

Management's Discussion and Analysis (MD&A) and operating results for the three-month and the first nine-month periods ended September 30, 2018

Executive Summary

In the Third quarter of 2018 (Q3/2018), net income of PTT and its subsidiaries was Baht 30,329 million, increasing by Baht 300 million or 1.0% from Baht 30,029 million in the second quarter of 2018 (Q2/2018) mainly due to the higher operating performance of exploration and production business from the rise in both average selling prices and sales volume. In addition, performance of gas business group slightly increased from previous period mainly from PTT's Natural Gas Supply and Trading (GSM) and Natural Gas Distribution (NGR) business area. Whereas, performance of petrochemical and refining business group decreased due to lower Accounting Gross Refining Margin (Accounting GRM) following the drop in stock gain together with the decrease in product prices of olefins petrochemical business even though product spread of aromatics petrochemical business increased. Likewise, the performance of oil business decreased with regard to the drop in gross profit due to lower stock gain in this quarter. However, in Q3/2018, there were lower loss on derivatives of PTT's group and unrealized gain on foreign exchange from foreign currency loan compared to unrealized loss on foreign exchange in the last quarter.

In the first nine months of 2018 (9M/2018), net income of PTT and its subsidiaries was Baht 100,146 million, increasing by Baht 330 million or 0.3% from Baht 99,816 million in the first nine months of 2017 (9M/2017) mainly caused by higher operating performance in almost all businesses. For exploration and production business, performance increased from the rise in both average selling prices and sales volume. For gas business group, both PTT's own operations and PTT's affiliates had higher performance. Performance of petrochemical and refining business also increased from the rise in Accounting GRM resulting from stock gain owing to higher crude oil prices. Also, olefins petrochemical business performance increased due to higher product selling prices and sales volume. However, in 9M/2018, there were higher loss on derivatives, as well as lower appreciation of Thai Baht against US Dollar compared with 9M/2017 resulted in a decrease in gain on foreign exchange, and higher income tax expense following higher performance and lower BOI tax privilege.

Unit : Million Baht	Q3/2017	Q2/2018	Q3/2018	%Inc. (Dec.)		9M/2017	9M/2018	%Inc (Dec.)
				YoY	QoQ			
Sales Revenue	475,178	578,787	606,979	27.7%	4.9%	1,463,763	1,718,738	17.4%
EBITDA	87,011	100,699	96,138	10.5%	(4.5%)	251,182	286,953	14.2%
Net income	22,331	30,029	30,329	35.8%	1%	99,816	100,146	0.3%
Earnings per share (Baht/share)	0.77	1.05	1.05	36.4%	0.0%	3.45	3.48	0.9%

Economic Overview in the Third Quarter of 2018

The world economy in Q3/2018 expanded at a slower pace than in Q2/2018. Specifically, US economic growth slowed after hitting a 4-year high in Q2/2018. Nevertheless, an ever-tightening labor market allowed the Federal Reserve (the Fed) at its September 2018 meeting to increase its policy rate for the third time in 2018. Meanwhile, the euro area's economic recovery continued on the back of favorable financial conditions, as well as an easing of trade tensions with the US following the agreement in late July 2018 between the US and the EU to work towards zero tariffs. As for China, economic growth slowed in Q3/2018, but was in line with the government's target of 6.5%, amid authorities' deleveraging campaign, despite Chinese exporters front-loading their shipments before broader and stiffer US tariffs went into effect. The International Monetary Fund (IMF) in October 2018 revised down its global growth forecast for 2018 to 3.7% from its July 2018 forecast of 3.9%.

According to the International Energy Agency (IEA) in October 2018, global oil demand in Q3/2018 averaged 99.8 million barrels per day (MMBD), increasing from 98.5 MMBD in Q2/2018 and 98.3 MMBD in the third quarter of 2017 (Q3/2017). For the whole of 2018, global oil demand is expected to average 99.2 MMBD, shooting up from 97.9 MMBD in 2017.

Unit :	Q3/2560	Q2/2561	Q3/2561	%increase(decrease)		9M/2560	9M/2561	%increase (decrease)
				YoY	QoQ			
Average Dubai crude oil price	50.5	72.1	74.3	47.1%	3.1%	51.1	70.1	37.2%
Gasoline Crack Spread	16.1	12.1	11.6	(28.0%)	(4.1%)	15.0	12.5	(16.7%)
Diesel Crack Spread	13.9	14.6	14.4	3.6%	(1.4%)	12.4	14.6	17.7%
FO Crack Spread (180 – 3.5%S)	(1.4)	(4.5)	(2.6)	(85.7%)	42.2%	(2.1)	(4.0)	(90.5)%

Dubai oil price in Q3/2018 averaged US\$74.3 per barrel, increasing from US\$72.1 per barrel in Q2/2018 and US\$50.5 per barrel in Q3/2017, amid concerns over a decline in oil output from Iran due to US sanctions and lower Venezuela's crude oil production. Meanwhile, OPEC+ increased oil production to replace the shortfall leading to lower spare capacity. Although US shale oil production is rising but constraints with pipeline and exports remain. Overall, oil demand is still rising amid declining oil stocks. While, concerns over US trade protectionism and economic problems in emerging and developing countries could be downside risk to oil price.

Petroleum product prices in the Singapore spot market recorded various changes in Q3/2018 relative to Q2/2018. Gasoline crack spreads in Q3/2018 averaged US\$11.6 per barrel, a significant decrease from US\$12.1 per barrel in Q2/2018 and US\$16.1 per barrel in Q3/2017, amid stable demand and rising export from China which resulted in high inventory. Meanwhile, diesel crack spreads in Q3/2018 averaged US\$14.4 per barrel, a decrease from US\$14.6 per barrel in Q2/2018, but an increase from US\$13.9 per barrel in Q3/2017, due to lower demand during the monsoon season. Fuel oil crack spreads in Q3/2018 averaged US\$-2.6 per barrel, an increase from US\$-4.5 per barrel in Q2/2018, but a decrease from US\$-1.4 per barrel in Q3/2017, due to higher demand during summer, which resulted in lower exports from the Middle East to Asia.

Non-recurring items in the Third Quarter of 2018 until present

Summary of non-recurring items in the third Quarter of 2018 are as follows:

<p>July 2018</p>	<ul style="list-style-type: none"> On 18 June 2018, PTT and PTT Oil and Retail Business Company Limited (PTTOR) has successfully executed the Business Transfer Agreement and PTT has commenced the process of transferring various assets and liabilities, and shares of related companies to PTTOR since 1 July 2018. On 15 July 2018, PTTEP Australasia (Ashmore Cartier) Pty Ltd, a subsidiary of PTT Exploration and Production Public Company Limited (PTTEP), signed a Sale and Purchase Agreement (SPA) to sell a 100% stake in the Montara field and its related assets in the Commonwealth of Australia, to Jadestone Energy (Eagle) Pty Ltd with the asset purchase price of USD 195 million. Completion of the sale is subject to the completion conditions as prescribed in the SPA, including the Australian regulatory approvals from the National Offshore Petroleum Titles Administrator (NOPTA) and the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA), with an expected completion by the end of 2018. On 23 July 2018, the Board of Directors Meeting of PTT Global Chemical Public Company Limited (PTTGC) has approved to divest all of the remaining shares in Alliance Petrochemical Investment (Singapore) Pte. Ltd. which PTTGC owns 15.34% stake with the total value from the sale of shares equal to Baht 663 million (refers to the exchange rate of 33.5 baht per USD).
<p>August 2018</p>	<ul style="list-style-type: none"> On 18 August 2018, the Board of Directors Meeting of PTT has approved to establish a new company to carry out lubricants business in China (PTTOR CHINA) with a registered capital of not more than 80 million Thai Baht (around 2.26 Million USD). PTTOR (in which PTT holds 100% shares) will hold 100% of PTTOR CHINA shares PTTOR CHINA has been registered to establish on 3 August 2018. On 23 April 2018, the Board of Directors' meeting of PTTGC has approved the Company together with an affiliated company to acquire 74% shares of Siam Mitsui PTA Company Limited (SMPC), a Purified Terephthalic Acid (PTA) producer, and 74% shares of Thai PET Resin Company Limited ("TPRC"), a Polyethylene Terephthalate resin producer, from SCG Chemicals Co., Ltd. and Mitsui Chemicals, Inc. total investment around \$125 million or equivalent to approximately 4,148 million baht. The Share Purchase Agreement was signed on 8 August 2018. (The investment is harmonized with the Company's business strategy that intends to expand the downstream investment and increase market potential in polymer business).

	<p>Furthermore, the transfer of shares under Share Purchase Agreement is expected to be completed within the fourth quarter of 2018.</p> <ul style="list-style-type: none"> On 10 August 2018, the Board of Directors Meeting of Thai Oil Public Company Limited (TOP), resolved to include another guideline for the implementation of the CFP Project in order to lessen the Company's burden with respect to the investment in the CFP Project on which the Company has been conducting a pre-feasibility study until it achieves certain progress. The Company will seek a potential partner who is interested in investing in the Energy Recovery Unit (ERU) in lieu of the sole investment by the Company. The ERU is an electrical power plant, originally incorporated as part of the CFP Project with the designed generating capacity of 250 megawatts and steam, to supply the production process of the CFP Project, utilizing by-products of the CFP Project as the main source of fuel. The ERU is a supporting unit for utilities supply that is independent from the main refinery unit; therefore, it has potential to proceed with this guideline. On 25 May 2018, the Board of Directors Meeting of TOP has resolved to execute a joint venture agreement on leasing state properties (land lease agreement) with Ministry of Finance. The present value of land lease agreement is approximately THB 12,000 million as of year 2022 or approximately THB 21,321 million of total value for a period of 30 years from 2022 until 2052. The signing of this renewal agreement is completed on August 21, 2018.
<p>September 2018</p>	<ul style="list-style-type: none"> On 19 September 2018, the Board of Directors Meeting of PTTEP has approved that, PTTEP MENA Limited has established in order to support future investments, with registered capital of 50,000 USD, consisting of 500 ordinary shares. The company is wholly-owned by PTTEP Business Center Company Limited, a wholly-owned subsidiary of PTTEP. On 21 September 2018, the Board of Directors Meeting of PTTEP has approved that, AI and Robotics Ventures Company Limited (ARV) has established in order to support future investments, with a registered capital of 5,000,000 Baht consisting of 50,000 ordinary shares at a par value of 100 Baht each. ARV is wholly-owned by EP-Tech Ventures Holding Company Limited, a wholly-owned subsidiary of PTTEP.
<p>October 2018</p>	<ul style="list-style-type: none"> On 28 September 2018, the Board of Directors of PTT has approved a resolution for the payment of interim dividend for the first half of 2018 (1H/2018) performance to PTT's shareholders at the rate of Baht 0.80 per share, totaling approximately Baht 22,850 million, or 32.9 % of the 1H/2018 consolidated net income. The payment of the dividend will be made on October 26, 2018.

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- On 20 August 2018, the Board of Directors of PTTGC has approved the company to acquire 49% shares of Revolve Group Limited (RGL) from an original shareholder and by subscription of newly issues shares from RGL. RGL is a major producer of Rotomolding Compound with a significant market share in Europe and Oceania, which the major feedstock used is LLDPE plastic resin. The total investment is 6.4 million pound sterling or equivalent to approximately 281 million baht. The share Sale and Subscription Agreement has been signed on 30 October 2018.
- On 16 October 2018, the Board of Directors of IRPC Public Company Limited (IRPC) has approved the Company to invest in Guangzhao Saiju Performance Polymer Ltd. (GZSJ) in China. The investment will be the subscription of capital increased shares equivalent to 15% of total registered capital, in an amount of RMB 135,000,000 (equivalent to the estimated investment value of THB 650 MM). Currently, GZSJ is the major operator of plastic product e-commerce business in China. The Company will enter into the investment agreement and other related agreements within the fourth quarter of 2018. And, the Board of Directors of IRPC approved the Company to incorporate the private limited liability company, “the subsidiary”, under the laws of Thailand with the registered capital amounting to THB 120 MM, by which the Company and GZSJ will hold the shares equivalent to 55% and 45% of total shares, respectively. Such the subsidiary will be incorporated to develop the e-commerce platform focusing in plastic products in Thailand (in order to increase and expand its channels to capture and ensure the behavior of consumer’s trends.)
- On 11 October 2018, regarding notification on the conditions precedent under the share purchase agreement between Global Power Synergy Public Company Limited (GPSC) and Engie Global Development B.V. (ENGIE). The company informed that the Energy Regulatory Commission (ERC) resolved to disapprove the application of the Company with respect to the acquisition of shares of Glow Energy Public Company Limited. (GLOW). According to ERC’s resolution, the conditions precedent under the share purchase agreement entered into between the Company and ENGIE could not be fulfilled in the near future. After due consideration, the Board of Directors deemed it appropriate for the Company to appeal the order disapproving such application filed by the Company to the ERC within 30 days from the date of the Company’s receipt of such order (being 15 November 2018).

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Overall performance of PTT and its subsidiaries

Financial performance of Q3/2018 compared with Q3/2017 and Q2/2018 as well as 9M/2018 compared with 9M/2017 are summarized as follows:

Unit : Million Baht	Q3/2017	Q2/2018	Q3/2018	% Inc. (Dec.)		9M/2017	9M/2018	% Inc. (Dec.)
				YoY	QoQ			
Sales revenue	475,178	578,787	606,979	27.7%	4.9%	1,463,763	1,718,738	17.4%
: Exploration & Production	36,338	42,116	45,087	24.1%	7.1%	107,400	124,546	16.0%
: Gas	110,516	120,647	127,787	15.6%	5.9%	331,825	357,965	7.9%
: Coal	4,839	5,161	5,342	10.4%	3.5%	13,501	15,660	16.0%
: Oil	127,176	152,067	146,091	14.9%	(3.9%)	406,185	449,473	10.7%
: International trading	211,652	314,489	335,458	58.5%	6.7%	668,653	907,629	35.7%
: Petrochemical & Refining	231,857	282,691	297,355	28.2%	5.2%	690,572	846,948	22.6%
: Others 1/	5,861	8,302	8,774	49.7%	5.7%	19,601	24,620	25.6%
EBITDA	87,011	100,699	96,138	10.5%	(4.5%)	251,182	286,953	14.2%
: Exploration & Production	26,229	31,098	33,039	26.0%	6.2%	78,040	92,190	18.1%
: Gas	19,133	24,636	24,831	29.8%	0.8%	60,764	72,711	19.7%
: Coal	1,235	2,167	1,878	52.1%	(13.3%)	4,275	5,224	22.2%
: Oil	4,613	3,943	3,528	(23.5%)	(10.5%)	15,085	13,789	(8.6%)
: International trading								
- Excluding effect of FX and derivatives	935	3,291	513	(45.1%)	(84.4%)	364	3,677	>100%
- Including effect of FX and derivatives	686	2,422	1,003	46.2%	(58.6%)	3,491	4,520	29.5%
: Petrochemical & Refining	33,233	33,973	31,288	(5.9%)	(7.9%)	88,140	94,749	7.5%
: Others	1,440	1,711	1,502	4.3%	(12.2%)	4,153	4,882	17.6%
Depreciation and amortization expenses	29,413	30,300	32,055	9.0%	5.8%	86,884	90,874	4.6%
Operating Income	57,598	70,399	64,082	11.3%	(9.0%)	164,298	196,078	19.3%
: Exploration & Production	12,424	16,423	16,672	34.2%	1.5%	36,405	48,282	32.6%
: Gas	14,982	20,315	20,279	35.4%	(0.2%)	48,715	59,465	22.1%
: Coal	606	1,813	1,350	>100%	(25.5%)	2,799	3,782	35.1%
: Oil	3,481	2,704	2,681	(23.0%)	(0.9%)	11,691	10,482	(10.3%)
: International trading								
- Excluding effect of FX and derivatives	928	3,284	505	(45.6%)	(84.6%)	341	3,654	>100%
- Including effect of FX and derivatives	679	2,415	995	46.5%	(58.8%)	3,468	4,497	29.7%
: Petrochemical & Refining	24,419	25,293	22,577	(7.5%)	(10.7%)	62,449	68,871	10.3%
: Others	565	687	459	(18.7%)	(33.2%)	1,536	1,811	17.9%
Share of net income from investments in joint ventures and associates	1,223	1,818	2,499	>100%	37.5%	5,209	6,789	30.3%
Loss on impairment of assets	18,505	-	-	(100.0%)	-	18,458	-	(100.0%)
Gain on foreign exchange	2,880	(2,466)	2,452	(14.9%)	(100.0%)	10,702	4,728	(55.8%)
EBIT	45,582	66,547	69,423	52.3%	4.3%	176,086	207,540	17.9%
Finance costs	7,231	7,122	6,820	(5.7%)	(4.2%)	22,389	20,446	(8.7%)
Income taxes	7,740	18,122	17,495	>100%	(3.5%)	19,691	44,096	>100%
Net income	22,331	30,029	30,329	35.8%	1.0%	99,816	100,146	0.3%
Earnings per share (Baht/share)	0.77	1.05	1.05	36.4%	0.0%	3.45	3.48	0.6%

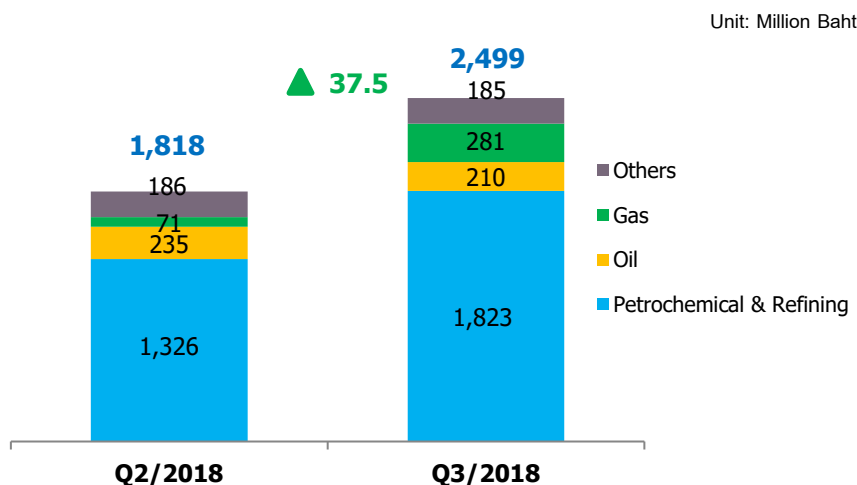
^{1/} Including Technology and Engineering Business

Third quarter of 2018 compared with Second quarter of 2018

In Q3/2018, sales revenue of PTT and its subsidiaries was Baht 606,979 million, increasing by Baht 28,192 million or 4.9% due to an increase in product selling prices in almost all business following the rise in average Dubai crude price from US\$ 72.1 per barrel to US\$ 74.3 per barrel in Q3/2018. However, overall operating performance in Q3/2018 decreased mainly from lower performance of petrochemical and refining business, especially refining business, which decreased from lower Accounting GRM according to the drop in stock gain. In addition, performance of olefins petrochemical business decreased from lower product price even though product spread of aromatics petrochemical business increased. In addition, performance of oil business decreased regarding to lower stock gain in Q3/2018 mainly from diesel, gasoline and aviation fuel gross profit. However, exploration and production business had higher performance following the rise in both average selling prices and sales volume and gas business group had slightly higher performance due to PTT's GSM and NGR business units, as a result of higher average selling prices. Therefore, earnings before interest, taxes, depreciation and amortization (EBITDA) of PTT and its subsidiaries was Baht 96,138 million, decreasing by Baht 4,561 million or 4.5%.

The depreciation and amortization expenses was Baht 32,055 million increasing by Baht 1,755 million or 5.8% from Baht 30,300 million in Q2/2018 mainly from higher depreciation and amortization of exploration and production business following the acquisition of additional participating interest of the Bongkot Project.

Share of net income from investments in joint ventures and associates



In Q3/2018, the share of net income from investments in joint ventures and associates was Baht 2,499 million, increasing by Baht 681 million from Baht 1,818 million in Q2/2018 primarily from higher performance of joint ventures in petrochemical and refining business group mainly from PTT Asahi Chemical Company Limited (PTTAC) with higher AN and MMA product prices. Also, performance of joint ventures in gas business group

increased mainly from Trans Thai-Malaysia (Thailand) Co., Ltd. (TTM(T)) due to lower tax expense resulted from the effect of Thai Baht appreciation against the US Dollar.

In addition, in Q3/2018 loss on derivatives decreased by Baht 3,436 million from Q2/2018 mainly resulted from financial hedging contracts of PTT and IRPC. Also, gain on foreign exchange increased by Baht 4,918 million from loss of Baht 2,466 million in Q2/2018 to gain of Baht 2,452 million mainly due to unrealized loss on foreign exchange from foreign currency loans of PTT and TOP, due to an appreciation of the closing rate of Thai baht against the US dollar compared to the depreciation of Thai Baht against US dollar in Q2/2018.

In Q3/2018, there was non-recurring item which was the loss on Montara field divestment of PTTEP amount Baht 1,208 Million whereas in Q2/2018 there was no such item.

Corporate income taxes decreased by Baht 627 million or 3.5% from Baht 18,122 million in Q2/2018 to Baht 17,495 million in Q3/2018 mainly from lower performance of PTT's affiliates in petrochemical and refining business and PTTEP following the effect of Thai Baht appreciation against the US Dollar. Although, there was net tax expense related to transferring of the oil business in Q3/2018 amounting to 6,033 million.

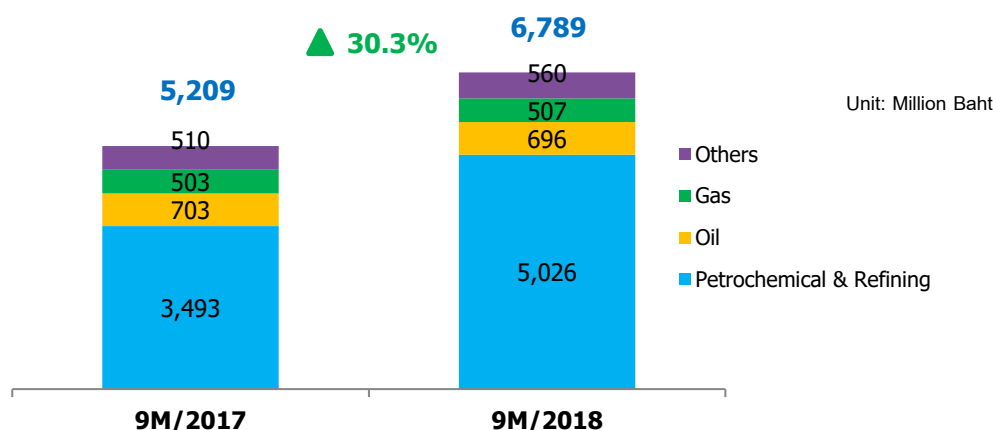
Therefore, the overall performance in this period improved as aforementioned.

First nine months of 2018 compared with First nine months of 2017

Sales revenue of PTT and its subsidiaries in 9M/2018 was Baht 1,718,738 million, increasing by Baht 254,975 million or 17.4% in all business groups compared with the same period last year due to the increase in average product selling prices of most petroleum and petrochemical products following the rise in average Dubai crude oil price which increased from US\$ 51.1 per barrel to US\$ 70.1 per barrel or 37.2%. In 9M/2018, EBITDA of PTT and its subsidiaries was Baht 286,953 million, increasing by Baht 35,771 million or 14.2% mainly from exploration and production business following higher average selling prices and sales volume. In addition, gas business group had improved performance in almost all business areas especially Gas Separation Plants (GSP) and GSM and NGR, which had increased in sales volume and average selling prices together with better performance of Transmission Pipeline (TM). In addition, PTT's Gas affiliates had better performance. Moreover, performance of refining business increased following higher accounting GRM according to higher stock gain resulting from higher crude oil prices. Also, olefins petrochemical business performance increased due to higher product prices and sales volume.

Depreciation and amortization expenses was Baht 90,874 million increased by Baht 3,990 million or 4.6% from Baht 86,884 million in 9M/2017 mainly from higher depreciation and amortization of exploration and production business following the acquisition of additional participating interest of the Bongkot Project and gas business due to recognition of completed assets.

Share of net income from investments in joint ventures and associates



In 9M/2018, share of net income from investments in joint ventures and associates was Baht 6,789 million, increasing by Baht 1,580 million or 30.3% from Baht 5,209 million in 9M/2017 mainly from the rise in PTTAC's average product selling prices together with a better performance in NatureWorks LLC due to higher sales volume and selling prices.

In 9M/2018, PTT and its affiliates had loss on derivatives of Baht 4,561 million, increasing by Baht 6,894 million from gain of Baht 2,333 million in 9M/2017, mainly due to financial and commodity derivative contracts of PTT, PTT International Trading Pte. Ltd. (PTTT), and PTTEP.

Gain on foreign exchange decreased by Baht 5,974 million from Baht 10,702 million in 9M/2017 to Baht 4,728 million, mainly from the decrease in unrealized gain on foreign exchange rate from foreign currency loans of PTT, TOP and PTTGC due to an appreciation of Thai Baht against USD in 9M/2018 lower than 9M/2017.

In this period, there was non-recurring item, which was the loss on Montara field divestment of PTTEP amount Baht 1,208 Million while in 9M/2017, there were dividends income from investment in EPIF mutual fund and gain on selling investment in mutual fund of PTT amounting to Baht 4,310 million and Baht 990 million, respectively. Also, PTTEP recognized impairment loss on assets of the Mariana Oil Sand Project amounting to Baht 18,505 million.

Finance cost decreased by Baht 1,943 million or 8.7% from Baht 22,389 million in 9M/2017 to Baht 20,446 million in 9M/2018 mainly from lower average long-term loan compared with 9M/2017 following repayment of long-term loans and redemption of debentures since Oct 2017 to Sep 2018.

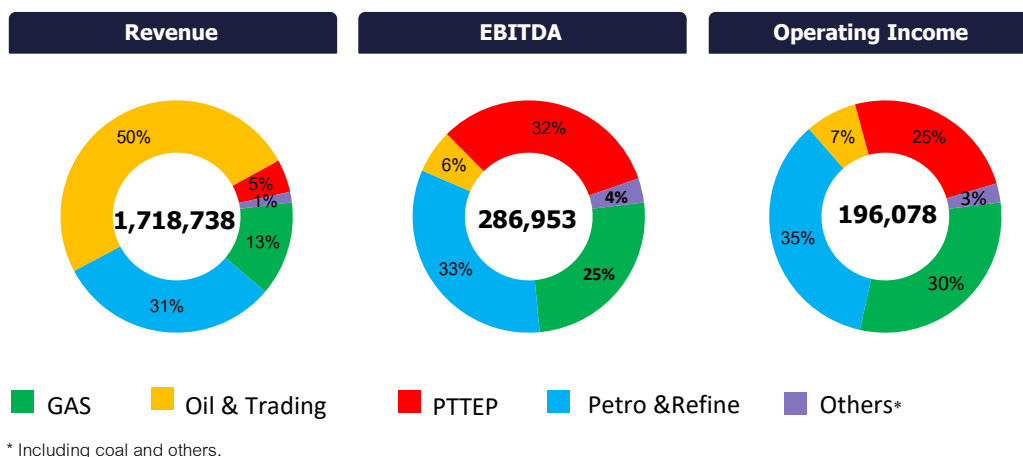
Corporate income taxes increased by Baht 24,405 million or higher than 100.0% from Baht 19,691 million in 9M/2017 to Baht 44,096 million in 9M/2018 mainly from PTTEP due to an increase in petroleum profit from an increase in sales revenues, PTT due to the full redemption of BOI tax privilege since quarter 4 of 2017 (Q4/2017) of GSP business unit. Also, there was net tax expense related to transferring of the oil business in 9M/2018 amounting to 6,033 million in PTT group.

Therefore, the overall performance in 9M/2018 increased from 9M/2017 as aforementioned.

Segmentation performance of PTT and its subsidiaries

The details of revenue, EBITDA and operating income by segmentation of 9M/2018 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)

	Q3/2017	Q2/2018	Q3/2018	%Inc. (Dec.)		9M/2017	9M/2018	%Inc (Dec.)
				YoY	QoQ			
Average selling price (US\$/BOE)	38.8	46.9	47.7	22.9%	1.7%	38.3	46.3	20.9%
Average sales volume (BOED)	298,139	302,846	304,940	2.3%	0.7%	294,539	300,338	2.0%

Third quarter of 2018 compared with Second quarter of 2018

In Q3/2018, sales revenue of PTTEP was Baht 45,087 million, increasing by Baht 2,971 million or 7.1% mainly from the increase in average selling prices by 1.7% from US\$ 46.9 per barrel of oil equivalent (BOE) in Q2/2018 to US\$ 47.7 per BOE in Q3/2018 and the increase in average sales volume by 0.7% from 302,846 barrel of oil equivalent per day (BOED) in Q2/2018 to 304,940 BOED in Q3/2018 primarily from the additional participating interests of the Bongkot Project.

EBITDA in Q3/2018 was Baht 33,039 million, increasing by Baht 1,941 million or 6.2% mainly from the increase in gross profit from the higher sales revenue despite the increase in petroleum royalties and remuneration by Baht 470 million following the increase in domestic sales revenue. However, because of the increase in depreciation and amortization expense by Baht 1,692 million mainly from the additional participating interests of the Bongkot Project, operating income in Q3/2018 was Baht 16,672 million, increasing by Baht 249 million or 1.5%.

Nonetheless, overall performance increase by lower tax expenses owing to Thai Baht appreciation against US Dollar while there was a depreciation of Thai Baht in 2Q/2018. Conversely, there was loss on the Montrara field divestment of Baht 1,208 Million.

First nine months of 2018 compared with First nine months of 2017

In 9M/2018, sales revenue of PTTEP was Baht 124,546 million, increasing by Baht 17,146 million or 16.0% from 9M/2017 mainly from the increase in average selling prices by 20.9% from US\$ 38.3 per BOE in 9M/2017 to US\$ 46.3 per BOE in 9M/2018 and the increase in average sales volume by 2.0% from 294,539 BOED in 9M/2017 to 300,338 BOED in 9M/2018 primarily from higher nomination from buyers of the Contract 4 and the Malaysia–Thailand Joint Development Area (MTJDA) Projects as well as the additional participating interests of the Bongkot Project.

EBITDA in 9M/2018 was Baht 92,190 million, increasing by Baht 14,150 million or 18.1% mainly from the increase in gross profit from the higher sales revenue despite the increase in petroleum royalties and remuneration by Baht 1,720 million following the increase in domestic sales revenue. Also, there were higher depreciation and amortization expenses by Baht 2,273 million mainly from the additional participating interests of the Bongkot Project as well as an increase in development wells and wellhead platforms in the Contract4 and S1 projects, operating income in 9M/2018 was Baht 48,282 million, increasing by Baht 11,877 million or 32.6%.

Nonetheless, overall performance increased by lower expenses compared with 9M/17 and higher average selling prices and sales volume and there was the impairment loss on assets of the Mariana Oil Sand Project amounting to Baht 18,505 million recognized in 9M/2017.

Gas Business Group

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

Unit : Ton	Q3/2017	Q2/2018	Q3/2018	% Inc.(Dec.)		9M/2017	9M/2018	%Inc (Dec.)
				YoY	QoQ			
LPG	727,766	750,147	900,314	23.7%	20.0%	2,179,219	2,364,840	8.5%
Ethane	538,692	612,257	597,005	10.8%	(2.5%)	1,719,740	1,793,295	4.3%
Propane	171,533	247,383	177,574	3.5%	(28.2%)	573,166	670,479	17.0%
NGL ^{1/}	171,260	174,442	167,112	(2.4%)	(4.2%)	533,218	520,884	(2.3%)
Total	1,609,251	1,784,229	1,842,005	14.5%	3.2%	5,005,343	5,349,498	6.9%

Note: ^{1/}include Pentane

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

Unit : US\$ per Ton	Q3/2017	Q2/2018	Q3/2018	% Inc.(Dec.)		9M/2017	9M/2018	%Inc (Dec.)
				YoY	QoQ			
LPG ^{1/A/}	428	512	589	37.6%	15.0%	453	541	19.4%
Ethylene ^{2/}	1,090	1,222	1,217	11.7%	(0.4%)	1,057	1,228	16.2%
Propylene ^{2/}	791	1,003	1,028	29.9%	2.5%	822	1,006	22.4%
HDPE ^{2/}	1,138	1,384	1,350	18.6%	(2.5%)	1,149	1,371	19.3%
PP ^{2/}	1,149	1,301	1,288	12.0%	(1.0%)	1,141	1,287	12.8%
Naphtha ^{3/}	419	588	608	45.1%	3.4%	425	574	35.1%

- Note:**
- ^{1/} Contract Price (CP) 50:50
 - ^{2/} South East Asia - Spot Price
 - ^{3/} MOP Singapore (MOP'S)
 - ^{4/} NEPC acknowledged the progress of LPG liberalization based on the approval of CEPA on 2 December 2016 for government LPG liberalization roadmap that have 2 phases. Phase 1: Before complete the liberalization (Year 2017), liberalized only the LPG imports segment, while Refinery and Gas Separation Plant prices were still regulated through oil fund. Phase 2: LPG fully liberalization effective on 1 August 2017 with no selling price setting of LPG ex refinery and EPPO will only announce the reference price to regulate domestic LPG retail price. However, EPPO will have mechanism to monitor if LPG import price have material deviation from LPG ex GSP and will suggest CEPA to consider the case on a monthly basis.

Third quarter of 2018 compared with Second quarter of 2018

In Q3/2018, sales revenue of gas business was Baht 127,787 million, increasing by Baht 7,140 million or 5.9% from Q2/2018 mainly from PTT's GSM and NGR business units had increased revenue due to higher average selling prices. However, the average natural gas sales volume (calculated at heating value of 1,000 BTU per cubic foot) decreased by 157 standard cubic feet per day (MMSCFD) from 4,825 MMSCFD in Q2/2018 to 4,668 MMSCFD in Q3/2018 or 3.3% mainly from power producer customers and GSP3 had planned shutdown for maintenance. In addition, overall sales volume of PTT's GSP business unit (including NGL derived from Dew Point Control units) increased from 1,784,229 tons in Q2/2018 to 1,842,005 tons in Q3/2018 or 3.2% especially from LPG. In addition, average selling prices increased following the price formula reference to the exchange rate that depreciated.

In Q3/2018, EBITDA was Baht 24,831 million, increasing by Baht 195 million or 0.8% mainly due to PTT's GSM and NGR business units because of higher average selling prices following reference FO price in the price formula. In addition, PTT's GSP business unit had better performance due to rising average selling prices and sales volume as aforementioned. However, TM's performance decreased from higher administrative expenses and NGV had higher losses as gas cost increased ; even though , NGV selling price of taxi and public cars increased from Baht 10.00 per kg to Baht 10.62 per kg since 16 May 2018. On the other hand, operating income was Baht 20,278 million, decreasing by Baht 36 million or 0.2% primarily from higher depreciation expenses.

First nine months of 2018 compared with First nine months of 2017

In 9M/2018, sales revenue of gas business was Baht 357,965 million, increasing by Baht 26,140 million or 7.9% mainly from higher sales revenue of PTT's GSM and NGR business unit, as a result of higher average selling prices in line with higher gas price and higher sales volume of power producer customer (SPP). However, the average natural gas sales volume (calculated at heating value of 1,000 BTU per cubic foot) slightly decreased from 4,722 MMSCFD in 9M/2017 to 4,712 MMSCFD in 9M/2018.

Sales revenue of PTT's GSP business unit increased due to overall sales volume increased from 5,005,343 tons in 9M/2017 to 5,349,498 tons in 9M/2018 or 6.9% primarily from LPG product and Propane as PTT's GSP had lower planned shutdown days compared to 9M/2017 as well as PTTGC and HMC Polymer Company Limited (HMC) had maintenance shutdown in 9M/2017.

EBITDA and operating income of gas business group in 9M/2018 was Baht 72,711 million and Baht 59,465 million, increasing by Baht 11,947 million and Baht 10,750 million respectively mainly from PTT's GSP, GSM, NGR and TM. In addition, PTT's gas subsidiaries performance improved from higher average selling prices and PTTLNG started revenue recognition of LNG terminal 1 Phase 2 since March 2018.

In addition, NGV losses increased from higher gas cost; although, selling price of public car increased since 16 May 2018 as aforementioned. For private car, the selling price also increased from the adjustment of improving gas quality expense which increased by Baht 0.4553 per kilogram (kg) from Baht 3.4367 per kg to Baht 3.8920 per kg that became effective on 16 September 2017.

Coal Business

	Q3/2017	Q2/2018	Q3/2018	%Inc. (Dec.)		9M/2017	9M/2018	%Inc. (Dec.)
				YoY	QoQ			
Newcastle index price (US\$ per ton)	94.5	104.5	117.5	24.3%	12.4%	85.2	108.3	27.1%
Average selling price (US\$ per ton)	70.0	75.8	84.2	20.3%	11.1%	68.6	79.8	16.3%
Sales volume (million tons)	2.1	2.1	1.9	(9.5%)	(9.5%)	5.8	6.1	5.2%

Third quarter of 2018 compared with Second quarter of 2018

In Q3/2018, sales revenue of coal business was Baht 5,342 million, increasing by Baht 181 million or 3.5% compare with Q2/2018 mainly due to the increase of average selling prices by US\$ 8.4 per ton or 11.1% from US\$ 75.8 per ton to US\$ 84.2 per ton in Q3/2018, following the increase of Newcastle reference price by 12.4% from lower supply in Australia. Meanwhile, the sales volume decreased by 0.2 million tons or 9.5% from 2.1 million tons to 1.9 million tons in Q3/2018 following slower demand in coal market regarding higher coal price.

EBITDA in Q3/2018 was Baht 1,878 million, decreasing by Baht 289 million or 13.3% mainly from decrease in gross profit due to higher mining cost following crude and Newcastle reference prices. Operating income in Q3/2018 was Baht 1,350 million, decreasing by Baht 463 million following lower EBITDA, including the increase of depreciation and amortization expense by Baht 174 million.

First nine months of 2018 compared with First nine months of 2017

Sales revenue in 9M/2018 was Baht 15,660 million, increasing by Baht 2,159 million or 16.0% mainly due to the average selling prices which increased by US\$ 11.2 per ton or 16.3% from US\$ 68.6 per ton to US\$ 79.8 per ton in 9M/2018 following the increase of Newcastle reference price by 27.1%. In addition, sales volume in 9M/2018 slightly increased by 0.3 million ton or 5.2% from 5.8 million ton to 6.1 million ton in 9M/2018 due to the mudslide incident at Sebuiku causing production suspension from January - October 2017.

EBITDA in 9M/2018 was Baht 5,224 million, increasing by Baht 949 million or 22.2% mainly from the increase in gross profit following higher selling prices and sales volume, despite higher cost following increased mining cost. Operating income in 9M/2018 was Baht 3,782 million, increasing by Baht 983 million, compared with 9M/2017 following higher EBITDA, including lower depreciation and amortization expenses by Baht 34 million.

2. Downstream Petroleum Business Group

Oil Business Group

Unit : Million Liter	Q3/2017	Q2/2018	Q3/2018	%Inc. (Dec.)		9M/2017	9M/2018	%Inc (Dec.)
				YoY	QoQ			
Average sales volume	6,249	6,579	6,301	0.8%	(4.2%)	19,363	19,809	2.3%

Third quarter of 2018 compared with Second quarter of 2018

In Q3/2018, sales revenue of oil business was Baht 146,091 million, decreasing by Baht 5,976 million or 3.9% mainly from the decrease in average sales volume by 278 million liters or 4.2% to 6,301 million liters or equivalent to 430,817 barrels per day in Q3/2018 from almost all products due to low seasonal demand.

EBITDA in Q3/2018 was Baht 3,528 million, decreasing from Q2/2018 by Baht 415 million or 10.5%, mainly due to lower gross profit of diesel, gasoline, and aviation fuel from its pricing structure that is linked with the price in prior month (M-1), and also from a slight stock loss this period despite stock gain in the previous quarter. In the meantime, advertising expenses and sales promotion decreased. As a result, operating income in Q3/2018 was Baht 2,681 million, slightly decreased from the previous quarter by Baht 23 million.

First nine months of 2018 compared with First nine months of 2017

Sales revenue of oil business in 9M/2018 was Baht 449,473 million, increasing by Baht 43,288 million or 10.7% mainly from higher product selling prices following rising global oil price. Also, sales volume increased by 446 million liters or 2.3% from 19,363 million liters or equivalent to 446,118 barrels per day in 9M/2017 to 19,809 million liters or equivalent to 456,407 barrels per day in 9M/2018 mainly from aviation fuel after International Civil

Aviation Organization (ICAO) lifted Thailand off significant safety concern list since the beginning of 2018, allowing several airlines to resume their operations. Sales volume of gasoline and diesel also rose from stations' expansion.

EBITDA in 9M/2018 was Baht 13,789 million, decreasing by Baht 1,296 million or 8.6% mainly from lower stock gain. Also, gross profit of aviation fuel decreased from lower selling prices following pricing structure, as well as higher advertising, sales and marketing, and operational expenses from stations' expansion compared to 9M/17. On the other hand, gross profit of Non-oil, LPG, diesel and gasoline increased. Operating income in 9M/2018 was Baht 10,482 million, decreasing by Baht 1,209 million in line with the decrease in EBITDA as aforementioned.

International Trading Business Group

Unit : Million Liter	Q3/2017	Q2/2018	Q3/2018	%Inc. (Dec.)		9M/2017	9M/2018	%Inc (Dec.)
				YoY	QoQ			
Average sales volume	18,872	19,923	20,980	11.2%	5.3%	56,107	59,457	6.0%

Third quarter of 2018 compared with Second quarter of 2018

Sales revenue of international trading business in Q3/2018 was Baht 335,458 million, increasing by Baht 20,969 million or 6.7% from Q2/2018 from the increase in sales volume by 1,057 million liters or 5.3% from 19,923 million liters or equivalent to 1,377,084 barrels per day in Q2/2018 to 20,980 million liters or equivalent to 1,434,378 barrels per day in Q3/2018 due to sales volume of imported crude and condensate as lower domestic refineries shut down in Q3/2018 with out - out Trading of crude and condensate.

EBITDA, which adjusted the effect of foreign exchange rate and derivatives, in Q3/2018 was Baht 1,003 million, decreasing by Baht 1,419 million or 58.6% mainly due to the selling prices of Light crude which is substitute product decrease, affected to domestic condensate price in Q3/2018 has more discount for customers compared with Q2/2018. Operating income, which adjusted the effect of foreign exchange rate and derivatives in this quarter, was Baht 995 million, decreasing by Baht 1,420 million in line with EBITDA as aforementioned.

First nine months of 2018 compared with First nine months of 2017

Sales revenue of international trading business was Baht 907,629 million in 9M/2018, increasing by Baht 238,976 million or 35.7% which resulted from the rise in product selling prices in accordance with global oil prices. Moreover, the sales volume in this period increased by 3,350 million liters or 6.0% from 56,107 million liters or equivalent to 1,292,710 barrels per day in 9M/2017 to 59,457 million liters or equivalent to 1,369,901 barrels per day in 9M/2018 due to higher sales volume of imported crude and condensate, according to lower refineries shut down in 9M/2018 compared with 9M/2017 and higher sales volume of out-out Trading crude and condensate.

EBITDA, which adjusted the effect of foreign exchange rate and derivatives, in 9M/2018 was Baht 4,520 million, increasing by Baht 1,029 million or 29.5%, mainly due to higher margin of domestic condensate and out-out trading of crude and condensate together with higher margin of imported crude and condensate. Consequently, operating income which adjusted the effect of foreign exchange rate and derivatives of international trading business in 9M/2018 was Baht 4,497 million from Baht 3,468 million in 9M/2017 in line with the rise in EBITDA.

Petrochemical and Refinery Business Group

Unit : US\$ per ton	Q3/2017	Q2/2018	Q3/2018	%Inc. (Dec.)		9M/2017	9M/2018	%Inc (Dec.)
				YoY	QoQ			
HDPE	1,138	1,384	1,350	18.6%	(2.5%)	1,149	1,371	19.3%
PP	1,149	1,301	1,288	12.1%	(1.0%)	1,141	1,287	12.8%
BZ – Cond	320	212	214	(33.1%)	0.9%	372	247	(33.6%)
PX – Cond	360	354	501	39.2%	41.5%	388	412	6.2%

Unit : US\$ per ton	Q3/2017	Q2/2018	Q3/2018	%Inc. (Dec.)		9M/2017	9M/2018	%Inc (Dec.)
				YoY	QoQ			
Market GRM	6.89	4.39	4.74	(31.2%)	8.0%	5.81	4.76	(18.1%)
Inventory gain (loss)	1.73	3.87	1.06	(38.7%)	(72.6%)	0.33	1.71	>100.0%
Accounting GRM	8.39	8.34	5.79	(31.0%)	(30.6%)	5.94	6.47	8.9%
Refinery Utilization rate (%)	104.2%	102.3%	104.6%	0.4%	2.2%	98.6%	104.1%	5.6%

Third quarter of 2018 compared with Second quarter of 2018

In Q3/2018, sales revenue of petrochemical and refining business was Baht 297,355 million, increasing by Baht 14,664 million or 5.2% due to the increase in sales revenue of refining business that average petroleum product prices of all products rose following crude price compared with the previous quarter. In addition, refinery utilization rates of PTT group increased to 104.6 % in Q3/2018 from 102.3% in Q2/2018, resulting from a planned turnaround of TOP's refinery from late May to mid-June 2018, despite a planned shutdown of IRPC's Hyvahl and RDCC unit in Q3/2018.

Sales revenue of Olefins increased from higher sales volume. Whereas, product prices decreased from soften demand of polyethylene due to lower import, because of the concern over the U.S. – China trade war, including the weakening Chinese Yuan against USD. For Aromatics product prices, PX price significantly increased from lower than expected of new supply in the market from Vietnam and Saudi Arabia. While, BZ price slightly increased due to restocking demand for Christmas and New Year gifts production, despite lower BZ demand as feedstock in China.

EBITDA of petrochemical and refining business in Q3/2018 was Baht 31,288 million, decreasing by Baht 2,685 million from Q2/2018, and operating income was Baht 22,577 million, decreasing by Baht 2,716 million, mainly due to

- Refinery performance decreased as Accounting GRM dropped from US\$ 8.34 per bbl to US\$ 5.79 per bbl following lower stock gain from US\$ 3.87 per bbl to US\$ 1.06 per bbl. Even though, Gross Refining Margin excluding stock gain/(loss) (Market GRM) increased from lower crude premium.
- Olefins petrochemical performance decreased mainly from lower product selling prices while sales volume increased slightly by new capacity from LLDPE plant of PTTGC, which started commercial operation in March 2018, despite planned turnaround of PTTGC's olefin plants in Q3/2018
- Aromatics petrochemical performance increased mainly due to product crack spread over condensate especially PX which significantly increased.

First nine months of 2018 compared with First nine months of 2017

In 9M/2018, sales revenue of petrochemical and refining business was Baht 846,948 million, increasing by Baht 156,376 million or 22.6% mainly from the rise in average petroleum and petrochemical product prices in both aromatics and olefins following the increase in crude oil prices.

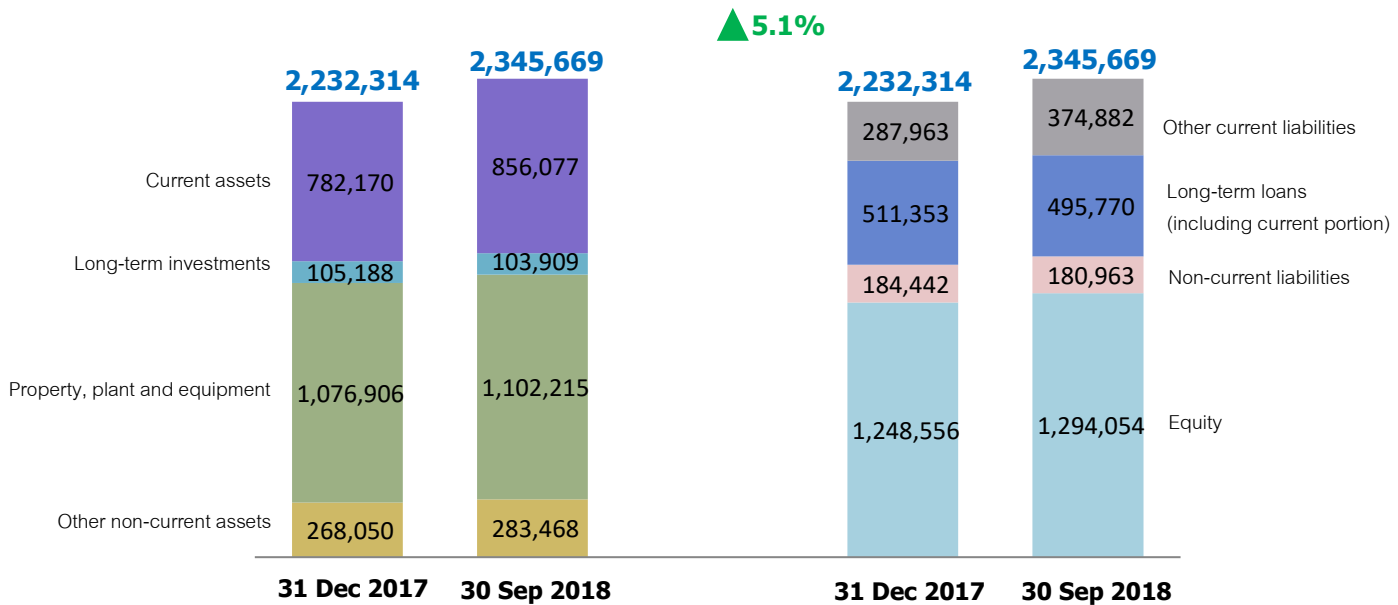
Sales volume of refining business rose following the increasing of refinery utilization rates from 98.6% in 9M/2017 to 104.1% in 9M/2018 together with sales volume of petrochemical business both olefins and aromatics increased due to in 9M/2017 IRPC's planned major turnaround as well as PTTGC's efficiency improvement and petrochemical plants shutdown, despite there was planned maintenance of PTTGC's Olefins plant in 9M/2018.

In 9M/2018, EBITDA of petrochemical and refining business was Baht 94,749 million, rising by Baht 6,609 million, and operating income was Baht 68,871 million, increasing by Baht 6,422 million, mainly from

- Overall refinery performance increased following higher Accounting GRM from US\$ 5.94 per bbl in 9M/2017 to US\$ 6.47 per bbl in 9M/2018 as a result of increasing in stock gain, although Market GRM declined from higher crude premium, together with lower fuel oil and gasoline crack spreads.
- Overall olefins petrochemical performance improved from the higher product selling prices and sales volume compared with last year.
- Aromatics petrochemical performance decreased due to lower BZ spread because of lower BZ import from China following the depreciation in Chinese Yuan against US Dollar and higher feedstock prices. Whereas, PX spread rose in 9M/2018.

The analysis of PTT and its subsidiaries' consolidated financial position
as of September 30, 2018 compared with December 31, 2017

Unit: Million Baht



Assets

As of September 30, 2018, total assets of PTT and its subsidiaries were Baht 2,345,669 million, increasing by Baht 113,355 million or 5.1% compared with December 31, 2017. The increase was mainly from the net effect of the followings:

- : An increase of Baht 73,907 million or 9.4% in current assets was mainly from the followings:
 - An increase of Baht 28,488 million in inventory mainly due to the rise of oil price following the global crude oil price which effected in the increase of petrochemical and refining business group's inventory balance.
 - An increase of Baht 19,342 million in trade accounts receivable mainly from the increase of product prices following market prices and, higher sales volume.
 - An increase of Baht 17,482 million in other current assets mainly from input vat refund of advance payment for business acquisition of PTTOR and PTTT's advance payment.
 - Net increase of Baht 8,595 million in cash and cash equivalents and current investment mainly from the rise in operating cash flow from PTT and affiliates.

: A decrease of Baht 1,279 million or 1.2% of long-term investment mainly from the drop in available for sales of TOP and PTTGC and the decrease in fair value of investment in BAFS of PTTOR.

: An increase of Baht 25,309 million or 2.4% in property, plant and equipment was mainly from the acquisition of additional stake of the Bongkot Project as well as additional investment in exploration and production assets in Zawtika and S1 projects of PTTEP. Moreover, there were the additional construction in progress assets of PTT Group, for instance, PTTGC's projects; Olefins Reconfiguration, Propylene Oxide and Polyols, the 5th

transmission pipeline project of PTT, TOP's projects; Thaioil Sriracha Building project, New Crude Tanks Construction project, New Jetty 7&8, and Catalyst Cooler project of IRPC.

: An increase of Baht 15,418 million or 5.8% in other non-current assets was mainly from the increase in deferred tax asset (DTA) of PTTOR due to the transferring oil business unit from PTT. In addition, goodwill increased due to the acquisition of additional stake of the Bongkot Project.

Liabilities

As of September 30, 2018, PTT and its subsidiaries had total liabilities of Baht 1,051,615 million, increasing by Baht 67,857 million or 6.9% from December 31, 2017, mainly from the followings:

: An increase of Baht 86,919 million or 30.2% in other current liabilities primarily from higher trade accounts payable which increased in line with the global crude oil price and other accounts payable which increased from PTTEP's contingent consideration acquired through business acquisition of the Bongkot Project. Moreover, PTT's dividend payable and income tax payable increased in this period.

: A decrease of Baht 15,583 million or 3.0% in long-term loans (including the current portion within 1 year) mainly from the repayment of long-term loans and the redemption of debenture amounting to Baht 109,860 million mainly from PTTGC, PTTEP, TOP, PTT and IRPC. However, there were additional loans of Baht 94,722 million in this period mainly from PTTOR, PTTGC, TOP and IRPC. Moreover, the effect of foreign exchange resulted in lower long-term loans by Baht 1,103 million.

: A decrease of Baht 3,479 million or 1.9% in non-current liabilities mainly from deferred tax liabilities of PTTEP due to the acquisition of additional stake of the Bongkot Project.

Equity

As of September 30, 2018, PTT and its subsidiaries had total shareholders' equity of Baht 1,294,054 million, increasing by Baht 45,498 million or 3.6% from the year ended 2017, mainly due to performance in 9M/2018 of PTT and its subsidiaries which was Baht 100,146 million. Also, PTT had dividend payment from the performance of 2H/2017 by 12 Baht per share and from the performance of 1H/2018 by 0.8 Baht per share (After the change in par value of PTT's share from 10 Baht per share to 1 Baht per share) amounting to Baht 57,108 million.

Liquidity

For the 9-month period ended September 30, 2018, PTT and its subsidiaries had net increase in cash and cash equivalents amounting to Baht 111,329 million, and cash and cash equivalents at the beginning of the period was Baht 166,189 million. As a result, cash and cash equivalents at the end of the period was Baht 277,518 million. Details of cash flow by activities are as follows:

	Unit: Million Baht
Net cash provided by operating activities	176,137
Net cash provided by investing activities	23,264
Net cash used in financing activities	(88,885)
Effects of exchange rates on cash and cash equivalents	159
Currency translation differences	654
Net decrease in cash and cash equivalents during the period	111,329
Cash and cash equivalents at the beginning of the period	166,189
Cash and cash equivalents at the end of the period	277,518

Net cash provided by operating activities of Baht 176,137 million was derived from Baht 100,146 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 90,874 million of depreciation and amortization expenses, Baht 44,096 million of income taxes, Baht 42,852 million of net profit attributable to non-controlling interests, Baht 20,446 million of finance costs, together with the decrease in net operating assets of Baht 70,265 million and income taxes paid of Baht 43,608 million.

Net cash provided by investing activities was Baht 23,264 million mainly resulted from the followings:

: The cash inflow of current investments amounting to Baht 109,632 million, mainly from fixed deposits and short-term investment in debt securities which has reached maturity of PTTEP and PTT amounting to Baht 64,796 million and Baht 45,554 million, respectively.

: The cash outflow of investments in property, plant and equipment, investment property, intangible assets, and exploration and evaluation assets amounting to Baht 76,825 million, mainly due to the additional investments of PTTEP in exploration and production assets mainly from Zawtika and S1 projects and from PTT projects; the 5th transmission pipeline. Furthermore, there were investments in Olefins reconfiguration, Propylene Oxide and Polyols projects of PTTGC as well as Catalyst Cooler and Polypropylene Compounding Project (PPC) of IRPC.

: The cash outflow of other long-term investments amounting to Baht 21,239 million, mainly from the acquisition of additional stake of the Bongkot Project of PTTEP.

Net cash used by financing activities was Baht 88,885 million, mainly from the followings:

: Cash paid for dividend amounting to Baht 61,354 million mainly from PTT, PTTGC, PTTEP, TOP and IRPC and finance costs paid amounting to Baht 20,191 million.

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Financial ratios and earnings per share of PTT and its subsidiaries

Financial Ratio	Unit	9M/2017	9M/2018
<u>Profitability Ratios from Continuing Operations</u>			
Gross profit margin	%	14.85%	14.90%
Net profit margin	%	9.15%	8.32%
<u>Solvency Ratios</u>			
Interest coverage	Times	10.26	10.88
<u>Earnings per share from Continuing Operations</u>			
Earnings per share	Baht/share	3.45	3.48

Financial Ratio	Unit	Dec 31, 2017	Sep 30, 2018
<u>Liquidity Ratios</u>			
Current ratio	Times	2.21	1.88
Quick ratio	Times	1.61	1.32
<u>Solvency Ratios</u>			
Debt to equity	Times	0.42	0.41

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 Interest paid from financing activities
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 Q4/2018

The world economy in Q4/2018 is expected to expand at a slightly slower pace than in Q3/2018. Specifically, in the US, strong labor market and tax cuts should continue to add meaningfully to growth, although Chinese retaliatory tariffs may have a negative impact on American output. Meanwhile, economic recovery is expected to continue in the euro area on the back of remained-low interest rates, despite the European Central Bank (ECB) in October 2018 already starting to taper its quantitative easing (QE) program and anticipating to end QE completely by December 2018. As for China, economic growth is expected to slow slightly, as the negative impact of broader and stiffer US tariffs on Chinese goods is felt, although Chinese easing off its credit campaign against risk should help prevent an even larger growth decline. Downside risks to the world economy include an escalating trade restrictions and retaliation, a surprise tightening of global financial conditions, and political uncertainty and geopolitical tensions and strife.

According to the IEA's estimates in October 2018, global oil demand is expected to grow by 0.4 MMBD to average 100.2 MMBD in Q4/2018 relative to Q3/2018. In addition, global oil demand is expected to grow by 1.3 MMBD to average 99.2 MMBD in 2018 – with emerging market and developing economies, especially Asian countries and China, being the key driver. Meanwhile, oil demand in advanced economies is expected to remain unchanged from the previous year. As for crude oil supply, smaller surplus is expected as a result of OPEC and non-OPEC's ongoing oil deal to curb output, rising geopolitical tensions in the Middle East and US sanction on Iran. However, it is important to look at the oil production and measures announce by OPEC in the next meeting in December. Nevertheless, Dubai crude oil price is expected to average US\$70-75 per barrel in 2018.

Dubai crude cracking margin in Singapore in 2018 is expected to average US\$6-7 per barrel, down from 2017, amid lower demand for petroleum products due to higher prices.

Olefins price in Q4/2018 is projected to be soften from Q3/2018. HDPE price is forecasted to average at US\$1,319 per ton and PP price is expected to average at US\$1,278 per ton from lower demand towards year end, and new PP plant start up in South Korea (S-oil, 405 kTA). The aromatics price is likely to rise further on the back of higher naphtha feedstock cost. BZ price is expected to average at US\$ 886 per ton. The BZ spread over naphtha potentially becomes lower due to seasonally lower demand during the end of the quarter. PX price is projected to average at US\$ 1,263 per ton. The PX spread over naphtha is expected to be stable from the new supply from Indonesia (TPPI, 550 kTA) that will compensate capacity loss during planned maintenance.

Thai economy in Q4/2018 is expected to grow at a slightly slower pace than Q3/2018, from a slowdown in private investment, in large part due to rising inventory destocking. As for tourism, growth is expected to improve on the back of the recovery of Chinese tourists amid intense stimulus measures from Thai government. Public spending should remain one of the key driver, particularly the progress of investment in mega-infrastructure

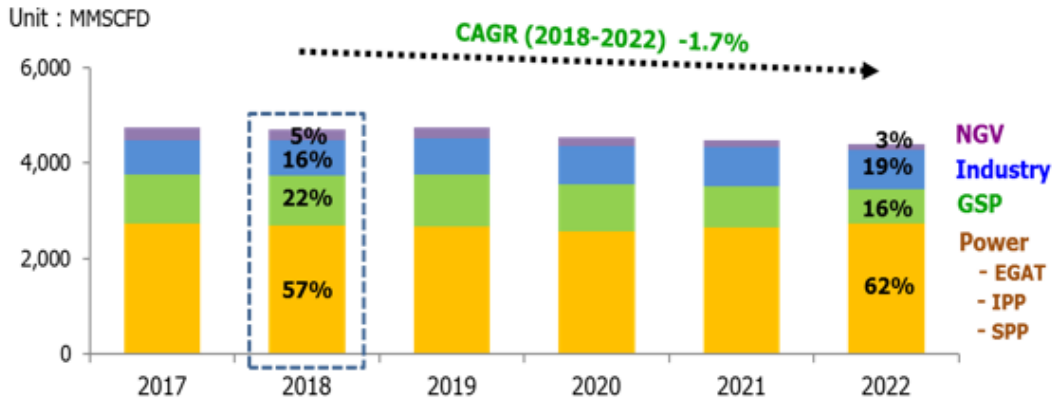
projects. Meanwhile, merchandise exports are likely to maintain its momentum, supported by growing external demands and production relocation to Thailand. Continuous expansion in private consumption is expected, supporting by household income, which will improve and widely dispersed. Still, high household debt will continue to constrain domestic demand. Meanwhile, Thai economy still faces with some downside risks from intensifying trade protectionism, timing and magnitude of monetary policy normalization in advanced economies, and delays in government's budget disbursement.

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- Major Project Plan

Major Project Plan

Gas Business

Country: Projected Gas Volume



Gas Facilities Expansion

New Project	LNG Ph#2	LNG Terminal#1 - Extension		LNG Terminal#2	
LNG Capacity (MTA)	10	10	11.5	11.5	11.5
Major Project COD	• 4 th onshore Midline Comp.	• Nakhon Ratchasima	• Comp Wang noi	• 5 th Pipeline	• RA#6-Ratchburi Pipeline

Assumption for country gas demand in year 2018-2022 has declined growth rate at -1.7% based on the recent situation of domestic power generators, from Electricity Generating Authority of Thailand (EGAT), Metropolitan Electricity Authority (MEA) and Provincial Electricity Authority (PEA), that tend to decrease as private sector generates power for themselves. In addition, gas demand in long term is expected to reduce from the previous plan which expects that country still need gas for electricity to replace some coal fired power plants and Energy Efficiency Plan (EEP) for 30%, while Alternative Energy Development Plan (AEDP) is expected to be the same as plan.

Pipelines Projects

Nakorn Ratchasima Pipeline (Expected Completion Year 2018)

Phase 1:

- Completed construction and start of Regular Operation on 5 March 2017

Phase 2:

- Progress of construction 92.86% (as of September 2018)

5th Transmission Pipeline (Rayong – South Bangkok power plant)

Phase 1:

- During pipeline construction of 72 km. out of 208 km.
- Progress as of September 2018 = 29.2%

Phase 2:

- Award of contractor and signing contract on 27 June 2018
- Preparing for engineering design

RA#6 – Ratchaburi Pipeline Project

- Laying pipeline
- Progress as of September 2018 = 56.79%

Wang-noi Compressor Station

- Progress as of September 2018 = 99.77%

LNG Project:

PTT has growth plan for LNG Terminal to support country gas demand with current capacity of LNG Terminal at 10 MTA finished in 2017, and will have capacity expansion to 11.5 MTA expected to be COD in year 2019. Also, there will be investment of new LNG Terminal for future gas demand. PTT will have long term LNG contracts in addition to existing contract with Qatargas, Shell, BP, and Petronas within 2017 and has plan to have LNG long term contract as a major portion in the whole of LNG import.

LNG Receiving Terminal 1 Phase 2 Extension:

- Construction completed 100% (as of September 2018)
- Capacities expansion from 10 MTA to 11.5 MTA (Expansion capacity 1.5 MTA) approved by Cabinet on 12 July 2016
- COD: 2019

LNG Receiving Terminal 2:

- 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

Actual planned Shutdown for Gas Separation Plants in 9M/2018

Erawan Complex maintenance shutdown during January 2018 (14 days) resulting to GSP 1 – 3 and ESP plants turndown 50 – 86%

GSP 2

- GSP 2 Planned shutdown for maintenance during March 2018 (Shutdown 16 days)
- Ethane separation plants (ESP) turn down 43% (16 days due to GSP2 shutdown)

GSP 3

- GSP 3 Planned shutdown for maintenance from September – Beginning of October (Shutdown 18 days)
- Ethane separation plants (ESP) turn down 60%(18 days due to GSP3 shutdown)

Appendix

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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 (PTTGC), 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 (95.49% shareholding in SAR and 100% shareholdings in the others, held by PTT Mining Limited (PTTML), a 100% shareholding subsidiary of PTTGM)

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