



PTT Global Chemical Public Company Limited

Management Discussion and Analysis Q3/2021

MEMBER OF
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In Collaboration with RobecoSAM



WORLD MEMBERS IN CHEMICALS SECTOR
FOR 8th CONSECUTIVE YEAR

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1. Executive Summary

In Q3/2021, PTT Global Chemical Public Company Limited (“the Company”) had total sales revenue of Baht 112,173 million, slightly increased from Q2/2021 and increased by 47% from Q3/2020. The revenue grows continuously, supported by the rise of petrochemical products price due to the demand recovery and tightening supply from maintenance shutdown, the slowdown in production of some producers in the region as well as the positive direction of petroleum products price which consistently increased following the increased in crude oil price as demand recovery from lockdown restriction of COVID-19 ease. In term of sale volume, in this quarter the Company’s sales volume increased from petrochemical products due to production capacity expansion and the increased in sale volumes of existing production capacity during the quarter, even there was a decrease in sale volume of petroleum products from maintenance shutdown. The increasing of Crude oil price has directly impact on raw material cost, especially Olefins and Derivatives products. As a result, in Q3/2021, The Company had Net Operating Profit Recurring (excluding Stock Gain Net Reversal of NRV, Foreign Exchange loss, Loss from commodity hedging) of Baht 8,657 million, decreased by 17% from Q2/2021, but increased more than 200% from Q3/2020. The Company had Adjusted EBITDA of Baht 14,080 million in this quarter, decreased by 8% from Q2/2021, but increased by 125% from Q3/2020. After considering the results of Stock Gain Net Reversal of NRV of Baht 1,171 million, Loss from commodity hedging of Baht 1,676 million, Foreign Exchange loss of Baht 1,147 million, the Company recorded in Q3/2021 Net Profit of Baht 7,005 million (Baht 1.56/share), decreased from the previous quarter by 72% as in Q2/2021, the Company had recorded extraordinary items from selling ordinary shares in Global Power Synergy Public Company Limited (GPSC).

Table 1: Performance Summary

(Unit: Million Baht)	Q3/2020	Q2/2021	Q3/2021	YoY % +/-	QoQ % +/-	9M/2020	9M/2021	YoY % +/-
Sales Revenue	76,407	111,793	112,173	47%	0%	238,714	325,830	36%
EBITDA	6,746	16,810	15,251	126%	-9%	9,752	48,465	>200%
EBITDA Margin (%)	9%	15%	14%	5%	-1%	4%	15%	11%
Share of profit of investments in JV and Associates	884	2,325	1,295	46%	-44%	2,267	5,520	144%
Net Profit	908	25,035	7,005	>200%	-72%	(6,205)	41,735	>200%
EPS (Baht/Share)	0.20	5.58	1.56	>200%	-72%	(1.38)	9.30	>200%
Adjusted EBITDA*	6,254	15,363	14,080	125%	-8%	19,065	43,551	128%
Adjusted EBITDA Margin (%)	8%	14%	13%	4%	-1%	8%	13%	5%

Note: * Adjusted EBITDA refers to EBITDA excluding Stock gain/(loss), NRV and Extra item

In Q3/2021, Olefins and Derivatives Business Unit’s performance was slightly decreased due to the decrease in average price of Polyethylene (PE) by 5%, while Naphtha and LPG prices were increased following an increasing of crude oil price. This resulted to Adjusted EBITDA Margin of Olefins and Derivative Business Unit at 18%, decreased from the previous quarter and Q3/2020. For the Aromatics business, the BTX P2F was at 188 USD per ton in Q3/2021, increased from the previous quarter and Q3/2020, followed the increase in demand of products and the decline in supply. Moreover, the increase in financial performance of Performance Materials and Chemicals (PC) business unit both from Q2/2021 and Q3/2020 was mainly driven by the high demand of Phenol, Propylene Oxide (PO), and Polyols. For Refinery Business Unit, in Q3/2021, the Market GRM was at 3.20 USD per barrel, increased from the previous

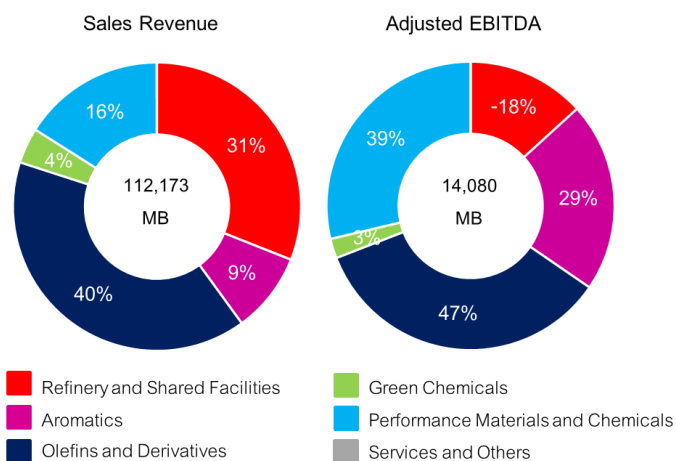
quarter and Q3/2020, followed the increase in product spread and demand recovery. However, the performance for the Refinery business slightly dropped because of the maintenance shutdown for 25 days in September 2021 which led to the drop in sale volume. In addition, there was higher Loss from commodity hedging for the Refinery business in this quarter. The Company had Share of Profit from Investments in JV and associates of Baht 1,295 million, decreased from Q2/2021, mainly driven by the planned maintenance shutdown of petrochemical businesses and the Company ceasing to recognize share of profit from power business after the Company's shareholding in GPSC decreased since early of June 2021.

Table 2: Adjusted EBITDA Margin

% Adj. EBITDA Margin	Q3/2020	Q2/2021	Q3/2021	9M/2020	9M/2021
Business Unit:					
Refinery and Shared Facilities	0	-1	-7	3	-2
Aromatics	1	12	24	10	15
Olefins and Derivatives*	19	26	18	13	23
Green Chemicals	7	5	10	4	8
Performance Materials and Chemicals	16	30	30	14	29
Average	8	14	13	8	8

Note: *If included PTA, PET %Adj. EBITDA in Q3/20, Q2/21, Q3/21, 9M2020, and 9M2021 are 17%, 22%, 15%, 12%, and 20% respectively

Q3 2021



2. Performance Analysis by Business Unit

2.1 Refinery & Shared Facilities Business Unit

Table 3: Crude Price & Petroleum Product Spreads

(Unit: USD per bbl)	Q3/2020	Q2/2021	Q3/2021	YoY % +/-	QoQ % +/-	9M/2020	9M/2021	YoY % +/-
Dubai Crude Oil	42.92	66.93	71.67	67%	7%	41.39	66.20	60%
Gasoline-Dubai	4.43	9.90	11.59	162%	17%	4.55	9.53	110%
Jet-Dubai	-0.74	4.52	5.31	>200%	17%	2.56	4.37	71%
Diesel-Dubai	4.16	5.25	5.35	29%	2%	6.96	5.11	-26%
HSFO-Dubai	-2.55	-5.82	-3.33	-30%	43%	-3.85	-4.20	-9%
LSFO-Dubai	7.17	11.24	11.42	59%	2%	11.65	12.04	3%

For Crude oil market situation in Q3/2021, Dubai crude oil price was higher compared with the previous quarter and the same period of last year. Crude oil price was supported by offline in U.S. Gulf of Mexico producers by 1.4 million barrel per day due to Hurricane Ida even OPEC alliances agreed to follow the existing policy of incrementally increasing production at 400,000 barrel per day, which is nevertheless less than the increasing demand in the market. Also, crude oil market was supported by the re-opening of cities in Europe and the United States due to the speed-up of the progress on vaccination against COVID-19, and the upcoming winter's impact on increasing demand in the market. In addition, the COVID-19 infection in Asia was positive direction at the end of quarter resulted in the average Dubai crude oil price in Q3/2021 stood at 71.67 USD per barrel and closed at 75.95 USD per barrel at the end of the period.

For petroleum products spread over Dubai crude oil price in Q3/2021, petroleum products were supported by the back of a brighter demand outlook from the re-opening of cities in the US and European countries. The average Diesel over Dubai crude oil spread increased from Q2/2021 and Q3/2020 to 5.35 USD per barrel due to the positive direction of demand and seasonal refinery maintenance. While Average Jet over Dubai crude oil spread increased from Q2/2021 and Q3/2020 to 5.31 USD per barrel due to the implementation of Travel Bubbles and Live with COVID policy issuance. Average Low Sulfur Fuel oil (LSFO) over Dubai crude oil spread increased from Q2/2021 and Q3/2020 to 11.42 USD per barrel supported by rising LNG price and some consumers purchased LSFO for substitute.

Table 4: Gross Refinery Margin

(Unit: USD per bbl)	Q3/2020	Q2/2021	Q3/2021	YoY	QoQ	9M/2020	9M/2021	YoY
				% +/-	% +/-			% +/-
Market GRM	1.22	2.03	3.20	162%	58%	2.38	2.76	16%
CDU GRM	0.01	1.11	2.52	>200%	126%	1.99	2.73	37%
CRS GRM	7.54	7.34	6.84	-9%	-7%	4.41	6.42	46%
Hedging Gain/(Loss)	0.17	-1.57	-7.55	<-200%	<-200%	0.59	-2.88	<-200%
Stock Gain/(Loss) net NRV	0.05	1.42	1.29	>200%	-10%	-4.64	1.74	138%
Accounting GRM	1.44	1.88	-3.06	<-200%	<-200%	-1.67	1.63	197%
Adjusted EBITDA (MB)	55	-370	-2,523	<-200%	<-200%	2,619	-2,052	-178%
Adjusted EBITDA (%)	0%	-1%	-7%	-7%	-6%	3%	-2%	-5%
Utilization Rate	94%	101%	77%	-16%	-23%	100%	93%	-7%

Note: *Adjusted EBITDA refers EBITDA excluding Stock gain/(loss), NRV and Extra item

In Q3/2021, overall Petroleum products spread over Dubai crude oil price increased from Q2/2021 and Q3/2020 due to increase in market demand that was supported by the re-opening of cities in the US, Europe, and China after speed-up in the progress on vaccination against COVID-19 and the higher price of substitute crude as energy due to power crisis in China. In Q3/2021, the Company continued to manage both production plan and sales contract to minimize those effects and continued to closely monitor market condition for the proper optimization of crude sourcing and product spreads. In this period, Market GRM increased to 3.20 USD per barrel compared with 2.03 USD per barrel in the previous quarter. In Q2/2021, the Company had utilization rate at 77%, decreased from the previous quarter at 101% caused by the maintenance shutdown for 25 days. Additionally, the Company has continued to manage both production and sales plan. The Company realized Stock Gain at 1.29 USD per barrel resulting from the increase in Dubai crude oil price.

Nevertheless, the Company realized Loss from commodity hedging of -7.55 USD per barrel or Baht -3,052 million. The hedging loss resulted from the Company's hedging to protect against the fluctuation of Petroleum products spread over Dubai crude oil price and inventory crude oil price. In the quarter, the Company had hedging loss mainly from the fair-value measurement of the outstanding derivative contracts at the end of the quarter. At the end of the quarter, there was an upward direction of crude oil price and products spread to higher prices compared to the hedged prices of the commodity hedging.

In Q3/2021, the Company had the Refinery Business Unit's Accounting GRM at -3.06 USD per barrel, decreased from 1.88 USD per barrel and 1.44 USD per barrel in Q2/2021 and Q3/2020 respectively. The Adjusted EBITDA of Refinery Business Unit in Q3/2021 was Baht -2,523 million, while Adjusted EBITDA Margin was at -7% (Adjusted EBITDA and Adjusted EBITDA Margin excluding Loss from commodity hedging was 529 million Baht and 2% respectively).

2.2 Aromatics Business Unit

Table 5: Aromatics Product Prices and Spreads over Condensate

(Unit: USD per ton)	Q3/2020	Q2/2021	Q3/2021	YoY	QoQ	9M/2020	9M/2021	YoY
				% +/-	% +/-			% +/-
Condensate	357	572	616	73%	8%	344	567	65%
Paraxylene (TW)	546	859	919	68%	7%	583	848	46%
Paraxylene (TW)-Condensate	189	287	303	60%	6%	239	281	18%
Paraxylene (FECP)	546	855	920	68%	8%	584	843	44%
Paraxylene (FECP)-Condensate	190	283	304	60%	7%	241	276	15%
Benzene (Spot Korea)	427	966	993	132%	3%	471	904	92%
Benzene-Condensate	71	393	377	>200%	-4%	127	337	166%
Naphtha-Condensate	40	33	60	48%	78%	26	46	74%

Paraxylene

In Q3/2021, Paraxylene (FECP) over Condensate spread averaged at 304 USD per ton, increased by 7% from Q2/2021 and by 60% from Q3/2020 respectively due to decreasing in Paraxylene supply from the more capacity loss for longer maintenance shutdown in China compare with last period. In addition, the start-up of new capacity of a large-scale plant in China was delayed and the plant was constrained by lower crude oil import quota allocations led to lower PX throughput. However, in the late Q3/2021, the implementation of the “Dual Control” policy to improve the energy efficiency usage in several regions in China had an impact on PX downstream plants, especially Polyester production. Hence, the reduced polyester operations led to a decrease in PX downstream demand in some regions.

Benzene

In Q3/2021, Benzene over Condensate spread averaged at 377 USD per ton, decreased by 4% from Q2/2021 but increased by over 200% from Q3/2020. A slightly decrease in Benzene spread was due to a drop in operating rates of downstream Styrene Monomer plants from maintenance shutdown in China and Hurricane Ida in the United States (Short-term period). In term of supply, comparing with Q2/2021, there was the heavy scheduled maintenance in last period led to the supply loss more than the loss in Q3/21. However, Benzene demand also support market sentiment by strong consumption of Benzene downstream product; especially construction products, automotive products, Healthcare and hygiene products due to the COVID-19 situation.

Table 6: Aromatics market P2F

(Unit: USD per ton)	Q3/2020	Q2/2021	Q3/2021	YoY % + /(-)	QoQ % + /(-)	9M/2020	9M/2021	YoY % + /(-)
Market P2F	78	181	188	142%	4%	140	172	23%
Hedging Gain/(Loss)	5.9	-13.2	76.9	>200%	>200%	2.9	20.8	>200%
Stock Gain/(Loss) net NRV	23.4	37.6	30.0	28%	-20%	-45.3	42.5	194%
Accounting P2F	107	205	295	175%	44%	98	235	141%
Adjusted EBITDA (MB)	79	1,885	4,064	>200%	116%	3,348	6,808	103%
Adjusted EBITDA (%)	1%	12%	24%	23%	12%	10%	15%	5%
Utilization Rate (%)	90%	102%	100%	10%	-2%	95%	100%	5%

Note: *Adjusted EBITDA refers EBITDA excluding Stock gain/(loss), NRV and Extra item

For Aromatics Business Unit in Q3/2021, BTX utilization rate was 100%, decreased from Q2/2021. Market P2F per ton BTX increased from Q3/2020 and from Q2/2021 to 188 USD per ton as Paraxylene over Condensate spread increased. Adjusted EBITDA for the period was Baht 4,064 million and Adjusted EBITDA Margin was 24%, following an increasing of Market P2F (Adjusted EBITDA and Adjusted EBITDA Margin excluding hedging gain was Baht 2,449 million and 14% respectively). The Company realized Gain from commodity hedging of 76.9 USD per ton or Baht 1,615 million as the hedging gain resulted from the Company's hedging to protect against the fluctuation of Aromatics products spread. In the quarter, the Company had hedging gain mainly from the fair-value measurement of the outstanding derivative contracts at the end of quarter. At the end of the quarter, there was a downward trend of the Aromatics products spread to lower prices compared to the hedged price of the commodity hedging. Besides, The Company had Stock Gain at 30.0 USD per ton, resulted to Accounting P2F of 295 USD per ton.

2.3 Olefins and Derivatives Business Unit

Table 7: Prices and Spreads of Olefins and Derivatives

(Unit: USD per ton)	Q3/2020	Q2/2021	Q3/2021	YoY % +/-	QoQ % +/-	9M/2020	9M/2021	YoY % +/-
Naphtha (MOPJ)	397	606	676	70%	12%	370	613	66%
Ethylene (SEA)	748	990	992	33%	0%	661	980	48%
Propylene (SEA)	783	1,009	930	19%	-8%	738	975	32%
Avg. PE	928	1,305	1,240	34%	-5%	867	1,273	47%
HDPE	919	1,191	1,138	24%	-4%	839	1,158	38%
HDPE-Naphtha	522	585	462	-11%	-21%	469	545	16%
LLDPE	884	1,185	1,185	34%	0%	828	1,172	41%
LLDPE- Naphtha	487	579	509	4%	-12%	458	559	22%
LDPE	980	1,540	1,398	43%	-9%	934	1,490	60%
LDPE- Naphtha	583	934	722	24%	-23%	563	877	56%
PP	968	1,336	1,250	29%	-6%	942	1,317	40%
PP-Naphtha	571	731	574	1%	-21%	571	704	23%
MEG (ACP)	584	870	845	45%	-3%	625	816	31%
MEG-0.65 Ethylene	98	227	200	104%	-12%	195	179	-8%

For Ethylene (SEA) market in Q3/2021, the average Ethylene price was 992 USD per ton, stable from Q2/2021 and increased from Q3/2020 by 33%, as following the Crude oil price and the market was supported by less supply due to planned maintenance shutdown within the region, especially in Japan, South Korea, Taiwan, and China. Additionally, China's power crisis led to Coal-based and methanol-based producers reducing their production capacity. The inventory in China decreased due to floating traffic jams at the important ports and COVID-19 measures for the crew.

For Polyethylene (PE) market in Q3/2021, the average PE price was 1,240 USD per ton, decreased from Q2/2021 by 5%, and increased from Q2/2020 by 34%. The increase in Polyethylene price supported by the increase in raw material price. However, Polyethylene market was pressured by the resurgence of COVID-19 in Asia, especially the lockdown restriction in South East Asia during the first half of the quarter.

For MEG (ACP) market in Q3/2021, the price was 845 USD per ton, decreased from the previous quarter by 3% and increased from Q3/2020 by 45% as the end of peak seasonal in textile industry from the previous quarter to normal seasonal. Also, the market was pressured by the resurgence of COVID-19 in China from the first half of the quarter. However, MEG (ACP) price was increased at the end of the quarter due to increasing in Ethylene price and the Lockdown easing in many countries. MEG inventory in China increased before the long holiday and tight supply at the end of the quarter due to plan and unplanned maintenance shutdown of regional producers.

(Unit: Million Baht)	Q3/2020	Q2/2021	Q3/2021	YoY		9M/2020	9M/2021	YoY	
				% +/-	% +/-			% +/-	% +/-
Adjusted EBITDA	4,440	8,460	6,626	49%	-22%	8,706	22,871	163%	
Adjusted EBITDA (%)*	19%	26%	18%	-1%	-8%	13%	23%	10%	
Utilization Rate Olefins (%)	103%	93%	91%	-12%	-2%	95%	96%	1%	
Utilization Rate Polymer (%)	104%	105%	104%	0%	-1%	98%	105%	7%	

Note: *If included PTA, PET %Adj. EBITDA in Q3/20, Q2/21, Q3/21, 9M2020, and 9M2021 are 17%, 22%, 15%, 12%, and 20% respectively

In Q3/2021, Olefins plants had average utilization rate of 91%, decreased from Q2/2021. The Company managed production for efficiency and costs optimization even though there was an increase in Naphtha price tracking with crude oil prices. In Q3/2021, the Company obtained less Natural Gas as a result of the planned maintenance shutdown of PTT Gas cracker in July. The Polymer plant utilization rate was 104%, decreased from the previous quarter due to the planned maintenance shutdown of HDPE plant for 14 days in July. The Polymer production was in line with growing demand and increasing price. MEG utilization rate was 110%, increased from Q2/2021 and Q3/2020. MEG price was supported by tight supply and increasing in China inventory. These resulted to Adjusted EBITDA of Olefins and Derivatives Business Unit of Baht 6,626 million, or Adjusted EBITDA Margin of 18%. In term of feedstock, the portion of feedstock used of Gas and Naphtha were 76% and 24% respectively.

2.4 Performance Materials and Chemicals Business Unit

ตารางที่ 9: ราคาและส่วนต่างราคา และ Adjusted EBITDA ผลิตภัณฑ์ Performance Materials and Chemicals

(Unit: USD per ton)	Q3/2020	Q2/2021	Q3/2021	YoY % +/-	QoQ % +/-	9M/2020	9M/2021	YoY % +/-
Phenol	644	1,218	1,248	94%	2%	745	1,144	54%
BPA	1,236	3,226	3,322	169%	3%	1,211	3,027	150%
Propylene Oxide (PO)	1,422	2,115	2,037	43%	-4%	1,135	2,119	87%
Polyols	1,629	2,524	2,308	42%	-9%	1,418	2,482	75%
Phenol P2F	398	462	399	0%	-14%	445	443	-0%
BPA P2F	465	1,934	2,052	>200%	7%	371	1,805	>200%
Adjusted EBITDA (MB)	1,295	5,110	5,439	>200%	6%	3,290	14,679	>200%
Adjusted EBITDA margin (%)	16%	30%	30%	14%	0%	14%	29%	15%
Utilization Rate Phenol (%)	119%	115%	118%	-1%	3%	106%	117%	11%
Utilization Rate BPA (%)	116%	103%	121%	5%	18%	106%	113%	7%
Utilization Rate PO (%)	N/A	98%	102%	N/A	4%	N/A	96%	N/A

Phenol

In Q3/2021, Phenol price averaged at 1,248 USD per ton, increased by 2% from Q2/2021 and by 94% from Q3/2020 respectively due to a rise in demand of Phenol derivatives; BPA, Nylon and Phenolic resin, mainly in India where the recovery in demand after COVID-19 pandemic. Furthermore, supply of phenol went down in this period as several phenol plants curtail their operations during the COVID-19 Delta Variant. Also, there was a delay in logistic discharge and dual control policy stipulated in China led to the drop in phenol supply as well.

In Q3/2021, BPA price averaged at 3,322 USD per ton, increased by 3% from Q2/2021 and by 169% from Q3/2020 respectively due to a robust demand of Epoxy resin from wind turbine consumption to generate renewable power and decrease low carbon emission, especially in China. Moreover, BPA supply decreased due to the unplanned shutdown of some BPA producers in China and North East Asia including the postponement of commercial run in this period.

Propylene Oxide (PO)

In Q3/2021, Propylene Oxide (PO) price averaged at 2,037 USD per ton, decreased by 4% from Q2/2021 but increased by 43% from Q3/2020 as a result of additional supply in China starting up in the beginning of quarter. In addition, there was the new capacity of Polyols plant and Propylene glycol which led to the increase in Propylene Oxide demand.

In Q3/2021, Polyols price averaged at 2,308 USD per ton, decreased by 9% from Q2/2021 but increased by 42% from Q3/2020 as a result of lower demand during the COVID-19 Delta Variant, mainly in Vietnam, Indonesia and Malaysia.

For Performance Materials and Chemicals Unit in Q3/2021, the business continued generating strong performance aligned with the utilization rate of Phenol and BPA that was 118% and 121% respectively, which increased

from Q2/2021. This led to higher BPA sales-volume since the BPA plant was scheduled for maintenance in the last quarter. Market P2F per ton of Phenol decreased from Q2/2021 to 399 USD per ton, mainly as a result of decreasing in Acetone price. Market P2F per ton of BPA increased from Q2/2021 to 2,052 USD per ton due to the rise in Epoxy resin demand as stated above. For Propylene Oxide and Polyols, the utilization rate of Propylene Oxide was 102%, increased from Q2/2021. However, Propylene Oxide and Polyols price slightly decreased from Q2/2021 led to a slight decrease in financial performance in this period. These resulted to Adjusted EBITDA of Performance Materials and Chemicals Unit of Baht 5,439 million or Adjusted EBITDA Margin of 30%.

Table 10: Adjusted EBITDA by Business Unit

Adjusted EBITDA (MB)	Q3/2020	Q2/2021	Q3/2021	YoY % +/-	QoQ % +/-	9M/2020	9M/2021	YoY % +/-
Business Unit :								
Refinery and Shared Facilities	55	(370)	(2,523)	<-200%	<-200%	2,619	(2,052)	-178%
Aromatics	79	1,885	4,064	>200%	116%	3,348	6,808	103%
Olefins and Derivatives	4,440	8,460	6,626	49%	-22%	8,706	22,871	163%
Green Chemicals	233	236	440	89%	86%	465	1,010	117%
Performance Materials and Chemicals	1,295	5,110	5,439	>200%	6%	3,290	14,679	>200%
Services and Others	151	42	34	-78%	-20%	637	236	-63%
*Adjusted EBITDA (MB)	6,254	15,363	14,080	125%	-8%	19,065	43,551	128%

Note: * Adjusted EBITDA refers to EBITDA excluding Stock gain/(loss), NRV and Extra item

3. Operating Performance

Unit: MB		Q3/2020	Q2/2021	Q3/2021	YoY % + /(-)	QoQ % + /(-)	9M/20	9M/21	YoY % + /(-)
1	Sales Revenue	76,407	111,793	112,173	47%	0%	238,714	325,830	36%
2	Feedstock cost	(58,063)	(80,968)	(80,121)	38%	-1%	(184,409)	(235,211)	28%
3	Product to Feed Margin	18,344	30,825	32,052	75%	4%	54,305	90,619	67%
4	Variable Cost	(6,516)	(7,757)	(8,322)	28%	7%	(19,815)	(23,493)	19%
5	Fixed OH	(3,552)	(3,916)	(4,705)	32%	20%	(10,718)	(12,237)	14%
6	Stock Gain/(Loss) and NRV	492	1,447	1,171	138%	-19%	(9,313)	4,914	153%
7	Gain/(Loss) on Commodity Hedging	172	(1,000)	(1,676)	<-200%	-68%	1,019	(2,902)	<-200%
8	Other Revenue	931	1,061	1,279	37%	21%	3,337	3,466	4%
9	SG&A Expenses	(3,125)	(3,850)	(4,548)	46%	18%	(9,063)	(11,902)	31%
10	EBITDA	6,746	16,810	15,251	126%	-9%	9,752	48,465	>200%
11	Depreciation & Amortization	(5,110)	(5,776)	(5,893)	15%	-2%	(15,256)	(17,185)	13%
12	Loss from impairment of assets	-	(3,021)	-	-	100%	-	(3,021)	100%
13	Gain on sale of investment	-	11,834	-	-	-100%	-	11,834	-100%
14	Gain from remaining investment reclassification	-	10,565	-	-	-100%	-	10,565	-100%
15	EBIT	1,636	30,413	9,358	>200%	-69%	(5,504)	50,659	>200%
16	Net financial expense	(876)	(1,397)	(1,540)	76%	10%	(2,368)	(4,034)	-70%
17	FX Gain/(Loss)	(427)	(574)	(1,147)	-169%	-100%	(1,118)	(2,865)	-156%
18	Share of gain/(loss) from investment	884	2,325	1,295	46%	-44%	2,267	5,520	143%
19	Corporate Income Tax	(235)	(5,591)	(727)	>200%	-87%	655	(7,038)	<-200%
20	Net Profit after Tax	982	25,176	7,239	>200%	-71%	(6,068)	42,242	>200%
Profit/(loss) attributable to:									
21	Non-controlling interests	74	141	234	>200%	66%	137	507	>200%
22	Owners of the Company	908	25,035	7,005	>200%	-72%	(6,205)	41,735	>200%
23	Adjusted EBITDA*	6,254	15,363	14,080	125%	-8%	19,065	43,551	128%

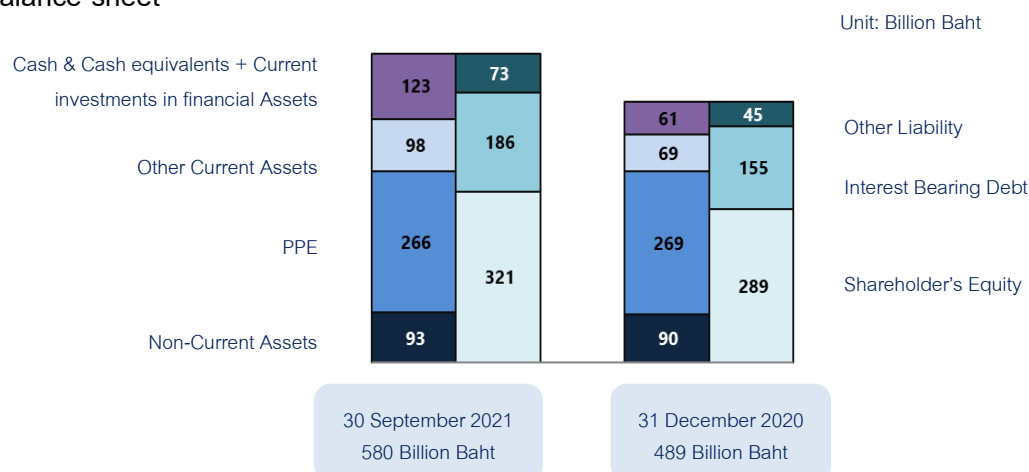
Note: *Adjusted EBITDA refers EBITDA excluding Stock gain/loss, net NRV and Extra item

In Q3/2021, the Company had higher sales revenue than the previous quarter and Q3/2020 as the overall products price increased, particularly in Olefins and derivatives chain and Aromatics and Phenol business. Variable Cost increased from the previous quarter and Q3/2020 mainly due to the start of commercial operation of Propylene Oxide (PO) and Polyols, the Olefins Reconfiguration Project (ORP), and PTA plant 1. Fixed overhead and SG&A expenses went up from the previous quarter and Q3/2020 because of an increase in Selling and Administrative Expenses, aligned with the growth of sales volume of Polymers in this period, and higher freight and maintenance cost from Refinery Business. Also, the Company had Other Income from recovery in Service Business due to the better situation of Covid-19. The Company had an increase in Financial Expenses from the previous quarter on account of additional debt financing. In Q3/2021, the Company had Foreign Exchange Loss due to the depreciation in Baht

currency from the previous quarter and Q2/2020. Share of profit from investments in JV and associates was decreased from the previous because of the maintenance shutdown of Petrochemical Business and the selling of ordinary shares in Power Business in June 2021.

4. Statements of Financial Position

4.1 Balance sheet



Assets

As of September 30, 2021, the Company had total asset of Baht 580,464 million, increased by 19% at Baht 91,081 million from December 31, 2020 and variance of assets were described as follows:

- Total Current asset increased by Baht 91,243 million mainly due to an increase in Cash and Cash Equivalents and Current Investments in financial assets by Baht 62,044 million resulted from cash flows provided by operating activities, GPSC shares disposal, Bonds issuance in this period. The Company had a rise in Account Receivable by Baht 4,145 million driven by higher product price from market petroleum and petrochemical prices. Also, Inventories was increased by Baht 20,264 million as higher in raw material and product price as stated above.
- Property plant and equipment decreased by Baht 3,294 million mainly due to the start of commercial operation of the Olefins Reconfiguration Project (ORP) in June 2021 which incurred higher depreciation in this period.
- Non-current asset increased by Baht 3,132 million which derived from an increase in Rights of use assets by Baht 1,266 million due to land lease extension agreement.

Liabilities

As of September 30, 2021, the Company had total liabilities of Baht 259,024 million, increased by 29% or Baht 58,636 million from December 31, 2020 and movements of liabilities were as follows:

- Interest-bearing debt increased by Baht 30,699 million due to Bonds issuance by USD 1,250 million in March and a rise in Long-term borrowings.
- Account payable increased by Baht 14,011 million due to higher in both raw material volume and price, while other current liabilities increased by Baht 10,797 million resulting from an increase in liabilities of derivatives related to financial and commodity hedging of Baht 9,569 million.

Shareholder's Equity

As of September 30, 2021, the Company had total Shareholder's Equity of Baht 321,439 million, increased by Baht 32,445 million from December 31, 2020 as a result from Net profit for nine months period at million 41,735 Baht,

dividend payout for the year of 2020 amounting to Baht 4,486 million and interim dividend payout for the year 2021 amounting to Baht 8,973 million.

4.2 Cashflow statement

Cashflow (Unit: Million Baht)	For the nine-month Ended 30 Sep 2021
Net cash flows provided by operating activities	40,071
Net cash flows used in investing activities	(34,112)
Net cash flows provided by financing activities	3,875
Net increase (decrease) in cash and cash equivalents, before effect from foreign exchange rate	9,834
Effects of exchange rates on cash and cash equivalents	877
Net decrease in cash and cash equivalents during the period	10,711
Cash and cash equivalents at the beginning of the period	44,313
Cash and cash equivalents at the end of the period	55,024
Current investments in financial assets at the end of the period	67,678
Net cash and cash equivalent and investment at the end of the period	122,702

For the period ended September 30, 2021, the company had cash flow activities as follows:

- Cash flows provided by operating activities of Baht 40,071 million.
- Cash flow used in investing activities of Baht 34,112 million. The Company had an increase in investment in financial assets amounting to 48,710 Baht and payment for the acquisition of property, plant, and equipment amounting to 11,718 Baht, mainly on the Olefins Reconfiguration Project, and intangible assets. Besides, the Company had proceeds from GPSC shares disposal amounting to Baht 25,126 million and dividends received amounting to Baht 1,574 million
- Cash flow provided by financing activities of Baht 3,875 million mainly due to the proceeds from Bonds issuance in Q1/2021. The Company had Bond redemption of Baht 20,000 million and total Dividend payment of Baht 14,080 million, of which were Dividend payment from the Company of Baht 13,459 million.

As a result, as of September 30, 2021, the Company had total Cash and Cash Equivalents of Baht 55,024 million, along with Current investments in financial assets of Baht 67,678 million. Hence, the Company had total cash and cash equivalent and investment of Baht 122,702 million, increased by Baht 62,044 million. The Company had Net interest-bearing debt to equity at 0.20 times and Net interest-bearing debt to EBITDA at 1.19 times.

4.3 Key Financial Ratios

Financial Ratios	Q3/2020	Q2/2021	Q3/2021
Current Ratio (Times)	1.84	3.04	2.18
EBITDA to Sales Revenue (%)	4.35%	13.37%	14.27%
Net Profits to Sales Revenues (%)	-1.80%	11.13%	11.65%
Return on Total Assets (%)	-0.64%	10.47%	11.96%
Return on Equity (%)	-2.08%	14.36%	16.38%
Interest Bearing Debt to Equity (Times)	0.48	0.63	0.58
Net Interest Bearing Debt to Equity (Times)	0.35	0.22	0.20
Interest Bearing Debt to EBITDA (Times)	9.56	3.97	3.15
Net Interest Bearing Debt to EBITDA (Times)	6.95	1.38	1.19

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 in financial assets divided by Shareholder's Equity
Interest Bearing Debt to EBITA	=	Interest Bearing Debt net Cash and Cash Equivalent and Current Investments in financial assets divided by EBITDA
Net Interest Bearing Debt to EBITDA	=	Interest Bearing Debt net Cash and Cash Equivalent and Current Investments in financial assets divided by EBITDA

5. Projects Progress

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 consist of Ethylene capacity of 500,000 ton per year and Propylene capacity of 250,000 ton per year. This project will increase the Company's total Ethylene capacity from 2,988,000 to 3,738,000 ton per year. The plant started commercial operation in June 2021.

The other projects, such as restart of PTA plant 1 which has a capacity of 470,000 tons per year in early April resulted in increase in total capacity to 1,440,000 tons per year. The PET debottlenecking project will increase PET capacity from 147,000 to 200,000 tons per year. The plant started operation in June. In addition, the Company has ongoing construction as followed:

- The Company had approved an investment for the Recycle Plant that have signed a cooperation agreement to establish a Joint venture company to be called ENVICCO Limited. The joint venture company was established with the objectives to be manufacturer of high-quality recycled plastic resins, with rPET and rHDPE capacity of 45,000 ton per year including rPET 30,000 ton per year and rHDPE 15,000 ton per year. The plant is expected to start commercial operation within Q1/2022.
- The Company and Kuraray Co. Ltd (KRR) set up a joint venture, Kuraray GC Advanced Materials Co. Ltd, with High Heat Resistant Polyamide-9T (PA9T) capacity of 13,000 ton per year and Hydrogenated Styrenic Block Copolymer (HSBC) capacity of 16,000 ton per year. The plant is expected to start commercial operation within 2022.
- The Company had approved an investment for the Olefins 2 Modification Project which will allow the Company to increase Propane usage as feedstock and align with the Company's strategy to enhance feedstock flexibility and long-term competitiveness. The plant is expected to start commercial operation within Q1/2023.

Currently, the projects are remained on the development plan. The company will publicly announce the information once the implementation of the projects is officially made.

Estimated Annual CAPEX of PTTGC Group for the next 5 years

Projects	Total 2021-2025	Estimated Annual CAPEX (M.USD)				
		2021	2022	2023	2024	2025
1) Key Project						
- Recycle Plant	50	47	3			
- Super Engineering Plastic (KGC)	48	41	7			
- Olefin 2 Modification	156	42	65	50		
2) Other projects	429	204	110	89	24	2
Total	684	334	185	139	24	2

Notes: 1. Group annual maintenance ~ 250-300 M.USD

2. Other projects such as IT & digital, new office facility, etc.

3. Excludes the proposed delisting of securities of Vinythai Public Company Limited and the tender offer for securities for the purpose of delisting which disclosed on 19 March 2021 and the investment in High Value Business (HVB) through Allnex Holding GmbH acquisition, according to the public announcement on July 12, 2021. The Company expects the closing of both transactions in 2021.

6. Market and Business Outlook in 2022

The outbreak of COVID-19 is continuing its spread across the world, included its mutations through 2021, which simultaneously impacts the global economy. However, the pandemic situation seems to be quite well controlled during the second half of 2021 caused by the speed-up in the progress on vaccination against COVID-19 in many countries, led to the easing of lockdown restrictions, and stimulus packages to respond to the economic distress. As a result, the Company expects the global economy will gradually recover on the back of improving global consumption in 2022.

The Company anticipates that the average price of Dubai crude oil will be within the range of 72-75 USD per barrel in the second half of the year. The International Energy Agency (IEA) had estimated the crude oil demand (as of October 2021) in 2022 at 99.6 Million barrels per day, increased by 3.3 million barrels per day from the last year demand. Even there is still an uncertainty and a risk of more outbreaks of COVID-19, included the global energy shortage.

For Petroleum products, the Company anticipates that products price and products spread will be recovered from last year as the recovery in global economy and unlocking the lockdown with the ease in travelling. As a result, Diesel over Dubai crude oil spread is expected to be 10-11 USD per barrel while Low Sulfur Fuel Oil (LSFO) over Dubai crude oil spread to be 13-14 USD per barrel. Amid lower demand for High Sulfur Fuel Oil (HSFO), the HSFO over Dubai crude oil spread is expected to be -5 to -4 USD per barrel. The expected Gasoline over Dubai crude oil spread is 11-12 USD per barrel, supported by the increase in transportation. The company will continue to focus on the production and our contracts with suppliers and partners to ensure that the Company will be able to handle current and future crises and uncertainties. Moreover, the company also closely monitor on the market situations to manage, procure, and distribute both raw materials and products spread appropriately. The Company expects that the Refinery utilization rate of 2022 will be operated at around 87% as there will be the planned maintenance shutdown of refinery on Q4/2022.

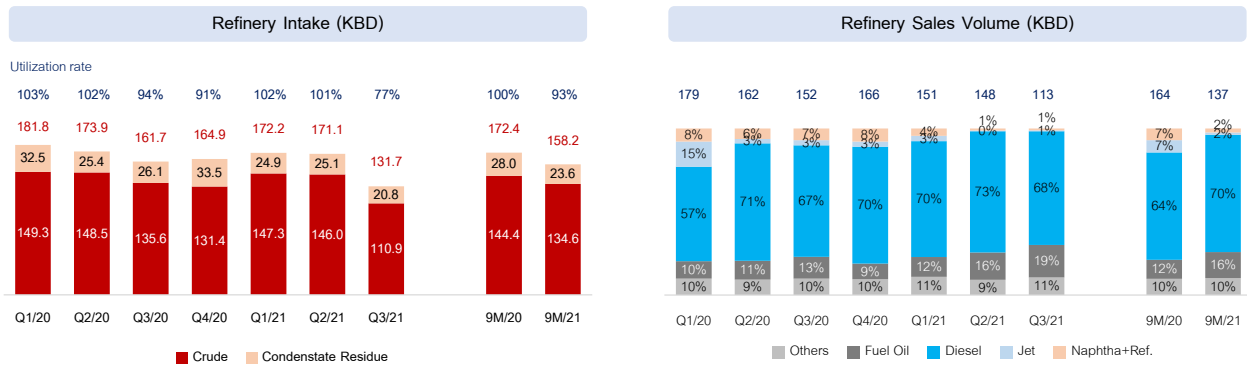
For Petrochemical products, Aromatics products are expected to continue under pressure from new supply continues to enter the market. Paraxylene over Naphtha spread is expected to be 220-245 USD per ton. However, the expected demand from downstream business such as Fiber and Filaments industries, Purified Terephthalic Acid (PTA), and PET Bottle Resin are expected to gradually recover following the recovery in global economy through the next year. Benzene over Naphtha spread is expected to be 200-220 USD per ton, supported by the new capacity of downstream products such as Styrene Monomer (SM), and Phenol. The Company expects that the Aromatics utilization rate of 2022 will be 99%.

The outlook for Olefins and Derivatives product is expected to remain steady from this year, due to the recovery in demand during economic recovery. While Olefins and Polymer supply continue to increase by new productions and the recovery in refinery Business. The average HDPE price is expected to be 1,160-1,170 USD per ton. For MEG market, MEG price is expected to maintain stable even MEG supply increases due to new capacity. However, MEG will be supported by downstream demand especially textile industry, and packaging industry which are expected to recover. The Company expects that the average MEG (ASP) will be 650-660 USD per ton. The Company expects Olefins plants utilization rate to be around 91% due to the planned maintenance shutdown of Olefins plant 3 for 39 days and planned maintenance for the preparation for the commercial operation of Olefins plant 2/2 modification project in Q4/2022. The Company expects that Polymers plants utilization rate will be around 103%.

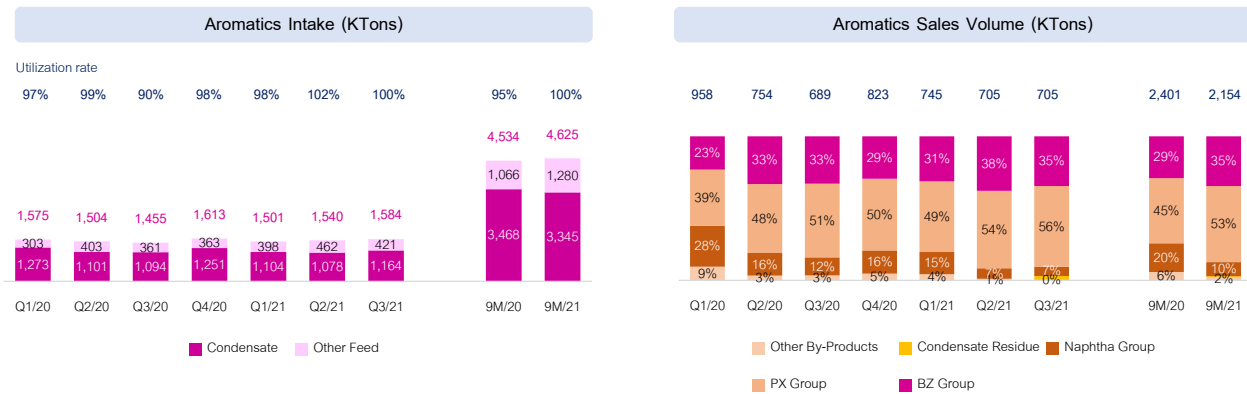
7. Appendix

7.1 Production and Sales

Graph 1: Refinery Intake and Sales Volume

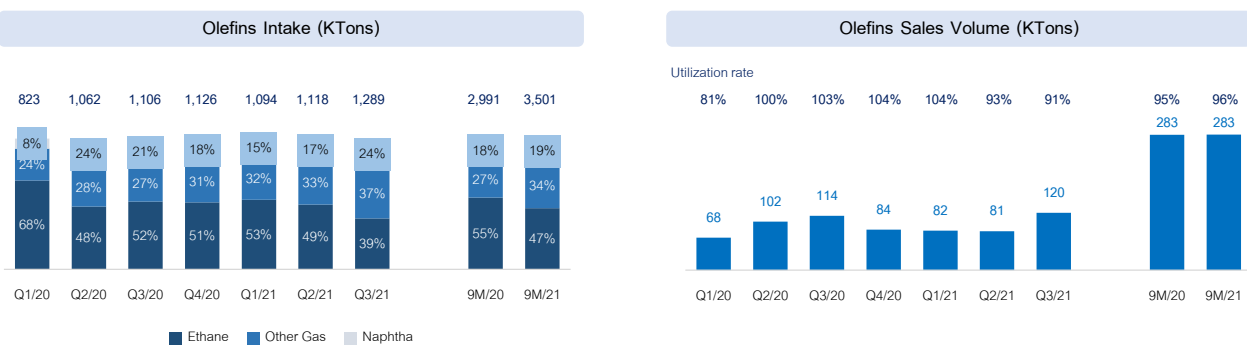


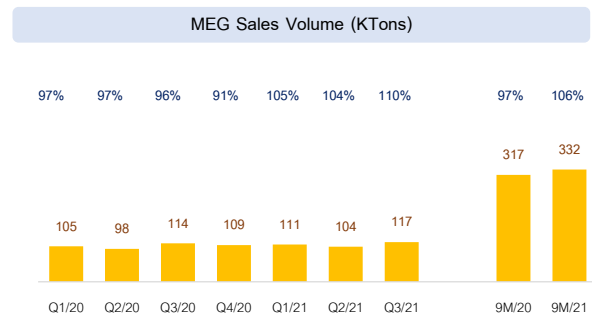
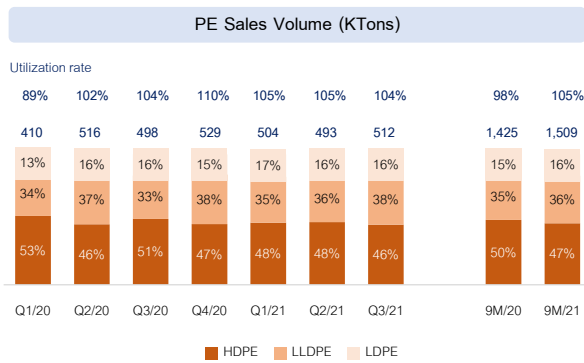
Graph 2: Aromatics Intake and Sales Volume (BTX)



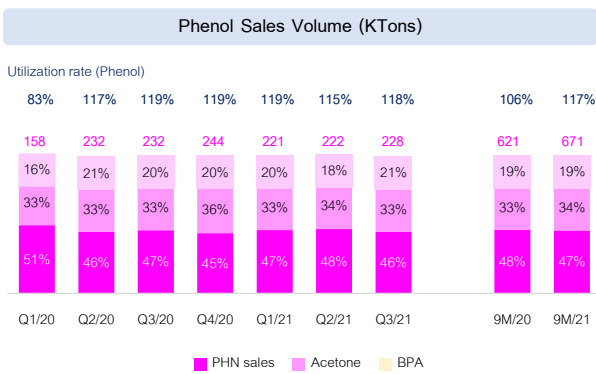
Other Feedstock refers to Reformate, Pygas, and Heavy Naphtha

Graph 3: Olefins Intake and Olefins and Derivatives Sales Volume





Graph 4: Phenol chain Sales Volume



7.2 Planned Maintenance Shutdown Schedule 2022

Plant		2022											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
OLE	Cracker		19	OLE4		39	OLE3			16	OLE2/1 and OLE2/3		27
	Oleflex												OLE2/2
POL	HDPE									28	BPE1	38	HDPE
	LDPE					24							
	LLDPE I					7							
	LLDPE II					20							
	PS					15							
EOB	TOCGC		35										
	EA		35										
PHN	Phenol I												
	Phenol II												11
	BPA							30					
REF	Refinery											50	
ARO1	Aromatics I					30							
ARO2	Aromatics II												
ECO	PO									56			