



PTT Global Chemical Public Company Limited

Management Discussion and Analysis FY2018



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Silver Class 2018

**WORLD MEMBERS IN CHEMICALS SECTOR
FOR 6th CONSECUTIVE YEAR**

Executive Summary

In FY2018, PTT Global Chemicals Public Company Limited (“the Company”) performances had been increasing with the sales revenue of Baht 515,449 million, growing by 18% from previous year, and has operating profit excluded non-recurring item of Baht 42,608 million, increasing by 13% from previous year. These mainly contributed from higher product prices along with the increase in sales volume, maintain high polyethylene price in the first nine months, recover of phenol chain and growth in share of profits of investments in petrochemical businesses, especially Acrylonitrile (AN) business, from Asset Injection, and benefits from organization’s efficiency enhancement from MAX project. However, if include the effect of stock loss as a result of declining crude oil price during the year end and gain from acquisition of Baht 1,355 million. The company has net profit of Baht 40,069 million (8.89 baht/share), increasing by 2% from previous year.

As for Q4/2018, the Company’s sales revenue was Baht 128,874 million, improved from Q4/2017 by 9% and but decreased from Q3/2018 by 6% as a result of a decline in crude oil price and the products prices following the crude oil price. The company has operating profit excluded non-recurring item of Baht 9,076 million, decreasing by 23% from Q3/2018 and 13% the same period of last year. The net profit was Baht 4,060 million, decreasing by 58% and 68% from Q4/2017 and Q3/2018 respectively. This was mainly affected by the stock loss of Baht 6,524 million which resulted from the decline in average Dubai crude oil price from 74.28 USD/bbl in Q3/2018 to 67.42 USD/bbl in Q4/2018.

Table 1 : Performance Summary

(Unit: Million Baht)	Q4/2017	Q3/2018	Q4/2018	YoY % +/-	QoQ % +/-	2017	2018	YoY % +/-
Sales Revenue	118,743	136,712	128,874	9%	-6%	436,745	515,449	18%
EBITDA	16,593	17,634	5,747	-65%	-67%	63,480	58,263	-8%
EBITDA Margin (%)	14%	13%	4%	-68%	-65%	15%	11%	-22%
Share of profit of investments in JV and Associates	1,704	1,967	1,426	-16%	-28%	5,574	6,932	24%
(Profits attributable to Owners of the Parent)**	1,704	1,967	1,426	-16%	-28%	3,360	6,932	106%
Net Profit	9,559	12,793	4,060	-58%	-68%	39,298	40,069	2%
EPS (Baht/Share)	2.12	2.84	0.90	-58%	-68%	8.79	8.89	1%
Adjusted EBITDA*	14,105	16,830	12,271	-13%	-27%	60,622	61,322	1%
Adjusted EBITDA Margin (%)	12%	12%	10%	-2%	-2%	14%	12%	-2%

Note:

* Adjusted EBITDA refers to EBITDA excluding impact of oil stock value

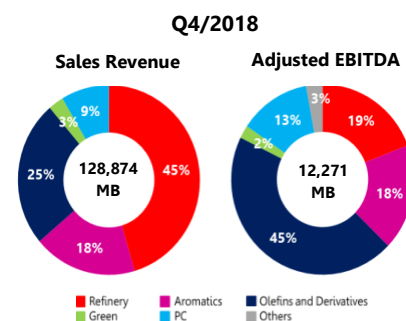
** Reported only portion attributable to the Company and actual realization after the Asset injection

For Q4/2018, Refinery business Market GRM was at 5.52 USD/barrel, declining from Q4/2017 and Q3/2018, resulted from the reducing spread of Gasoline and Naphtha byproduct over Dubai crude, leading toward a decline in operating performance. For Aromatics business, the average spread of products over condensate and the profits from operation had been improving in Q4/2017, mainly contributed from higher Paraxylene margin due to a better demand from downstream businesses of Purified Terephthalic Acid (PTA) and Polyester. However, comparing to Q3/2018, the performance had been decreasing particularly from lower Benzene spread and Naphtha byproduct spread over Condensate. Olefins and Derivatives business performance had been declining from Q4/2017 and Q3/2018, particularly from a decrease in average Polyethylene price. Beside these, Share of Profit from Investments (attributable to Owners of the Company) also declined comparing to

Q4/2017 and Q3/2018 as a result of softening performance of associates company, particularly Acrylonitrile (AN). These contributed toward Q4/2018 net profit of Baht 4,060 million.

Table 2 : Adjusted EBITDA Margin

% Adj. EBITDA Margin					
	Q4/2017	Q3/2018	Q4/2018	2017	2018
Business Unit :					
Refinery	2	5	4	6	5
Aromatics	8	9	9	13	7
Olefins and Derivatives	29	26	17	29	26
Green	7	7	8	6	6
Performance Materials and Chemicals	14	15	14	9	15
Average	12	12	10	14	12



For 2018, Refinery business Market GRM had slightly decreased, mainly from lower Fuel Oil spared Gasoline spread over Dubai crude oil, along with a higher Crude Premium. However, the sales volume had been increasing, leading slightly decrease in operating performance from 2017. For Aromatics business, the performance had been declining from a significant decrease in Benzene spread over condensate, despite the fact that Paraxylene spread over condensate had been continuously improving and Aromatics utilization had been increasing. Aromatics business BTX utilization was at 93%, increased from 80% in 2017 after Aromatics II had the turnaround to improve the efficiency last year. Olefins and Derivatives business had an increasing sales generating from the commercial operation of LLDPE II with the nameplate capacity of 400,000 ton per annum in March 2018. While Ethylene Oxide product volume had also increased as there was no turnaround in 2018. Share of Profit from Investments (attributable to Owners of the Company) boosted as a result of a full year realization of profit from the Asset Injection, together with a better spread from Acrylonitrile (AN), and an improving performance in Bioplastics business through NatureWorks LLC in United States.

Moreover, the Company had realized gain on bargain purchase from the share purchase of 2 companies under the PTA and PET businesses for Baht 1,355 million and realized gain from sale of investment for Baht 291 million (net of tax expense). However, the Company had the expenses from raw materials derogation (net of tax expense) from GGC for Baht 1,261 million and the effect of the stock loss from reducing in crude oil price. This contributed toward the net profit of Baht 40,069 million, increased by 2% from 2017.

Performance Analysis by Business Unit

Refinery Business Unit

Table 3 : Crude Price & Petroleum Product Spreads

(Unit: USD/bbl)	Q4/2017	Q3/2018	Q4/2018	YoY % +/-	QoQ % +/-	2017	2018	YoY % +/-
Dubai Crude Oil	59.33	74.28	67.42	14%	-9%	53.18	69.42	31%
Gasoline-Dubai	14.41	11.55	4.70	-67%	-59%	14.87	10.53	-29%
Jet-Dubai	13.28	14.48	15.64	18%	8%	12.14	15.37	27%
Diesel-Dubai	13.04	14.39	14.78	13%	3%	12.53	14.63	17%
Fuel Oil-Dubai	-3.08	-2.58	1.32	143%	150%	-2.36	-2.67	-14%

Crude oil market situation in Q4/2018 adjusted downward from Q4/2017. International Energy Agency (IEA) has estimated the oil demand growth in 2018 will be 1.3 Mbbbl/day, compare with last year at 1.5 Mbbbl/day, as affected by political risk factors and expected world economic slowdown overwhelmed by United States and China trade war. Meanwhile, U.S Energy Information and Administration (EIA) had adjusted up 2019 petroleum production estimates in United States by 1.18 Mbbbl/day toward 12.06 Mbbbl/day. Major OPEC petroleum producers such as Saudi Arabia and Russia had also increased their production in lieu of the production from Iran and Venezuela. Contributed from these factors, Dubai crude oil price was averaged at 67.42 USD/bbl and closed at 52.85 USD/bbl in Q4/2018.

As for Petroleum products spread over crude oil price, most had increased from Q4/2017 and Q3/2018. Averaged Diesel over Dubai crude spread was at 14.78 USD/bbl; the spread was high during the beginning of the quarter due to an increase in seasonal demand along with regional Refinery plants maintenance shutdown while it was reduced in the last quarter resulting from additional supply from increasing exporting quota from China as well as the Refinery plants in Japan and Taiwan had resumed their operation after their maintenance period. The Fuel oil over Dubai crude spread was at 1.32 USD/bbl, increased from the Middle East demand and concern over the supply from U.S. sanction against Iran which contributed toward export reduction from Middle East.

The crude oil market situation in 2018 was substantially unstable. The price soared in the beginning of the year comparing to last year due to the production control by the OPEC and Non-OPEC members since 2017, according to the collaboration to reduce the production by 1.8 Mbbbl/day. Moreover, the crude oil production had also been reduced due to Venezuela economic issues and Iran export as a result of U.S. sanction. However, the crude oil production in United States was highest at 11.5 Mbbbl/day in October 2018 together with an increase in Saudi Arabia and Russia production to support the absent volume from Iran. This led to a dramatic decline in Dubai crude oil price during the year end, with an average of 57.3 USD/bbl in December 2018.

For 2018, the Petroleum products spread over crude oil price had been unstable as well. This was contributed from several factors such as unpredictable weather, Petroleum products exporting policy from China, economic slowdown, and some Refinery plants shutdown from the storm in Asian region. Average Diesel over Dubai crude spread was at 14.63 USD/bbl, increased by 2.10 USD/bbl, resulting from a prolong winter while the industrial recovery since 2017 had led to a decline in Diesel reserve which was below its 5 year average, contributed to a continuously high spread for the first 3 quarters. Average Fuel oil over Dubai crude spread was at -2.67 USD/bbl, reduced by 0.31 USD/bbl; it was pressured by the global oil price during the first 3 quarters but started to pick up at year end from the Middle East demand and the concern over Iran supply from United States sanction.

Table 4 : Gross Refinery Margin

(Unit: USD/bbl)	Q4/2017	Q3/2018	Q4/2018	YoY % +/-	QoQ % +/-	2017	2018	YoY % +/-
Market GRM	6.76	6.44	5.52	-18%	-14%	6.74	6.08	-10%
CDU GRM	7.35	6.93	5.82	-21%	-16%	7.36	6.46	-12%
CRS GRM	4.19	4.24	4.09	-2%	-4%	3.81	4.39	15%
Hedging Gain/(Loss)	-2.84	0.13	0.31	-111%	133%	-0.70	0.11	-115%
Stock Gain/(Loss) Net NRV	3.38	0.95	-8.43	-349%	-992%	0.84	-1.08	-229%
Accounting GRM	7.30	7.51	-2.61	-136%	-135%	6.88	5.11	-26%
Adjusted EBITDA (MB)	1,151	2,793	2,350	104%	-16%	10,577	10,259	-3%
Adjusted EBITDA (%)	2%	5%	4%	2%	-1%	6%	5%	-1%

In Q4/2018, the Petroleum products spread over crude oil price had increased from Q4/2017 and Q3/2018. However, Market GRM had declined in Q4/2018 toward 5.52 USD/bbl, particularly from the reducing spread of Naphtha byproduct as well as the Gasoline spread which was pressured by a high inventory level.

For the performance of Refinery business in Q4/2018, the Refinery unit maintained CDU utilization rate at 102% as it was fully operated, comparably the same level as Q4/2017 and Q3/2018. The Company had realized stock loss of 8.43 USD/bbl, resulted from a declining crude oil price by 9% from Q3/2018. However, the Company recorded a net gain from Commodity Hedging of 0.31 USD/bbl, resulting in Accounting GRM of Refinery business at -2.61 USD/bbl, decreased from Q4/2017 and Q3/2018 by 7.30 USD/bbl and 7.51 USD/bbl respectively. The Adjusted EBITDA (excluded interest expenses, taxes, depreciation and stock gain/loss) of Refinery business was Baht 2,350 million, increasing from Q4/2017 Adjusted EBITDA of Baht 1,151 million but declining from Q3/2018 Adjusted EBITDA of Baht 2,793 million. The Adjusted EBITDA Margin was at 4%.

Comparing the spread of Petroleum products over crude oil price between 2018 and 2017, the spread of Diesel over Dubai crude increased by 17% whereas Fuel Oil spread over Dubai crude decreased by 14%. Together with higher Crude Premium from 2017, this resulted in Market GRM of 6.08 USD/bbl. As for 2018, CDU utilization rate was 102%, decreased by 1% from 2017. The Company realized stock loss at 1.08 USD/bbl due to abrupt decline in crude oil price in Q4/2018. The Company recorded net gain from Commodity Hedging of 0.11 USD/bbl. These resulted in Refinery business Accounting GRM of 5.11 USD/bbl, declining from 2017. The Adjusted EBITDA of Refinery business in 2018 was Baht 10,259 million, slightly decreased from 2017. The Adjusted EBITDA Margin was at 5%.

Aromatics Business Unit

Table 5 : Aromatics Product Prices and Spreads over Condensate

(Unit: USD/ton)	Q4/2017	Q3/2018	Q4/2018	YoY % +/-	QoQ % +/-	2017	2018	YoY % +/-
Condensate	528	642	579	10%	-10%	467	606	30%
Paraxylene (TW)	887	1,180	1,141	29%	-3%	854	1,067	25%
Paraxylene(TW)-Condensate	359	537	562	57%	5%	388	461	19%
Paraxylene (FECF)	886	1,143	1,148	30%	0%	847	1,057	25%
Paraxylene(FECF)-Condensate	358	501	569	59%	13%	380	451	19%
Benzene (Spot Korea)	839	856	694	-17%	-19%	823	821	0%
Benzene-Condensate	311	214	115	-63%	-46%	357	215	-40%
Naphtha-Condensate	42	24	-11	-126%	-144%	29	8	-71%

Paraxylene

In Q4/2018, Paraxylene (FECF) spread over Condensate price was at 569 USD/ton, increased from Q4/2017 and Q3/2018 by 59% and 13% respectively. This was contributed from a favorable demand from downstream business, Purified Terephthalic Acid (PTA) and Polyester with its high utilization rate of 90%. Despite increasing supply from the start utilizing of new capacities of Petro Rabigh plant in Saudi Arabia by 1.3 million ton and Nghi Son plant in Vietnam by 0.7 million ton, the downstream support and declining Condensate price in Q4/2018 still led to a considerable Paraxylene spread.

As for 2018, Paraxylene (FECF) spread over Condensate price increased from 2017 by 19% toward 451 USD/ton due to increasing demand on Paraxylene for 46.3 million ton. This particularly contributed from the downstream businesses of Polyester and Purified Terephthalic Acid (PTA) which was used as a feedstock for Polyethylene Terephthalate (PET). PTA was having high operating rate due to more demand resulting from the ban on recycled PET in China as it was causing the pollution. Furthermore, there was supply shortage of Paraxylene during 2H/2018 as the new capacities from Saudi Arabia and Vietnam (for the total of 2 million ton) had been facing with technical issues and couldn't operate as planned, together with some major producers in Japan, South Korea and China that were having unplanned shutdown. While there was continuous demand, particularly from Polyester plants in China which were operating as high as 89%, along with the situations above, Paraxylene (FECF) spread over Condensate price significantly rose from 2017.

Benzene

In Q4/2018, Benzene spread over Condensate price was averaged at 115 USD/ton, declined from both Q4/2017 and Q3/2018 by 63% and 46% respectively. This was particularly due to the diminishing demand from downstream as there were planned maintenance shutdowns of several Phenol and Styrene Monomer (SM) plants in Asia, together with a reportedly high inventory in China which kept rising continuously, thus pressured toward Benzene spread in Q4/2018.

For 2018, average Benzene spread over Condensate price was at 215 USD/ton, dropping from 2017 as a result of high inventory level particularly in China, despite the planned maintenance shutdown of several Refinery and Aromatics plants in Asia. Benzene demand had also been declining as a result of a continuous shutdown of Styrene Monomer (SM) plants. Benzene supply in Asia had still been over the demand even though some Refinery and Aromatics plants were under the turnaround period. Meanwhile, inventory in China was still at high level but demand had been declining continuously as a result of a drastic U.S. and China trade war which directly affected downstream petrochemical. Further, there were technical issues affecting the production of Styrene

Monomer in United States, Japan, and China. These pressured toward the plunge of Benzene spread over Condensate by 40% from 2017.

Table 6 : Aromatics market P2F

(Unit: USD/ton)	Q4/2017	Q3/2018	Q4/2018	YoY % +/-	QoQ % +/-	2017	2018	YoY % +/-
Market P2F	194	247	238	23%	-3%	226	197	-13%
Hedging Gain/(Loss)	3.3	-15.3	-19.9	-699%	31%	1.3	-6.5	-587%
Stock Gain/(Loss)	31.2	15.0	-97.6	-413%	-748%	14.2	-9.7	-168%
Accounting P2F	228	247	121	-47%	-51%	241	181	-25%
Adjusted EBITDA (MB)	1,658	2,434	2,220	34%	-9%	8,204	6,492	-21%
Adjusted EBITDA (%)	8%	9%	9%	1%	0%	13%	7%	-6%

In Q4/2018, Performance of Aromatics business in terms of BTX utilization was at 93%, comparably the same as in Q4/2017 and Q3/2018 while the spread of Paraxylene over Condensate was high. This led to Adjusted EBITDA of Baht 2,220 million, surging by 34% from Q4/2017, with Adjusted EBITDA Margin of 9%. Comparing to Q3/2018, although Paraxylene spread over Condensate was still high, Benzene spread over Condensate had declined significantly in Q4/2018, and product spreads had declined following a decline in crude oil price, causing a 9% decrease in Adjusted EBITDA.

In Q4/2018, the gross profit or Market P2F per ton of BTX was 238 USD/ton, increased from Q4/2017 by 23%, but declined by 3% from Q3/2018. The Company had realized Stock Loss with the Net Realizable Values (NRV) of 97.6 USD/ton, mainly resulted from a declining Condensate price in relation to the crude oil price as well as realized the Hedging Loss for 19.9 USD/ton, contributing to the gross profit or Accounting P2F of Aromatics business at 121 USD/ton.

For the operation in 2018, Aromatics business BTX utilization was at high level of 93%, significantly increased from 2017 at 80% as the Aromatics II had the maintenance shutdown between June 4 to July 18, 2017 in order to change the Catalyst and Absorbent. The maintenance resulted in the efficiency improvement in feedstock intake and ability to increase Paraxylene production. However, Aromatics business Market P2F per ton of BTX decreased to 197 USD/ton BTX in 2018, due to a significant decline in Benzene and Naphtha byproduct spreads over Condensate by 40% and 71% respectively. The Company had realized Stock Loss with the Net Realizable Values (NRV) of 9.7 USD/ton and realized the Hedging Loss of 6.5 USD/ton, contributing to Aromatics business Accounting P2F of 181 USD/ton in 2018, with Adjusted EBITDA of Baht 6,492 million and Adjusted EBITDA of 7%.

Olefins and Derivatives Business Unit

Table 7 : Prices and Spreads of Olefins and Derivatives

(Unit: USD/ton)	Q4/2017	Q3/2018	Q4/2018	YoY % +/-	QoQ % +/-	2017	2018	YoY % +/-
Naphtha (MOPJ)	570	667	568	0%	-15%	496	614	24%
Ethylene (SEA)	1,195	1,217	883	-26%	-27%	1,091	1,141	5%
Propylene (SEA)	828	1,028	936	13%	-9%	824	988	20%
HDPE	1,226	1,350	1,207	-2%	-11%	1,168	1,330	14%
HDPE-Naphtha	656	683	639	-3%	-6%	672	716	7%
LLDPE	1,194	1,170	1,098	-8%	-6%	1,178	1,181	0%
LLDPE- Naphtha	624	503	530	-15%	5%	682	567	-17%
LDPE	1,273	1,200	1,102	-13%	-8%	1,277	1,207	-5%
LDPE- Naphtha	703	533	534	-24%	0%	781	593	-24%
PP	1,196	1,288	1,215	2%	-6%	1,155	1,269	10%
PP-Naphtha	626	621	647	3%	4%	659	655	-1%
MEG (ACP)	1,060	1,100	1,045	-1%	-5%	1,015	1,108	9%
MEG-0.65 Ethylene	283	309	471	67%	53%	305	367	20%

For Polyethylene in Q4/2018, average HDPE price was at 1,207 USD/ton, decreased by 2% from Q4/2017 and 11% from Q3/2018. This mainly resulted from a declining in crude oil price in Q4/2018 and concern over the impact of unresolved United States and China trade war which could lead to unstable and declining demand. Some producers in the United States had exported their products to other regions instead of China, thus pressuring the product prices this quarter. For MEG (ACP), the price was stable from Q4/2017 but slightly decreased from Q3/2018 as a result of a declining demand from downstream businesses of Polyester and PET due to a cautious market sentiment pressured by the United States and China trade war.

As for the situation in 2018, average HDPE price was at 1,330 USD/ton, increased by 14% from 2017. This was supported by an increase in oil price, better than expected economic recovery in China, and the infrastructure investments in China such as Natural Gas Transmission System in order to replace the products producing from recycled system. Meanwhile, LLDPE and LDPE prices were quite stable, partly contributed from new capacities from United States in 2018. For MEG (ACP), the price had increased by 9%, supported by a considerable demand from Polyester and PET, along with a lower inventory level in China during 2H/2018.

Table 8 : Adjusted EBITDA of Olefins and Derivatives

(Unit: Million Baht)	Q4/2017	Q3/2018	Q4/2018	YoY % +/-	QoQ % +/-	2017	2018	YoY % +/-
Adjusted EBITDA	9,255	9,103	5,522	-40%	-39%	36,697	35,353	-4%
Adjusted EBITDA Margin	29%	26%	17%	-12%	-9%	29%	26%	-3%

In Q4/2018, Olefins plants had average utilization rate of 101%, slightly declined from Q4/2017 at 103% but increased from Q3/2018 at 98% as a result of planned maintenance shutdown of Olefins I. The external sales volume was in line with the production with Polyethylene utilization rate in Q4/2018 at 94%, decreased from Q4/2017 and Q3/2018 at 115% and 97% respectively due to the planned maintenance shutdowns of LLDPE I and LLDPE II plants. For MEG, the utilization rate was stable at 102%, declined from Q4/2017 but increased from Q3/2018. Meanwhile, HDPE price had declined significantly due to a drop in crude oil price in Q4/2018 and concern over the impact of

unresolved United States and China trade war which could lead to unstable and declining demand. This resulted in average HDPE price of 1,207 USD/ton, decreased by 2% from Q4/2017 and 11% from Q3/2018. Average Ethylene price was at 883 USD/ton, decreased by 26% and 27% from Q4/2017 and Q3/2018 respectively. This contributed to Olefins and Derivatives business Adjusted EBITDA of Baht 5,522 million, with the Adjusted EBITDA margin of 17%.

For the situation in 2018, Olefins business utilization rate had improved while Polymers utilization had declined following the planned maintenance shutdown, while LLDPE II had started the commercial operation in the beginning of the year. Olefins businesses utilization rate was at 101% and Polymers utilization rate was at 100%. The average product prices for the first nine months were supported by a high crude oil price and increasing demand; particularly from China which was replacing its recycled products. However, the economic slowdown and uncertainty during Q4/2018 had adversely affected toward the decline in Olefins and Derivatives business. This decreased the Adjusted EBITDA by 4% toward Baht 35,353 million. For Olefins intake volume in 2018, 88% was Gas and 12% was Naphtha, comparing the same percentages as in 2017.

Table 9 : Adjusted EBITDA by Business Unit

Adjusted EBITDA (MB)	Q4/2017	Q3/2018	Q4/2018	YoY % +/-	QoQ % +/-	2017	2018	YoY % +/-
Business Unit :								
Refinery	1,151	2,793	2,350	104%	-16%	10,577	10,259	-3%
Aromatics	1,658	2,434	2,220	34%	-9%	8,204	6,492	-21%
Olefins and Derivative	9,255	9,103	5,522	-40%	-39%	36,697	35,353	-4%
Green	326	255	272	-17%	7%	1,001	860	-14%
Performance Materials and Chemicals	1,515	1,770	1,551	2%	-12%	3,356	7,010	109%
Others	200	476	356	78%	-25%	787	1,347	71%
Adjusted EBITDA (MB)	14,105	16,830	12,271	-13%	-27%	60,622	61,322	1%

Operating Performance

Unit : Million Baht		Q4/2017	Q3/2018	Q4/2018	YoY % + /(-)	QoQ % + /(-)	2017	2018	YoY % + /(-)
	Sales Revenue	118,743	136,712	128,874	9%	-6%	436,745	515,449	18%
	Feedstock cost	(88,964)	(106,082)	(102,054)	15%	-4%	(325,553)	(400,501)	23%
	Product to Feed Margin	29,779	30,630	26,820	-10%	-12%	111,192	114,948	3%
1	Variable Cost	(6,579)	(7,153)	(7,012)	7%	-2%	(25,123)	(27,920)	11%
2	Fixed OH	(4,807)	(4,385)	(4,390)	-9%	0%	(16,186)	(16,478)	2%
3	Stock Gain/(Loss) and NRV ¹	2,488	804	(6,524)	-362%	-911%	2,858	(3,059)	-207%
4	Gain/(Loss) on Hedging Commodity	(1,506)	(226)	(225)	-85%	0%	(1,475)	(272)	82%
5	Other Revenue ²	1,151	1,423	1,236	7%	-13%	4,594	4,686	2%
6	SG&A Expenses	(3,933)	(3,459)	(4,158)	6%	20%	(12,380)	(13,642)	10%
	EBITDA	16,593	17,634	5,747	-65%	-67%	63,480	58,263	-8%
7	Depreciation & Amortization	(4,842)	(4,800)	(5,048)	4%	5%	(20,085)	(19,278)	-4%
8	Loss from impairment of assets	(2,296)	0	0	-100%	0%	(2,296)	0	-100%
9	Inventory Loss (GGC) ³	0	0	0	0%	0%	0	(2,004)	0%
10	Gain on Bargain Purchase	0	0	1,355	0%	0%	0	1,355	0%
	EBIT	9,455	12,834	2,054	-78%	-84%	41,099	38,336	-7%
11	Net financial expense	(679)	(531)	(483)	-29%	-9%	(2,991)	(2,418)	-19%
12	FX Gain(Loss)	292	167	252	-14%	51%	2,301	407	-82%
13	Share of gain/(loss) from investment	1,704	1,967	1,426	-16%	-28%	5,574	6,932	24%
	Share of gain/(loss) from investment (Owners of the parent) ⁴	1,704	1,967	1,426	-16%	-28%	3,360	6,932	106%
14	Corporate Income Tax	(1,020)	(1,471)	1,061	204%	172%	(3,863)	(2,986)	-23%
15	Net Profit after Tax	9,752	12,966	4,310	-56%	-67%	42,120	40,271	-4%
	Profit/(loss) attributable to:								
16	Non-controlling interests	193	173	250	29%	44%	2,822	202	-93%
17	Owners of the Company⁵	9,559	12,793	4,060	-58%	-68%	39,298	40,069	2%
18	Adjusted EBITDA⁶	14,105	16,830	12,271	-13%	-27%	60,622	61,322	1%

Note:

1 In 2018, stock gain/(loss) and NRV was -3,059MB from average crude oil price of December 2017 at 62 USD/barrel to average crude oil price of December 2018 at 57 USD/barrel

2 Profit of sale of all remaining shares in API 291 MB

3 Expenses from raw materials derogation (net of tax expense) from GGC for 1,261 MB per shareholding of 72.29%

4 Reported only portion attributable to the Company and actual realization after the Asset injection

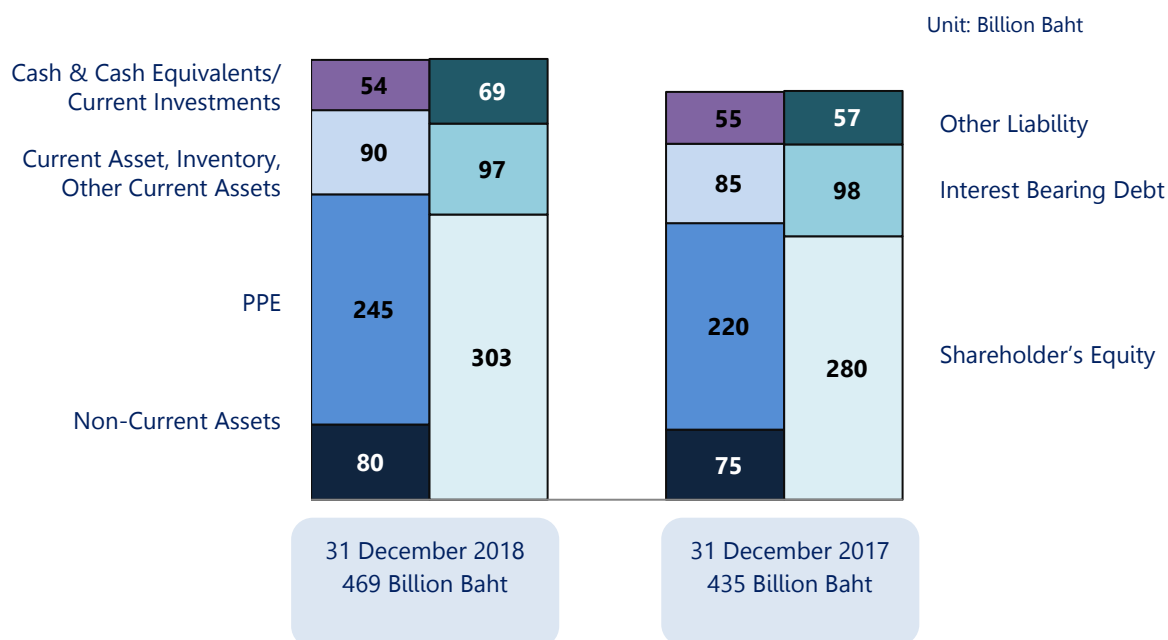
5 In 2017, there was a total of Baht 2,370 million of former shareholder before the business restructuring. For comparison of financial statements from the acquisition of Asset Injection from PTT Public Company Limited on 3 July 2017

6 Adjusted EBITDA includes the impact of commodity hedging but excludes the impact of oil stock (Stock Gain/Loss and NRV) and extraordinary items

For Q4/2018 comparing to Q4/2017, the Sales Revenue increased by 9%, resulting from an increase in sales volume, better production efficiency and high utilization rate, and no planned maintenance shutdown of Refinery and Aromatics plants. The Variable Cost increased by 7% following the increase in sales volume. Fixed cost decreased by 9% as a result of a reduction in personnel expense. Share of Profit from Investments (attributable to Owners of the Company) decreased by 16% resulting from softening performance of Acrylonitrile (AN).

As for 2018 comparing to 2017, the Sales Revenue increased by 18%, resulting from an increase in sales volume as supported by a continuously high utilization rate and fewer planned maintenance shutdown. Fixed cost increased by 2% which resulted from an increase in personnel and plant maintenances expenses. The Selling and Administrative Expenses increased by 10%. Share of Profit from Investments (attributable to Owners of the Company) increased by 106%, mainly resulted from a full year realization of the performances of the Asset Injection, together with better products prices of Acrylonitrile (AN) and Methyl Methacrylate (MMA), resulting in higher Net Profit.

Statement of Financial Position



As of December 31, 2018, the Company had Total Asset of Baht 469,255 million, increased by Baht 34,291 million from December 31, 2017, mainly generated from an increase in Property, Plant and Equipment resulted from various projects investments and an increase in current assets by Baht 3,572 million. The Company had Total Shareholders' Equity of Baht 303,482 million, increased by Baht 23,218 million from December 31, 2017 from a continuous accumulation of net profit.

The Company had Cash and Cash Equivalents and Current Investments decreased by Baht 1,478 million from 2017. There was cash inflow from operations of Baht 53,629 million while the cash flows used in investment activities was Baht 32,842 million, mainly invested for the purchase of property, plant and equipment and intangible assets on the projects such as Olefins Reconfiguration, Propylene Oxide by GC Oxirane and Polyols & PU System by GC Polyols. There was an increase in other short-term investment of Baht 1,815 million and cash flow from financing decreased by Baht 27,397 million, mainly from dividend payment of Baht 19,739 million. As of December 31, 2018, the Company had Cash and Cash Equivalents and Current Investments of Baht 53,562 million, including long-term investment managed by private fund and the Company for Baht 6,803 million, therefore the Company virtually had total Cash and Cash Equivalents and Current Investments of Baht 60,365 million. Ending 2018, the Company reported net interest bearing debt to equity was 0.14 times. Net interest bearing debt to EBITDA was 0.74 times.

Key Financial Ratios

Financial Ratios	Q4/2017	Q3/2018	Q4/2018
Current Ratio (Times)	2.33	2.04	1.95
EBITDA to Sales Revenue (%)	14.53%	13.68%	11.30%
Net Profits to Sales Revenues (%)	9.00%	9.02%	7.77%
Return on Total Assets (%)	11.77%	12.45%	10.36%
Return on Equity (%)	15.09%	16.38%	14.04%
Interest Bearing Debt to Equity (Times)	0.35	0.31	0.32
Net Interest Bearing Debt to Equity (Times)	0.15	0.14	0.14
Net Interest Bearing Debt to EBITDA (Times)	0.67	0.60	0.74

Remarks :

Current Ratio	=	Current Assets divided by Current Liabilities
EBITDA to Sales Revenue	=	EBITDA divided by Sales Revenue
Net Profit to Sales Revenue	=	Profits attributable to Owners of the Company to Sales Revenue
Return on Total Assets	=	Earnings before Interest and Tax divided by Average Total Assets
Return on Equity	=	Profits attributable to Owners of the Company divided by Average Equity attributable to Owners of the Company
Interest Bearing Debt to Equity	=	Interest Bearing Debt divided by Shareholder's Equity
Net Interest Bearing Debt to Equity	=	Interest Bearing Debt net Cash and Cash Equivalent and Current Investments divided by Shareholder's Equity
Net Interest Bearing Debt to EBITDA	=	Interest Bearing Debt net Cash and Cash Equivalent and Current Investments divided by EBITDA

Project Progress in 2018

In 2018, the Company had an ongoing investments and market study as followed:

Olefins Reconfiguration Project

The Company had approved an investment for the new Olefins plant (Olefins Reconfiguration Project) with the use of Naphtha and Liquefied Petroleum Gas (LPG) as major feedstocks. The plant will consists of Ethylene capacity of 500,000 ton per year and Propylene capacity of 250,000 ton per year. This finalized the Company's total Ethylene capacity from 2,988,000 to 3,738,000 ton per year. The plant is expected to start commercial operation within year 2020. The total investment is USD 985 million or approximately Baht 36,000 million. The project has been on progressed for 32%.

Propylene Oxide (PO) and Polyols & PU System Project

The purpose of PO/Polyols Project is to expand toward downstream business of Polyurethane; a high value product. The Company has set up a wholly-owned, GC Oxirane Company Limited, to produce PO with the capacity of 200,000 ton per year and is expected to start commercial operation in 2019. The Company had also set up a joint venture, GC Polyols Company Limited, with shareholdings of PTTGC 82.1%, with Polyols capacity of 130,000 ton per year and PU System products with the capacity of 20,000 ton per year. PO and Polyols Projects have been on progressed for 36% and 41% respectively.

Establishment of Joint Venture Company “Kuraray GC Advanced Materials” in Performance Chemicals Business.

The Company had jointly invested with Kuraray Co., Ltd and Sumitomo Corporation to establish “Kuraray GC Advanced Materials Co., Ltd”. The joint venture invested in the Performance Chemicals business to produce super engineering plastics products such as High-Heat Resistant Polyamide-9T (PA9T) and Hydrogenated Styrenic Block Co-Polymer (HSBC). It is expected to start commercial operation within year 2022.

Signing the Share Purchase Agreement for Purified Terephthalic Acid (PTA) and Polyethylene Terephthalate (PET) Businesses

The Company and its affiliated, GC Glycol Co., Ltd. (GC Glycol), had signed the Share Purchase Agreement in Siam Mitsui PTA Co., Ltd. or SMPC and Thai PET Resin Co., Ltd (TPRC) to produce and distribute Purified Terephthalic Acid (PTA) and Polyethylene Terephthalate (PET). The Company and its affiliated hold 74% in both companies. The investment will enhance the value chain for Paraxylene (PX) and Monoethylene Glycol (MEG) to effectively fulfill the customer's requirement, particularly on packaging bottles. The signing of Share Purchase Agreement was on August 8, 2018 and was completed on December 27, 2018.

Signing the Share Sale and Subscription Agreement for Rotomolding Compound Businesses

The Company, either directly or indirectly through an affiliated company, had acquired 49% shares of Revolve Group Limited (RGL) from an original shareholder and by subscription of newly issued shares from RGL for the total of 6.4 million pound sterling or approximately 281 million baht. The investment is intended to enhance the value chain of Performance Chemicals product through Rotomolding Compound with high value applications. The major feedstock used is LLDPE plastic resin.

Market and Business Outlook in 2019

For the global oil outlook in 2019, average Dubai crude oil price is expected to be 64-69 USD/bbl. The International Energy Agency (IEA) had estimated the crude oil demand in 2019 at 100.7 Mbbbl/day, increased by 1.4 Mbbbl/day. However, this is subjected to uncertainties from the United States and China trade war which will impact the economic situation along with the concern on global economy which can pressure the oil demand. Although the OPEC petroleum producers and Russia are cooperating to restrain the petroleum production, the increasing production of shale oil in United States can put pressure on the crude oil price.

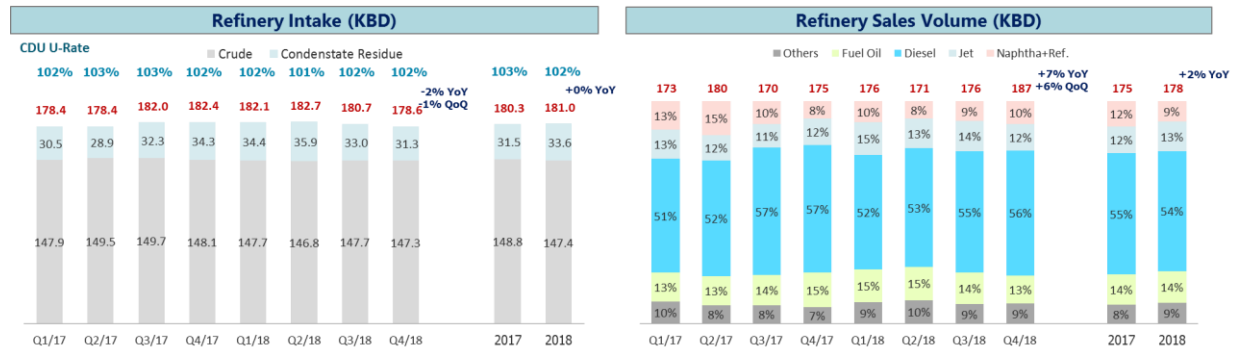
For Petroleum product, the Company anticipates that the Diesel spread over crude oil price will be averaged around 15.1 USD/bbl, contributing by International Marine Organization (IMO) regulation on limiting the Sulphur content in fuel oil used on board ships; it is expected that there will be more demand on Diesel for blending in order to comply for the Sulphur content. The Fuel Oil spread and the Gasoline spread over Dubai crude price is expected to be -4.9 USD/bbl and 5.0 USD/bbl respectively. The Fuel Oil will be affected by the IMO regulation and will imminently recognize the impact by 2H/2019 while Gasoline is still pressured by a high inventory level and increasing production from a high production capacity in North America. As for Refinery's utilization rate, it will be operated around 86%, resulting from the planned maintenance shutdown in Q4/2019 for 2 months.

For Aromatics product, Paraxylene spread over Condensate price in 2019 is expected to be 488 USD/ton. Despite the new supply from China, the demand from Fiber and Filaments industries, Purified Terephthalic Acid (PTA), and PET Bottle Resin are expected to be the growth potential; particularly the demand from China although the trade war may affect the macro economy. For Benzene spread over Condensate price, it is expected to be 120 USD/ton. Benzene demand is expected overcome additional supply, particularly in China, Korea, and India which the demand from Styrene Monomer, Phenol, and Cyclohexane are expected to increase. In 1Q/2019, the Company has a turnaround and production efficiency improvement plan for Aromatics I; a better utilization rate after the turnaround is expected to alleviate the adverse effect from the maintenance period. In 2019, the Company anticipates Aromatics plants utilization rate around 87%.

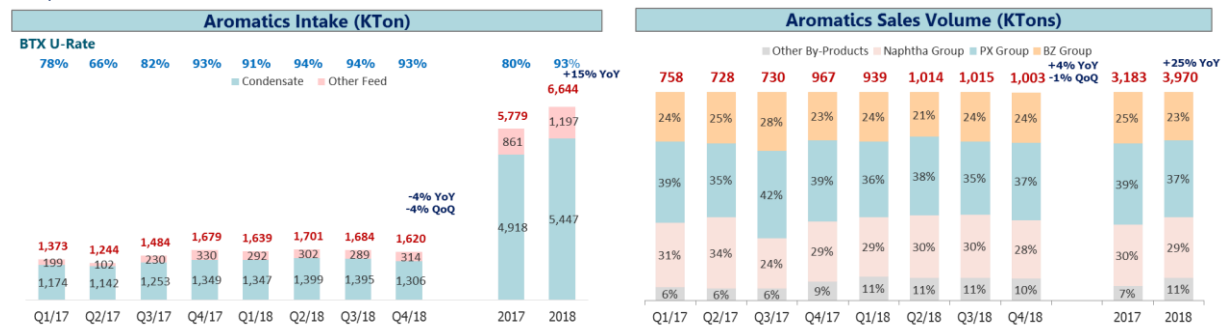
The outlook for Olefins and Derivatives product has a weaken potential. Average Polyethylene price will be around 1,147 USD/ton; affected by the softening crude oil price in 2018 together with a lowering demand affected by China and United States trade war. The market is under a wait-and-see situation for a more clarified direction. MEG outlook is expected to soften from 2018 as there will be new capacities from Americas and China which it already start to impact since ending 2018. However, it is still supported by the increasing demand from downstream businesses, particularly the Polyester in China. The Company expects the average MEG ASP price to be around 706 USD/ton. In 2019, Olefins plants utilization rate will be around 101% and Polymers plants' will be around 101%.

Appendix

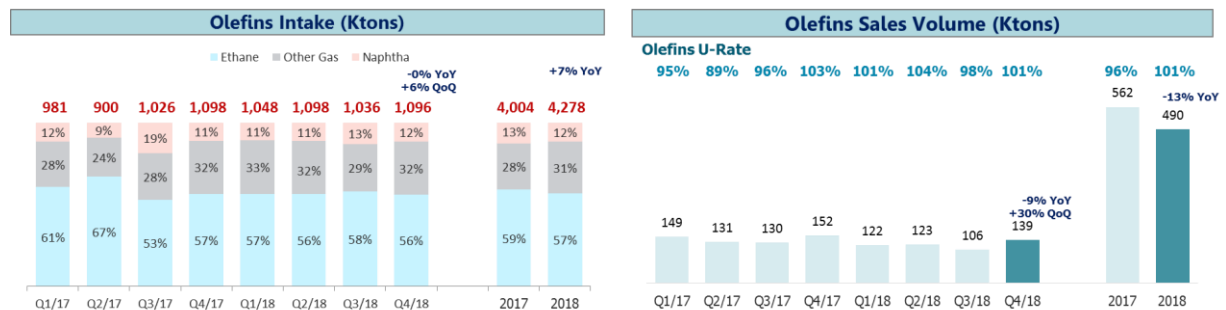
Graph 1: Refinery Intake and Sales Volume



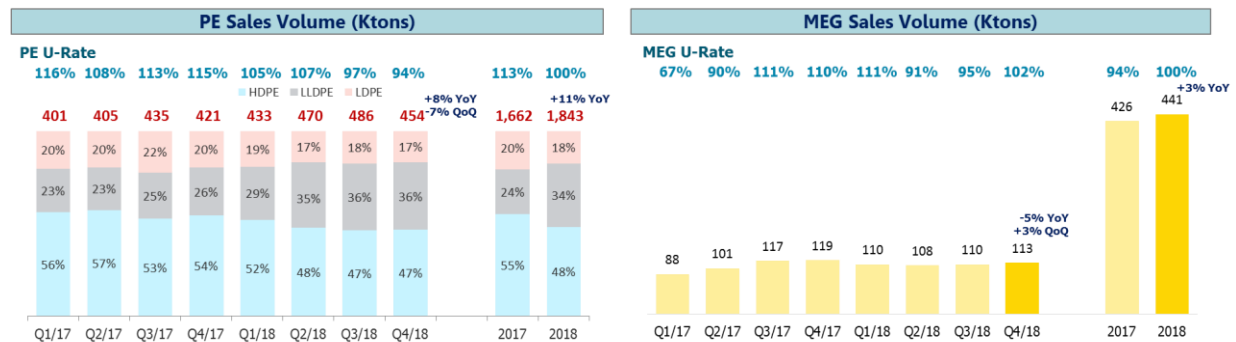
Graph 2: Aromatics Intake and Sales Volume (BTX)



Graph 3: Olefins Intake and Olefins and Derivatives Sales Volume



*Other feedstock หมายถึง Reformate Pygas และ Heavy Naphtha



Planned Maintenance Shutdown Schedule 2019

Plant		2019											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
OLE	Cracker												
POL	HDPE			20	HDPE2			15	HDPE1				
	LDPE				12						15		
	LLDPE I												
	LLDPE II												
	PS									10	HIPS		
										15	GPSS		
EOB	TOCGC		43										
PHN	Phenol I					22							
	Phenol II			12									
	BPA												
REF	Refinery										54		
ARO	Aromatics I					53							
	Aromatics II												