvency Ratios</u>			
Debt to equity	Times	0.41	0.47

## Note:

Gross profit margin	=	Gross profit divided by Sales and service income
Net profit margin	=	Net profit divided by Sales and service income
Interest coverage	=	(Net cash flow from operating activities + Taxes paid from operating activities) divided by Finance costs paid
Earnings per share	=	Net income attributable to ordinary shareholders divide by the weighted average number of ordinary shares which are held by third parties during the periods
Current ratio	=	Current assets divided by Current liabilities
Quick ratio	=	(Cash and cash equivalent + Current investments + Accounts receivable) divided by Current Liabilities
Debt to equity	=	Interest bearing debt divided by Total shareholder's equity

## Economic Outlook for 2019

The world economy in 2Q2019 is expected to expand at a slightly slower pace than 1Q2019. Specifically, US economic growth is expected to slow as inventories which have risen at a rapid pace for the third straight quarter in 1Q2019, reverse import growth returns to positive territory after a boost in late 2018 ahead of anticipated increases in trade tariffs which ultimately did not materialize and a contraction in 1Q2019, and tax-cut boost fades. Nevertheless, the still strong labor market and good headway made in trade talks with China should add meaningfully to growth. Meanwhile, economic growth is expected to continue in the Euro area on the back of record-low policy rates and as some of the temporary factors that held activity back dissipate. As for China, growth is expected to meet the government's target of 6-6.5%, amid Beijing rolling out more measures to support growth. Downside risks to the world economy include an escalating cycle of trade restrictions and retaliation, a surprise tightening of global financial conditions, and political uncertainty and geopolitical tensions and strife.

According to the IEA's estimation in April 2019, global oil demand is expected to grow by 1.4 MMBD to an average of 100.6 MMBD in 2019 led by the demand from emerging market and developing economies, especially Asian countries and China. Meanwhile, oil demand in advanced economies is expected to slightly increase from the previous year. The ongoing OPEC+ compliance in oil production cut and US sanction on Iran and Venezuela would cause Dubai crude oil price to average US\$60-70 per barrel in 2019. The global oil demand in 2Q2019 is expected to increase by 0.8 MMBD relative to 1Q2019 to an average of 100.4 MMBD.

Singapore GRM in 2019 is expected to average US\$4-5 per barrel, slightly down from 2018, amid oversupply of gasoline.

Overall trend of the Olefins and Aromatics prices in 2Q2019 are projected to be firmer due to higher crude and naphtha price trend, and limited supply during the large-scale spring turnarounds. HDPE price is forecasted at US\$1,120-1,130 per ton with additional support from China reduced VAT becoming effective. While PP price tends to average at US\$1,160-1,170 per ton. As for Aromatics price, there are scheduled maintenances which will partially relief pressure from new capacities coming online in 2Q2019. BZ price is projected higher at US\$620-640 per ton; however, PX price tends to average lower at US\$1,000-1,050 per ton as the new mega capacity in China become operable pressuring the market.

Thai economy in 2Q2019 is expected to grow at the same pace as 1Q2019 with public spending remaining a key driver amid more infrastructure projects to enter execution phase in 2019, as well as tourism, in which expected to expand following the low-base effects from the previous year. Meanwhile, the factors dragging down the economy including still-high level of household debt constraining domestic demand, political transition

affecting investment decisions of the business sectors, an uptrend of further inventory destocking, fragility of the economy of the key trading partners pressuring merchandise exports. Meanwhile, Thai economy still faces with some downside risks from a greater-than-envisaged conflicts arising from political transition and accompanying uncertainties, as well as delays in the recovery of tourism and merchandise exports sector.

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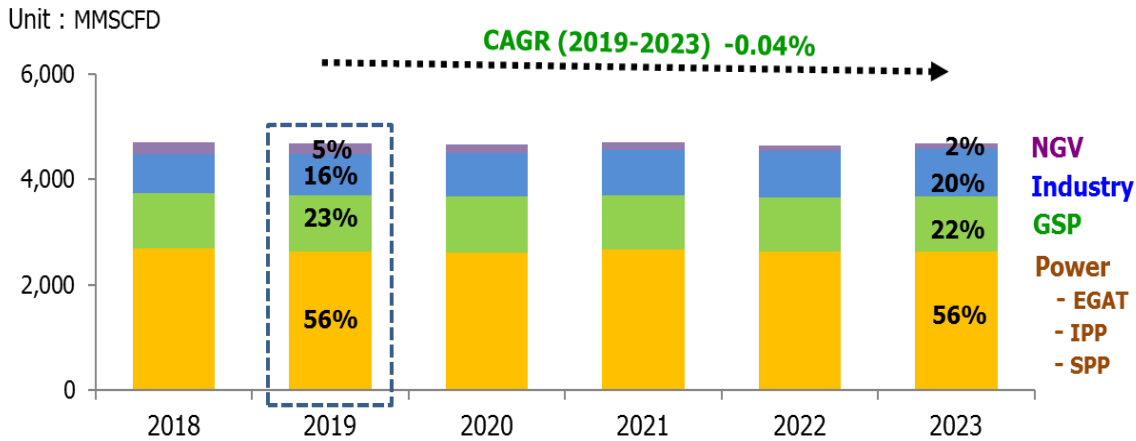
Economic Outlook

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Gas Business

**Country: Projected Gas Volume**



Reference to the assumption of the Thailand Power Development Plan (PDP), the gas demand growth during year 2019 – 2023 is decreasing at the rate 0.04%. The decrease is mainly from lower logistic demand as less pressure and more competitive on the higher natural gas price than other fuels. However, natural gas for industry demand continues its growing, natural gas for GSP demand sustains its production following the carry-on gas production from the gulf of Thailand as well as the growth of natural gas for power demand maintained its growth after starts declining since 2017 because of Private sectors’ power plants that generate power for their owned consumption. On the other hand, the national electricity authorities such that Electricity Generating Authority of Thailand (EGAT), Metropolitan Electricity Authority (MEA) and Provincial Electricity Authority (PEA), decrease their power generation. In addition, gas demand In the long-term is forecasted to increase, when compared to PDP2015, according to the new PDP 2018 with additional gas power plants to roll in more natural gas as the major fuel for power into the system starting from 2024 onwards. As a result, the overall gas demand would be increased from 37% in 2036 (PDP 2015) to 53% in 2037 (PDP2018) according to the inability of coal-fired power plant to feed in the system as planned.

The PDP is subjected to its revision every five years or whatever factors have material impacts to the plan, such as the adjustment on the assumption of domestic power demand forecast in accordance to economic condition, the enhancement on the power security and the supportive renewable energy for the newly succeeding power plan. In addition, the PDP 2018 includes the impact from the disruptive energy technology that will be affected to energy consumption and behavior in the future. On January 24, 2019, PDP 2018 (2018-2037) was

considered by the National Energy Policy Council (NEPC) and be approved by the cabinet on April 30, 2019. The PDP2018 for the year 2018 – 2037 be summarized as follows;

- 1) **Power demand forecast:** According to the database of all power usage in Thailand, the Power demand forecast includes the data on power generation capacities and power demand of independent power supplies (IPS) or power plants that generate power for their own consumption and/or the power sales be connected to the grids of the power authorities in order to ensure more accuracy of the forecast. In addition, there were regional power demand forecast in order to the allocation of additional major power plants, by using its fuel potential and existing infrastructure to further enhance its power security in each region.
- 2) **The Plan in additional capacity of power generation** be emphasized in the power security and balance of power energy in each region and considered the allocation of additional major power plants to achieve an appropriate level of power plants, promoted low- cost power production, maintained the level of electricity's retail prices, stimulated renewable electricity generation, and the transition to the smart grid system to accommodate a shift towards prosumer markets. The power demand forecast suggested that in 2027, Thailand's reliable capacity will be lower than its power demand, which will translate to additional power purchase, through both IPP bidding and power imports. Moreover, the country needs to increase capacity to ensure the security of power system by adding the new capacity to replace 25,310 Megawatts of power plants, which will be discharged during 2018 – 2037 and to have more renewable energy. Therefore, the total new capacity during 2018 – 2037 will be 56,431 megawatts.
- 3) **The Plan to promote power generation from renewable energy:** According to the Alternative Energy Development Plan (AEDP 2015), the government sector is currently obligated to purchase power from renewable energy project amounting to 10,778 megawatts. In PDP 2018, it is likely that the government sector will purchase electricity from renewable energy until 2026 and will terminate onwards. Instead, the government will focus on promoting power generation from waste in accordance to the potential of each area, the development of floating solar farms in the area of the dam, as well as public participation through the public-sector solar power generation project. Renewable power plants under the government's promotion policy will have a combined capacity of 520 megawatts, consisting of waste- to- energy plants and biomass power plants, as well as (additional) renewable energy power plants in AEDP will command a total capacity of 18,176 megawatts.



- 4) For the construction of new fossil fuel power plants: the coal-fired power plants will be reduced comparing to PDP 2015 and will be replaced by natural gas fuel in order to lower carbon emission according to COP21 agreement and to avoid public controversies. As a result, **fossil fuel** consumption proportion will be 65%, consisting of 53% of natural gas and 12% of coal/lignite; while, the non-fossil consumption proportion will be 35%, consisting of imported 9% of hydro, 20% of renewable and 6% of energy efficiency.

## The Progress: PTT and its' Subsidiaries' Project

### Pipelines transmission Projects

- The 5<sup>th</sup> Transmission Pipeline (Rayong - Sai Noi – North/South Bangkok power plants)  
Total Project Progress as of March 2019: 61%
- RA#6 – Ratchaburi Pipeline Project  
Total Project progress as of March 2019: 73%

### LNG Project:

PTT has growth plan for LNG Terminal to support country gas demand with current capacity of LNG Terminal at 10 MTA and finished to expand to 11.5 MTA in 2017, which is expected COD in year 2019. In addition, LNG Terminal 2 with 7.5 MTA is under construction. Therefore, total LNG regasification capacity will be 19 MTA. PTT currently have long term LNG contracts with Qatargas, Shell, BP, and Petronas around 5.2 MTA and has plan to have additional LNG long term contract in order to support country gas demand growth in the future.

- **LNG Receiving Terminal 1 Phase 2 Extension:**
  - Construction completed in 2018
  - Capacities expansion from 10 MTA to 11.5 MTA (Expansion capacity 1.5 MTA)
  - COD: 2019

- **LNG Receiving Terminal 2:**

Total Project progress as of March 2019: 8.04%

- Capacity 7.5 MTA approved by the Cabinet meeting on 11 April 2017
- COD: 2022

- **Other LNG Projects:**

On 31 July 2017, National Energy Policy Council (NEPC) acknowledged on the study result of additional LNG projects: domestic FSRU in the south of Thailand (Jana District, Songkhla) (F-2), and FSRU in Myanmar (F-3) that technically be able to operate.

## NGV Plan

PTT has policy to further focus on wholesale gas selling and encourage private sector to invest in NGV stations and not expand stations which are far from gas pipeline.

### Summary Planned Shutdown for Gas Separation Plants in 1Q2019

- GSP 2, GSP 5 and Ethane Separation Plant (ESP)
  - Shutdown due to tropical storm 'PABUK' during 3 – 11 January 2019 (9 Days)
- GSP 1
  - Turn down 50% due to Transmission pipeline maintenance shutdown during 30 January 2019 – 15 March 2019 (45 days)

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**Exploration and Production Business** consists of PTT Exploration and Production Public Co., Ltd. (PTTEP)

**Natural Gas Business** consists of PTT natural gas business unit, PTT Natural Gas Distribution Co., Ltd. (PTTNGD), PTT LNG Co., Ltd (PTTLNG), and PTT Global LNG Company Limited (PTTGL)

**Oil Business** consists of PTT oil business unit, PTT (Cambodia) Co., Ltd. (PTTCL), PTT Oil and Retail Business Public Co., Ltd. (PTTOR), consolidating Thai Lube Blending Company Limited (TLBC) (a 100% shareholding by PTTOR and PTT), and PTT Oil Myanmar Co., Ltd. (PTTOM).

**International Trading Business** consists of PTT international business unit and PTT International Trading Pte Ltd (PTTT) and PTT International Trading London Ltd (PTTT LDN)

**Petrochemical and Refinery Business** consists of PTT Global Chemical Public Company Limited (GC), Thai Oil Public Company Limited (TOP), IRPC Public Company Limited (IRPC), Thai Oil Power Co., Ltd. (TP), and PTT Tank Terminal Co., Ltd. (PTT TANK)

**Coal Business** consists of PTT Energy Resources Company Limited (PTTER), PTT Global Management Company Limited (PTTGM), Sakari Resources Ltd. (SAR), Straits (Brunei) Pte Ltd (Straits (Brunei)), and Yoxford Holdings (95.82% shareholding in SAR and 100% shareholdings in the others, held by PTT Mining Limited (PTTML), a 100% shareholding subsidiary of PTTGM)

**Technology and Engineering Business** consists of PTT Technology and Engineering Business business unit, Global Power Synergy Public Company Limited (GPSC), PTT Energy Solution Co., Ltd. (PTTES), Energy Complex Co., Ltd. (EnCo) and PTT Digital Solutions Co., Ltd. (PTT DIGITAL)

**Other Business** consists of Business Services Alliance Co., Ltd. (BSA), PTT Green Energy Pte. Ltd. (PTTGE), PTT Regional Treasury Center Pte. Ltd. (PTTRTC) and PTT Treasury Center Company Limited (PTT TCC)