



PTT Global Chemical Public Company Limited

Management Discussion and Analysis Q2/2022

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1. Executive Summary

In Q2/2022, PTT Global Chemical Public Company Limited (“the Company”) had total sales revenue of Baht 196,397 million, increased by 12% from Q1/2022 and increased by 76% from Q2/2021. The revenue has grown continuously supported by the rise of petroleum products tracking with crude oil price and the demand recovery from easing of COVID-19 lockdown restrictions. Moreover, the tensions between Russia and Ukraine escalated into a wider energy and economic sanction from many countries. Petrochemical products prices also increased, following soaring feedstock costs as well as maintenance shutdown and the slowdown in production of some producers in the region. In term of sales volume, in this quarter, the Company’s sales volume decreased mainly from planned maintenance shutdown of Olefins 3 plant and Aromatics 1 plant, including LDPE and LLDPE. However, the Company had Adjusted EBITDA of Baht 21,029 million in this quarter, increased from Q1/2022 and Q2/2021 by 47% and 29%, respectively. The Company had Net Operating Profit Recurring (excluding Stock Gain Net NRV, Foreign Exchange Loss and Gain from financial derivative, Loss from commodity hedging, and Extraordinary items) of Baht 13,703 million, increased from Q1/2022 by 120% and increased from Q2/2021 by 31%. After considering the results of Stock Gain Net NRV of Baht 3,085 million, Loss from commodity hedging of Baht 12,734 million as the products spread was higher prices compared to the hedged prices of the commodity hedging which consists of realized loss of Baht 11,598 million and Unrealized loss of Baht 1,136 million, Foreign Exchange Loss of Baht 4,378 million, Gain from financial derivatives of Baht 1,712 million. As a result, the Company reported Net Profit in Q2/2022 of Baht 1,388 million (Baht 0.31/share), decreased by 67% from Q1/2022.

Table 1 : Performance Summary

(Unit: Million Baht)	Q2/2021	Q1/2022	Q2/2022	YoY % +/-	QoQ % +/-	6M/2021	6M/2022	YoY % +/-
Sales Revenue	111,793	175,554	196,397	76%	12%	213,657	371,951	74%
EBITDA	16,810	10,588	11,380	-32%	7%	33,215	21,968	-34%
EBITDA Margin (%)	15%	6%	6%	-9%	0%	16%	6%	-10%
Share of profit of investments in JV and Associates	2,325	1,150	1,833	-21%	59%	4,225	2,983	-29%
Net Profit	25,035	4,212	1,388	-94%	-67%	34,730	5,600	-84%
EPS (Baht/Share)	5.58	0.93	0.31	-94%	-67%	7.74	1.24	-84%
Adjusted EBITDA*	16,363	14,273	21,029	29%	47%	30,698	35,302	15%
Adjusted EBITDA Margin (%)	15%	8%	11%	-4%	3%	14%	9%	-5%

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

In Q2/2022, Olefins and Derivatives Business Unit’s performance slowed down compared to previous quarter even the price of Polyethylene (PE) increased. However, the Company had planned maintenance shutdown of Olefin Plant 3 (Ethane Cracker Plant), which led to a decline in sale volumes while the proportion of naphtha increases to 28%. Additionally, the planned maintenance shutdown of LDPE and LLDPE led to a slightly decreased in PE sale volumes. This resulted to Adjusted EBITDA Margin of Olefins and Derivative Business Unit in this quarter at 9%, decreased from the previous quarter. Performance Materials & Chemicals Business Unit’s performance decreased due to Phenol market was weak as the feedstock Benzene prices increased. However, allnex’s performance continued the ability to deliver strong results. For the Aromatics business, the BTX P2F was at 117 USD per ton, increased from the

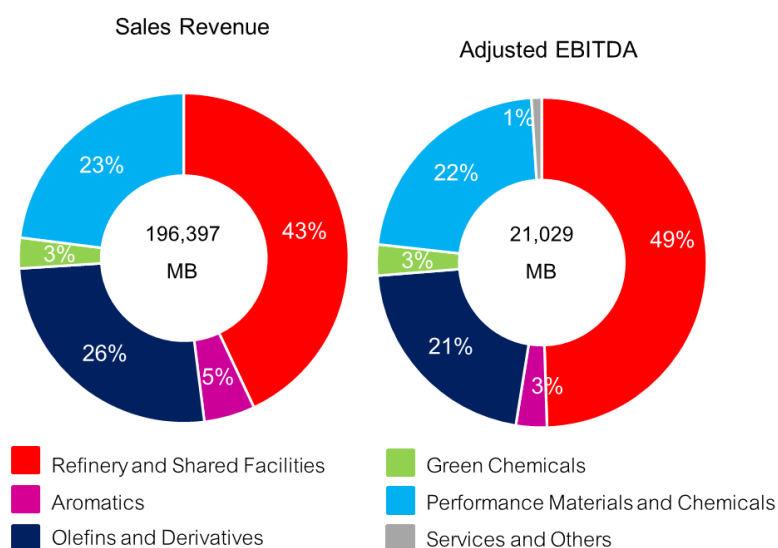
previous quarter but decreased from Q2/2021, due to the increase in products spreads both Paraxylene and Benzene. Moreover, the increase in byproducts spreads, especially Condensate Residue. For Refinery Business Unit, in Q2/2022, the Market GRM was at 21.09 USD per barrel, increased from the previous quarter and Q2/2021, followed the increase in products spread and demand recovery from easing of COVID-19 lockdown restrictions. Other factors included economic sanctions on Russia, which is one of the major oil and gas producers in the world, and the decrease in China's export growth. The Company had Share of Profit from Investments in JV and associates of Baht 1,833 million, increased from Q1/2022, mainly driven by the increased share of profit from VNT after the tender offer completion to increase the ownership from 24.98% to 37.82% at the end of Q1/2022, and the improved performance of Bioplastics business and Acrylonitrile (AN) business.

Table 2: Adjusted EBITDA Margin

% Adj. EBITDA Margin					
	Q2/2021	Q1/2022	Q2/2022	6M/2021	6M/2022
Business Unit:					
Refinery and Shared Facilities	1	5	12	2	9
Aromatics	14	-6	4	11	-1
Olefins and Derivatives*	26	11	9	26	10
Green Chemicals	5	11	11	6	11
Performance Materials and Chemicals	30	15	10	29	12
Average	15	8	11	14	9

Note: *If included PTA, PET %Adj. EBITDA in Q2/21, Q1/22, Q2/22, 6M/21 and 6M/22 are 22,10,9,22 and 9 respectively.

Q2'2022



2. Performance Analysis by Business Unit

2.1 Refinery & Shared Facilities Business Unit

Table 3: Crude Price & Petroleum Product Spreads

(Unit: USD per bbl)	Q2/2021	Q1/2022	Q2/2022	YoY % +/-	QoQ % +/-	6M/2021	6M/2022	YoY % +/-
Dubai Crude Oil	66.93	95.56	108.05	61%	13%	63.47	101.81	60%
Gasoline-Dubai	9.90	17.77	34.97	>200%	97%	8.50	26.37	>200%
Jet-Dubai	4.52	16.21	39.16	>200%	142%	3.90	27.68	>200%
Diesel-Dubai	5.25	19.55	43.11	>200%	121%	5.00	31.33	>200%
HSFO-Dubai	-5.82	-8.34	-3.20	45%	62%	-4.64	-5.77	-24%
LSFO-Dubai	11.24	21.11	33.18	195%	57%	12.34	27.14	120%

For Crude oil market situation in Q2/2022, Dubai crude oil price was higher compared with the previous quarter and the same period of last year. Crude oil price was supported by the war between Russia and Ukraine which led to a decline of market supply. The sanctions on Russia, a major exporter of petroleum and crude oil in the world, by the European Union resulted in tight market supply, while the market demand was increased. However, Russia is in the process of rerouting oil and petroleum exports towards BRICS countries such as Brazil, India, China, and South Africa resulting in the average Dubai crude oil price in Q2/2022 stood at 108.05 USD per barrel and closed at 111.70 USD per barrel at the end of the period, increased from 97.61 USD per barrel at Q1/2022.

For petroleum products spread over Dubai crude oil price in Q2/2022, petroleum products were supported by the sanctions on Russia which is a major exporter of petroleum and crude oil in the world, by the European Union resulting in tight market supply. Also, market demand was increased due to the lowering trend of COVID-19 infections and the re-opening of cities in many countries. The average Diesel over Dubai crude oil spread increased from Q1/2022 and Q2/2021 to 43.11 USD per barrel. While Average Jet over Dubai crude oil spread increased from Q1/2022 and Q2/2021 to 39.16 USD per barrel. Average Low Sulfur Fuel oil (LSFO) over Dubai crude oil spread increased from Q1/2022 and Q2/2021 to 33.18 USD per barrel supported by tight supply in Singapore from the shift in production to Diesel and Gasoline, and tight supply in Asia due to shortage in Western countries due to demand to substitute for the import from Russia.

Table 4: Gross Refinery Margin

(Unit: USD per bbl)	Q2/2021	Q1/2022	Q2/2022	YoY % +/-	QoQ % +/-	6M/2021	6M/2022	YoY % +/-
Market GRM	2.03	7.60	21.09	>200%	178%	2.59	14.32	>200%
CDU GRM	1.11	7.21	22.42	>200%	>200%	1.76	14.52	>200%
CRS GRM	7.34	9.64	13.04	78%	35%	7.45	13.19	77%
Hedging Gain/(Loss)	-1.57	-16.61	-20.71	<-200%	-25%	-0.92	-18.65	<-200%
Stock Gain/(Loss) net NRV	1.42	4.53	4.87	>200%	8%	1.94	4.70	142%
Accounting GRM	1.88	-4.48	5.24	179%	>200%	3.60	0.37	-90%
Adjusted EBITDA (MB)	397	3,342	10,297	>200%	>200%	1,354	13,638	>200%
Adjusted EBITDA (%)	1%	5%	12%	11%	7%	2%	9%	7%
Utilization Rate	101%	101%	98%	-3%	-3%	101%	99%	-2%

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

In Q2/2022, the Company had utilization rate at 98%, decreased from the previous quarter. The overall Petroleum products spread over Dubai crude oil price increased from Q1/2022 and Q2/2021 which impact on Market GRM increased to 21.09 USD per barrel compared with 7.60 USD per barrel in the previous quarter. Also, the Company realized Stock Gain at 4.87 USD per barrel resulting from the ongoing increase in Dubai crude oil price. The Company realized Loss from commodity hedging of -20.71 USD per barrel, as the direction of crude oil price and products spread was higher prices compared to the hedged prices of the commodity hedging. The Company had the Refinery Business Unit's Accounting GRM at 5.24 USD per barrel, increased from Q1/2022 and Q2/2021. The Adjusted EBITDA and Adjusted EBITDA Margin were Baht 10,297 million and 12%, increased from Baht 3,342 million and 5% in Q1/2022 respectively.

2.2 Aromatics Business Unit

Table 5: Aromatics Product Prices and Spreads over Condensate

(Unit: USD per ton)	Q2/2021	Q1/2022	Q2/2022	YoY % +/-	QoQ % +/-	6M/2021	6M/2022	YoY % +/-
Condensate	572	836	933	63%	12%	543	884	63%
Paraxylene (TW)	859	1,087	1,259	47%	16%	812	1,173	44%
Paraxylene (TW)-Condensate	287	251	326	14%	30%	270	289	7%
Paraxylene (FECF)	855	1,084	1,260	47%	16%	804	1,172	46%
Paraxylene (FECF)-Condensate	283	248	327	16%	32%	262	288	10%
Benzene (Spot Korea)	966	1,074	1,238	28%	15%	859	1,156	35%
Benzene-Condensate	393	238	306	-22%	28%	317	272	-14%
Naphtha-Condensate	33	41	-57	<-200%	<-200%	39	-8	-121%

Paraxylene

In Q2/2022, Paraxylene (FECF) over Condensate spread averaged at 327 USD per ton, increased by 32% from Q1/2022 and 16% from Q2/2021 respectively due to the tight supply situation. Since most producers in China operated their plants at reduced rate and switched to sell their paraxylene feedstock, reformat, for blending in gasoline production where the margin was better. In addition, the capacity loss from overall plant shutdowns in Q2/2022 was more than in Q1/2022 and Q2/2021. In term of demand, there was a seasonal demand peak of Purified Terephthalic Acid (PTA) and Polyester market in China in second quarter led to enhanced Paraxylene spread in Q2/2022. However, the level of demand for Polyester has potential upside for improvement as the current demand level remains weak due to COVID-19 lockdowns in China.

Benzene

In Q2/2022, Benzene over Condensate spread averaged at 306 USD per ton, increased by 28% from Q1/2022 but decreased by 22% from Q2/2021. The increase in Benzene spread from previous quarter was caused by Benzene tight supply, as most Benzene producers reduced their operating rates and the pull of reformat towards gasoline blending was the key driver as aforementioned. This led to the reduction of the Benzene inventory level to lower level than seen in previous quarter despite the lower demand on downstream market of Styrene Monomer and Phenol, driven by a significant increase in Benzene price. In summary, the tight supply situation dominated the weak downstream demand pushing Benzene price up in the quarter. However, comparing with Q2/2021, Benzene over Condensate spread decreased by 22% due to more capacity loss from maintenance shutdown, especially in China, in Q2/2021 than the loss in this quarter.

Table 6: Aromatics market P2F

(Unit: USD per ton)	Q2/2021	Q1/2022	Q2/2022	YoY % + /(-)	QoQ % + /(-)	6M/2021	6M/2022	YoY % + /(-)
Market P2F	181	48	117	-35%	144%	162	81	-50%
Hedging Gain/(Loss)	-13.2	2.6	-109.3	<-200%	<-200%	-9.9	-51.4	<-200%
Stock Gain/(Loss) net NRV	37.6	129.0	35.8	-5%	-72%	49.4	84.5	71%
Accounting P2F	205	179	44	-79%	-76%	202	114	-43%
Adjusted EBITDA (MB)	2,152	-1,106	673	-69%	161%	3,125	-433	-114%
Adjusted EBITDA (%)	14%	-6%	4%	-10%	10%	11%	-1%	-12%
Utilization Rate (%)	102%	100%	80%	-22%	-20%	100%	90%	-10%

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

For Aromatics Business Unit in Q2/2022, BTX utilization rate was 80%, decreased from Q1/2022 and Q2/2021 due to Aromatics-I plant maintenance shutdown in June. Market P2F per ton BTX increased from previous quarter to 117 USD per ton mainly due to a rise in Paraxylene and Benzene over Condensate spread, and Condensate residue spread aligned with the uptrend of Petroleum products. Adjusted EBITDA for Q2/2022 was Baht 673 million and Adjusted EBITDA Margin was 4%. The Company realized loss from commodity hedging of 109.3 USD per ton resulted from the Company's hedging to protect against the fluctuation of Aromatics products spread. In the quarter, the Company had hedging loss since the value of Aromatics products spread was higher than the hedged spread. Besides, the Company had Stock Gain at 35.8 USD per ton, resulted to Accounting P2F of 44 USD per ton.

2.3 Olefins and Derivatives Business Unit

Table 7: Prices and Spreads of Olefins and Derivatives

(Unit: USD per ton)	Q2/2021	Q1/2022	Q2/2022	YoY % + /(-)	QoQ % + /(-)	6M/2021	6M/2022	YoY % + /(-)
Naphtha (MOPJ)	606	877	875	45%	0%	581	876	51%
Ethylene (SEA)	990	1,174	1,197	21%	2%	974	1,185	22%
Propylene (SEA)	1,009	1,152	1,106	10%	-4%	998	1,129	13%
Avg. PE	1,305	1,439	1,461	12%	2%	1,290	1,450	12%
HDPE	1,191	1,330	1,341	13%	1%	1,168	1,336	14%
HDPE-Naphtha	585	453	466	-20%	3%	587	461	-22%
LLDPE	1,185	1,346	1,383	17%	3%	1,165	1,364	17%
LLDPE- Naphtha	579	469	508	-12%	8%	584	488	-16%
LDPE	1,540	1,640	1,658	8%	1%	1,536	1,649	7%
LDPE- Naphtha	934	763	783	-16%	3%	955	773	-19%
PP	1,336	1,387	1,356	1%	-2%	1,351	1,371	2%
PP-Naphtha	731	510	480	-34%	-6%	769	495	-36%
MEG (ACP)	870	912	968	11%	6%	802	940	17%
MEG-0.65 Ethylene	227	149	190	-16%	28%	169	169	0%

For Ethylene (SEA) market in Q2/2022, the average Ethylene price was 1,197 USD per ton, increased from Q1/2022 and Q2/2021 by 2% and 21% respectively. The Ethylene market was pressured by the lockdown in China and the new supply from startups from ethylene producers, despite some producers reducing their production rates in this quarter.

For Polyethylene (PE) market in Q2/2022, the average PE price was 1,461 USD per ton, which increased from Q1/2022 by 2% and Q2/2021 by 12%. However, the prices were pressured by the lockdown in China. Also, PE producers remain in a wait-and-see mode, and currently focused on only having adequate levels of their inventory. However, the market was supported by the slowdown in production by Naphtha producers in the region resulting in a decline in market supply.

For MEG (ACP) market in Q2/2022, the price was 968 USD per ton, which increased from the previous quarter by 6%, and from Q2/2021 by 11% in line with the higher Ethylene price and the reduction of MEG production rate by producers in the region in this quarter. The market remained pressured by the sluggish textile industry due to downstream recovery still uncertain, and the resurgence of COVID-19 in China lower which impacted the slowdown in demand and production of producers.

Table 8 : Adjusted EBITDA of Olefins and Derivatives

(Unit: Million Baht)	Q2/2021	Q1/2022	Q2/2022	YoY		6M/2021	6M/2022	YoY	
				% + /(-)	% + /(-)			% + /(-)	% + /(-)
Adjusted EBITDA	8,432	4,830	4,464	-47%	-8%	16,216	9,294	-43%	
Adjusted EBITDA (%)*	26%	11%	9%	-17%	-2%	26%	10%	-16%	
Utilization Rate Olefins (%)	93%	85%	75%	-18%	-10%	98%	80%	-18%	
Utilization Rate Polymer (%)	105%	106%	90%	-15%	-16%	105%	98%	-7%	

Note: *If included PTA, PET %Adj. EBITDA in Q2/21, Q1/22, Q2/22, 6M/21 and 6M/22 are 22,10,9,22 and 9 respectively.

In Q2/2022, Olefins plants had average utilization rate of 75%, decreased from Q1/2022. The Company had planned maintenance shutdown of Olefins 3 and managed production for efficiency and costs optimization. The Polymer plant utilization rate was 90%, decreased from the previous quarter as planned maintenance shutdown of LDPE and LLDPE plants in Q2/2022. MEG utilization rate was 88% after planned maintenance shutdown in the previous quarter. MEG price was pressured by the sluggish textile industry. These resulted to Adjusted EBITDA of Olefins and Derivatives Business Unit of Baht 4,464 million, or Adjusted EBITDA Margin of 9%. In term of feedstock, the portion of feedstock used of Gas and Naphtha were 72% and 28% respectively.

2.4 Performance Materials and Chemicals Business Unit

Table 9: Prices Market P2F and Adjusted EBITDA of Performance Materials and Chemicals

(Unit: USD per ton)	Q2/2021	Q1/2022	Q2/2022	YoY		6M/2021	6M/2022	YoY	
				% + /(-)	% + /(-)			% + /(-)	% + /(-)
Phenol	1,218	1,495	1,438	18%	-4%	1,092	1,466	34%	
BPA	3,226	2,338	2,061	-36%	-12%	2,879	2,199	-24%	
Propylene Oxide (PO)	2,115	1,421	1,347	-36%	-5%	2,160	1,384	-36%	
Polyols	2,524	2,005	1,812	-28%	-10%	2,569	1,908	-26%	
Phenol P2F	462	480	294	-36%	-39%	464	386	-17%	
BPA P2F	1,934	853	627	-68%	-27%	1,681	740	-56%	
Adjusted EBITDA (MB)	5,104	6,341	4,641	-9%	-27%	9,231	10,982	19%	
Adjusted EBITDA margin (%)	30%	15%	10%	-20%	-5%	29%	12%	-17%	
Utilization Rate Phenol (%)	115%	119%	118%	3%	-1%	117%	119%	2%	
Utilization Rate BPA (%)	103%	119%	112%	9%	-7%	108%	115%	7%	
Utilization Rate PO (%)	98%	104%	81%	-17%	-23%	94%	92%	-2%	

Phenol

In Q2/2022, Phenol price averaged at 1,438 USD per ton, decreased by 4% from Q1/2022 but increased by 18% from Q2/2021 respectively due to a rise in BPA demand entering in the quarter. While other downstream demand of Phenol such as Nylon, Phenolic resins was slightly down from COVID-19 lockdowns in China. In addition, the supply of Phenol went down in this period since some producers in North East Asia (Korea, Taiwan, and Japan) lowered their operating rates due to the significant increase in crude oil and feedstock price resulting from the Russia-Ukraine war.

In Q2/2022, BPA price averaged at 2,061 USD per ton, decreased by 12% from Q1/2022 and by 36% from Q2/2021 respectively. This was due to a slow demand of BPA downstream, Polycarbonate and Epoxy resin, during lockdowns in China that affected lower trading activities as mentioned above, while the new supply of BPA capacity in China also entered the market and started up in the quarter.

Propylene Oxide (PO)

In Q2/2022, Propylene Oxide (PO) price averaged at 1,347 USD per ton, decreased by 5% from Q1/2022 and by 36% from Q2/2021 respectively due to new PO plants in China started up led to the more Propylene Oxide supply in the market. In addition, PO price fell following the lockdown enforced in China since the beginning of the quarter to June 2022 led to lower PO downstream demand

In Q2/2022, Polyols price averaged at 1,812 USD per ton, decreased by 10% from Q1/2022 and by 28% from Q2/2021 respectively. This was a result of the additional supply Polyols plants in China, lower demand impacted by China's lockdowns mandate as aforementioned.

Industrial Coating Resins

In Q2/2022, demand of Industrial Coating was slightly lower. This was attributable to following reasons: lower Automotives OEM volumes impacted by micro-chips shortages (especially in Europe and the Middle East and Africa), lower demand in China due to Covid-19 lockdowns as aforementioned, supply shortage including transportation issue and general market slowdown in EMEA including direct and indirect impact from the Russia / Ukraine war which is also impacting the availability of wiring harnesses for Auto OEM.

For Performance Materials and Chemicals Unit in Q2/2022, utilization rate of Phenol and BPA was 118% and 112% respectively, close to last quarter. Market P2F per ton of Phenol decreased by 39% from Q1/2022 to 294 USD per ton. Market P2F per ton of BPA decreased by 27% from Q1/2022 to 627 USD per ton due to the low BPA demand as stated above. For Propylene Oxide and Polyols, the utilization rate of Propylene Oxide was 81%, decreased from last quarter due to the optimization of plant operating rates in line with the market situation. In Q2/2022, the performance of Performance Materials and Chemicals business declined from last quarter, mainly due to weaker Phenol and Propylene Oxide business caused by the drop in Phenol and BPA spread and decrease in Propylene Oxide price. However, thanks to Industrial Coating performance that could maintain their earnings nearly to last quarter by sustaining margin per unit. Offsetting with allnex performance, this resulted to Adjusted EBITDA of Performance Materials and Chemicals Unit in Q2/2022 of Baht 4,641 million or Adjusted EBITDA Margin of 10%.

Table 10: Adjusted EBITDA by Business Unit

Adjusted EBITDA (MB)	Q2/2021	Q1/2022	Q2/2022	YoY	QoQ	6M/2021	6M/2022	YoY
				% +/-	% +/-			% +/-
Business Unit :								
Refinery and Shared Facilities	397	3,342	10,297	>200%	>200%	1,354	13,638	>200%
Aromatics	2,152	(1,106)	673	-69%	161%	3,125	(433)	-114%
Olefins and Derivatives	8,432	4,830	4,464	-47%	-8%	16,216	9,294	-43%
Green Chemicals	236	730	692	193%	-5%	570	1,422	149%
Performance Materials and Chemicals	5,104	6,341	4,641	-9%	-27%	9,231	10,982	19%
Services and Others	42	135	262	>200%	94%	202	398	97%
*Adjusted EBITDA (MB)	16,363	14,273	21,029	29%	47%	30,698	35,302	15%

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

3. Operating Performance

Unit: MB		Q2/2021	Q1/2022	Q2/2022	YoY % + /(-)	QoQ % + /(-)	6M/2021	6M/2022	YoY % + /(-)
1	Sales Revenue	111,793	175,554	196,397	76%	12%	213,657	371,951	74%
2	Feedstock cost	(80,968)	(135,428)	(150,265)	86%	11%	(155,090)	(285,693)	84%
3	Product to Feed Margin	30,825	40,126	46,132	50%	15%	58,567	86,258	47%
4	Variable Cost	(7,757)	(12,606)	(11,636)	50%	-8%	(15,171)	(24,242)	60%
5	Fixed OH	(3,916)	(6,935)	(7,316)	87%	5%	(7,531)	(14,252)	89%
6	Stock Gain/(Loss) and NRV	1,447	4,884	3,085	113%	-37%	3,743	7,968	113%
7	Gain/(Loss) on Commodity Hedging	(1,000)	(8,568)	(12,734)	<-200%	-49%	(1,226)	(21,302)	<-200%
8	Other Revenue	1,061	1,529	1,587	50%	4%	2,187	3,118	42%
9	SG&A Expenses	(3,850)	(7,842)	(7,738)	101%	-1%	(7,354)	(15,580)	112%
10	EBITDA	16,810	10,588	11,380	-32%	7%	33,215	21,968	-34%
11	Depreciation & Amortization	(5,776)	(6,520)	(6,768)	17%	4%	(11,292)	(13,288)	18%
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	30,413	4,068	4,612	-85%	13%	41,302	8,680	-79%
16	Net financial expense	(1,397)	(2,014)	(2,277)	63%	13%	(2,494)	(4,291)	72%
17	FX Gain/(Loss)	483	595	(4,378)	<-200%	<-200%	(156)	(3,783)	<-200%
18	Gain/(loss) from financial derivatives	(1,057)	1,066	1,712	>200%	61%	(1,562)	2,778	>200%
19	Share of gain/(loss) from investment	2,325	1,150	1,833	-21%	59%	4,225	2,983	-29%
20	Corporate Income Tax	(5,591)	(184)	324	-106%	<-200%	(6,312)	140	-102%
21	Net Profit after Tax	25,176	4,681	1,826	-93%	-61%	35,003	6,507	-81%
22	Profit/(loss) attributable to:								
23	Non-controlling interests	141	470	438	>200%	-7%	273	907	>200%
24	Owners of the Company	25,035	4,212	1,388	-94%	-67%	34,730	5,600	-84%
25	Adjusted EBITDA*	16,363	14,273	21,029	29%	47%	30,698	35,302	15%

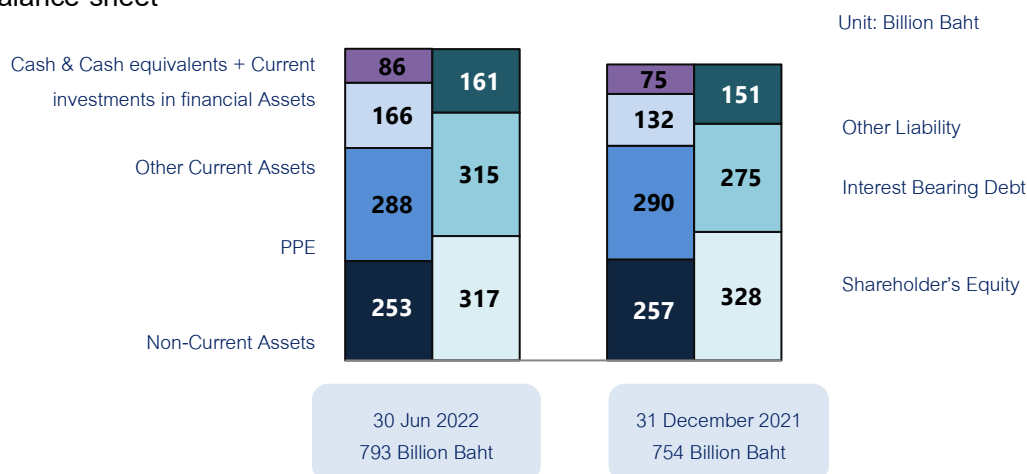
Note: * Adjusted EBITDA refers to EBITDA excluding Stock gain/(loss), NRV, Gain/(loss) from commodity hedging, and Extra item

- In Q2/2022, the Company had higher sales revenue of Baht 196,397 million than the previous quarter and Q2/2021 as the overall products price increased due to higher crude oil price and consolidation of allnex's financial performance.
- The Company had higher Variable costs due to Variable costs from allnex and higher fuel costs.
- Fixed overhead and SG&A expenses went up from the previous quarter and Q2/2021 because of consolidation of allnex's expenses and maintenance expenses of Polymer plants.
- Depreciation and Amortization increased from the previous quarter and Q2/2021 due to allnex's depreciation and amortization.
- The Company had an increase in Financial Expenses from Q2/2022 due to additional debt financing.

- Additionally, the Company had Foreign Exchange loss in Q2/2022 by Baht 4,378 million due to the depreciation in Baht currency.
- In Q2/2022, the Company's share from investment increased from the previous quarter mainly driven by the increased share of profit from VNT after the tender offer completion to increase the ownership from 24.98% to 37.82% at the end of Q1/2022, and the improved performance of Bioplastics business and Acrylonitrile (AN) business.

4. Statements of Financial Position

4.1 Balance sheet



Assets

As of June 30, 2022, the Company had total asset of Baht 792,656 million, increased by 5% or Baht 38,540 million from December 31, 2021 and variance of assets were described as follows:

- Total Current asset increased by Baht 45,912 million mainly due to 1) an increase in Cash and Cash Equivalents and Current Investments in financial assets by Baht 11,151 million (refer to cash flows analysis) 2) an increase in Account Receivable by Baht 13,695 million. 3) Inventories was increased by Baht 16,532 million due to higher crude oil and product prices.
- Property plant and equipment decreased by Baht 1,708 million mainly due to depreciation in 6 month period.
- Non-current asset decreased by Baht 4,943 million from 1) Other non-current financial assets decreased by Baht 7,024 million due to the fair value measurements on the investment in Global Power Synergy Public Company Limited (GPSC) 2) the investment in allnex, which included a decrease in intangible assets by Baht 4,604 million and goodwill by Baht 1,871 million due to the appreciation in Baht currency against Euro from the end of 2021, 3) there was an increase in investments in subsidiary, associate and other companies by Baht 6,056 million from purchase of ordinary shares in Vinythai Public Company Limited (VNT) by Baht 5,934 million, which increased the Company's holdings in VNT to 37.82% from 24.98%.

Liabilities

As of June 30, 2022, the Company had total liabilities of Baht 475,803 million, increased by 12% or Baht 49,291 million from December 31, 2021 and movements of liabilities were as follows:

- Interest-bearing debt increased by Baht 39,179 million (including Lease liabilities) due to Bonds issuance by Baht 102,766 million. The Company issued Baht 30,000 million bonds in January 2022, and USD 1,300 million bonds in March 2022. The Company had prepayment of long-term loan to PTT Treasury Center Co., Ltd. (PTT TCC) by Baht 55,600 million and financial institute by Baht 15,240 million. Also, the Company had Bonds issuance by Baht 25,000 million in June 2022.
- Other liabilities increased by Baht 10,112 million due to 1) Account payable increased by Baht 7,366 million due to higher in raw material price and Account payable of Coating Resins products (allnex). 2) Other

current liabilities increased by Baht 6,941 million resulting from the increase in the Company's liabilities of derivatives related to financial and commodity hedging. 3) Other non-current liabilities decreased by Baht 4,195 million due to decreased Deferred tax liabilities.

Shareholder's Equity

As of June 30, 2022, the Company had total Shareholder's Equity of Baht 316,853 million, which decreased by Baht 10,750 million from December 31, 2021, as a result from Net profit for H1/2022 of Baht 5,600 million. The Company had dividend payment for 2021 of Baht 7,890 million. Additionally, the Company had lower Other components of equity by Baht 8,871 million, which included the fair value measurements of GPSC of Baht 5,686 million.

4.2 Cashflow statement

Cashflow (Unit: Million Baht)	For the 6 months period Ended 30 Jun 2022
Net cash flows provided by operating activities	1,044
Net cash flows used in investing activities	(28,059)
Net cash flows provided by financing activities	20,088
Net increase (decrease) in cash and cash equivalents, before effect from foreign exchange rate	(6,927)
Effects of exchange rates on cash and cash equivalents	870
Net decrease in cash and cash equivalents during the period	(6,057)
Cash and cash equivalents at the beginning of the period	55,613
Cash and cash equivalents at the end of the period	49,556
Current investments in financial assets at the end of the period	36,589
Net cash and cash equivalent and investment at the end of the period	86,145

For the period ended June 30, 2022, the company had cash flow activities as follows:

- Cash flows provided by operating activities of Baht 1,044 million.
- Cash flow used in investing activities of Baht 28,059 million. The bond proceeds was applied to invest in financial assets of Baht 15,712 million. The Company had cash paid for property, plant, and equipment, and intangible assets amounting to Baht 8,390 million, for example, Olefins 2 Modification Project (OMP). The Company had cash paid for investment subsidiaries, associates, and joint ventures of Baht 6,626 million, which was mainly from the purchase of VNT shares by Baht 5,934 million.
- Cash flow provided by financing activities of Baht 20,088 million mainly due to the proceeds from Bonds issuance by Baht 98,841 million, PTT TCC long-term loan prepayment by Baht 55,600 million, cash paid

for finance costs by Baht 9,208 million, Dividend payment by Baht 8,292 million, and cash paid for financial costs by Baht 4,096 million.

- As a result, as of June 30, 2022, the Company had total Cash and Cash Equivalents of Baht 49,556 million, along with Current investments in financial assets of Baht 36,589 million. Hence, the Company had total cash and cash equivalent and investment of Baht 86,145 million. The Company had Net interest-bearing debt to equity at 0.72 times and Net interest-bearing debt to EBITDA at 4.58 times.

4.3 Key Financial Ratios

Financial Ratios	Q2/2021	Q1/2022	Q2/2022
Current Ratio (Times)	3.04	1.44	1.52
EBITDA to Sales Revenue (%)	13.37%	10.27%	8.00%
Net Profits to Sales Revenues (%)	11.13%	7.33%	2.54%
Return on Total Assets (%)	10.47%	8.09%	3.73%
Return on Equity (%)	14.36%	13.00%	5.12%
Interest Bearing Debt to Equity (Times)	0.63	0.90	0.99
Net Interest Bearing Debt to Equity (Times)	0.22	0.63	0.72
Interest Bearing Debt to EBITDA (Times)	3.97	5.30	6.30
Net Interest Bearing Debt to EBITDA (Times)	1.38	3.74	4.58

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

The Company has important projects in the pipeline:

- 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 Q3/2022.
- 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 Q4/2022.
- 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 2022-2026	Estimated Annual CAPEX (M.USD)				
		2022	2023	2024	2025	2026
1) Key Project						
- Recycle Plant	3	3				
- Super Engineering Plastic (KGC)	7	7				
- Olefin 2 Modification	115	65	50			
2) Other projects	297	156	81	39	20	0
3) allnex expansion & growth Capex	187	78	75	30	2	2
GC group Grand total	608	309	206	69	22	2

Notes: 1. Group annual maintenance ~ 310-360 M.USD (including allnex Holding GmbH)

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

6. Environment Social Governance

GC has committed in creating business values through a balanced Environmental, Social and Governance (ESG) approach and contributing to the achievement of United Nations Sustainable Development Goals (SDGs) by applying Circular Economy principle that increase natural resources efficiency, developing innovative products and processes contribute to environmentally-friendly solutions that enhance quality of living to society as well as driving transition to a sustainable low-carbon business to achieve Net Zero greenhouse gas emissions by 2050.

Progress on Decarbonization pathway

- Efficiency-driven: GC continuously improve the efficiency of production process and implement renewable energy projects to reduce resources and energy consumption. During 1H/2022, GC successfully reduce GHG emission scope 1 and 2 as targeted.
- Portfolio-driven: As part of business portfolio restructuring, GC achieved to start up high quality post-consumer recycled resins plant (rPET and HDPE) with 45,000 Ton per year capacity and expected to begin commercial operations within the third quarter of 2022. In addition, GC has continued to build awareness and engagement from public sector related to plastic waste management and value creation starting from waste sorting, collecting and bring plastic waste to recycling and upcycling process. In collaboration with partners, GC is expanding “YOUTURN platform” which is digital solution to collect plastic waste and convert into value-added products such as uniform for street sweepers. This project not only increase income for communities but also reduce greenhouse gas emissions which is the major reason for global warming.
- Compensation-driven: In June 2022, GC signed Memorandum of Understanding (MOU) with PTT Group to conduct feasibility study on development of Carbon Capture and Storage project in Thailand as CCS Hub Model to achieve Net zero greenhouse gas emissions by 2050.

Creating sustainable value to society: GC continuous implements and expands community waste management model to build knowledge and understanding about the waste management process, including waste collection, separation, recycling and utilizing resources to maximize its values as well as generating more incomes and improving quality of life to society, in-line with circular economy concept.

GC has received International Sustainability and Carbon Certification (ISCC) under the ISCC Plus scheme for new Olefins cracker plant (Olefins Reconfiguration Plant: ORP), High Density Polyethylene plant: HDPE, Low Density Polyethylene plant: LDPE and Linear Low Density Polyethylene plant: LLDPE by mass balance approach which support sustainable business growth while reducing carbon emissions.

7. Market and Business Outlook in H2/2022

The outbreak of COVID-19 is continuing its spread across the world, and COVID's mutation continues to evolve which simultaneously impacts the global economy. Additionally, the war between Russian and Ukraine, and the sanctions on Russia's energy have caused direct impacts on economies around the globe. These resulted to impact to the global energy supply and prices, and global inflationary. The IMF has revised down the expected world economy growth to 3.2% in 2022 (As of July 2022). The global economy is expected to continue to recover in line with the increase in demand for Petroleum and Petrochemical products, however, there are heightened uncertainties over the economic outlook and monetary policy in each country.

The Company anticipates that the average price of Dubai crude oil will be within the range of 99-102 USD per barrel. The International Energy Agency (IEA) had estimated the crude oil demand (as of July 2022) in 2022 at 99.2 million barrels per day, increased by 1.7 million barrels per day from the last year demand, as there are uncertainties due to the reasons mentioned above.

For Petroleum products, the Company anticipates that products price and products spread will be stable at high level from easing of the lockdown resulting in increased petroleum demand, tightening supply from decreased in export quota from China, and OPEC's supply control. As a result, Diesel over Dubai crude oil spread is expected to be 28-30 USD per barrel while Low Sulfur Fuel Oil (LSFO) over Dubai crude oil spread to be 29-32 USD per barrel. The HSFO over Dubai crude oil spread is expected to be -17 to -18 USD per barrel. The expected Gasoline over Dubai crude oil spread is 13-15 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. The Company expects that the Refinery utilization rate of 2022 will be operated at around 86% as there will be the planned maintenance shutdown of refinery on Q4/2022.

For Petrochemical products, Paraxylene over Naphtha spread is expected to be 300-310 USD per ton. As more producers enter the market, however, some producers have slowed down their production. Additionally, 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 270-290 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 90%.

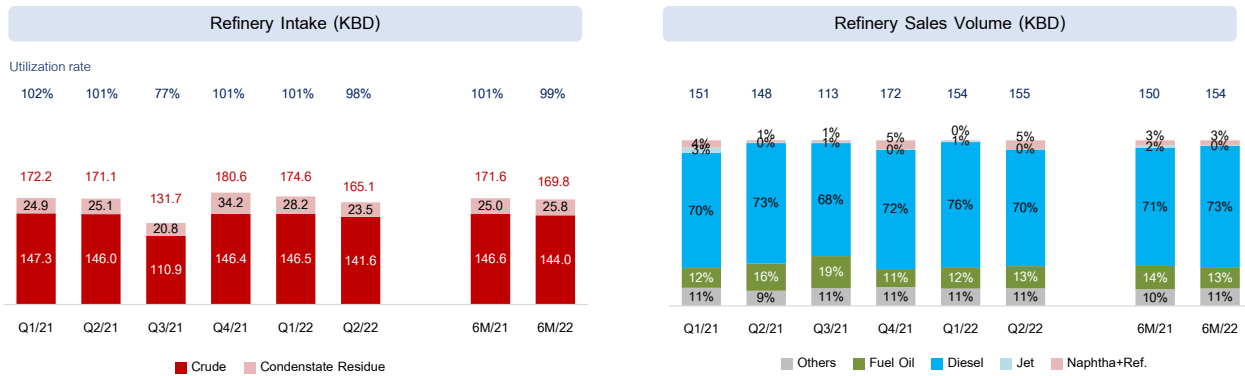
The outlook for Olefins and Derivatives product is the products spread is expected to remain steady from the previous year, due to the recovery in demand during economic recovery. While Olefins and Polymer supply continue to increase by new productions, included the fluctuation in production cost followed oil prices trend. The average HDPE price is expected to be 1,200-1,230 USD per ton and the HDPE Naphtha spread to be 400-450 USD per ton. For MEG market, MEG price is expected to slightly increase from previous year. However, MEG will be pressure by the increased in market supply, the demand uncertainty especially textile industry. 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 85% due to the planned maintenance shutdown of Olefins plant 3 in Q2/2022 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 100%.

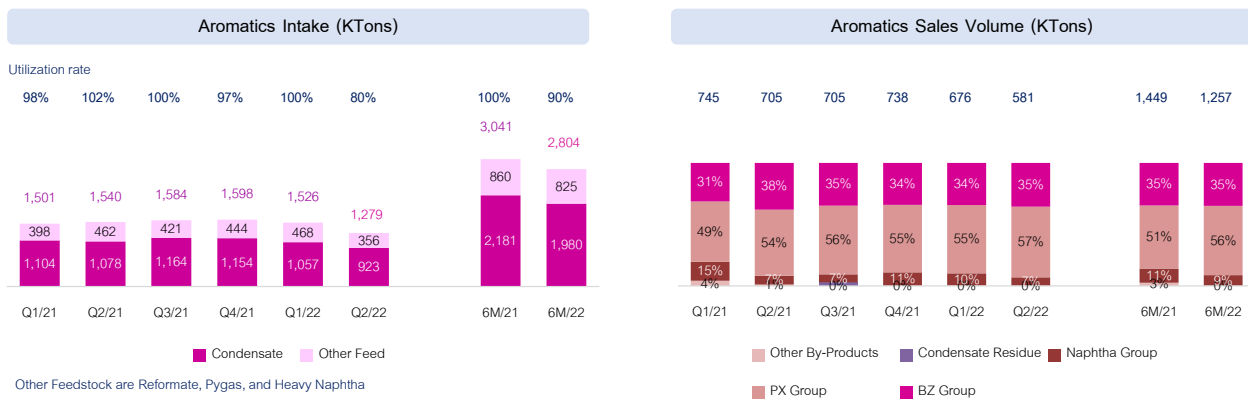
8. Appendix

8.1 Production and Sales

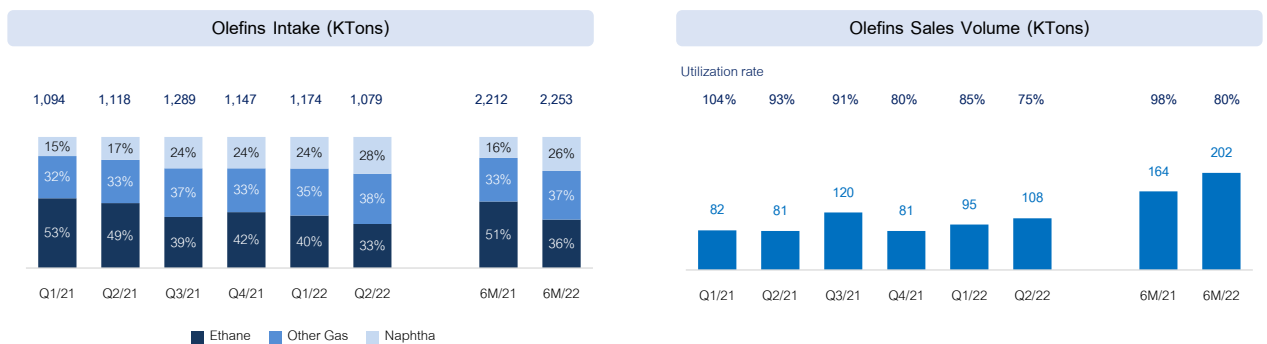
Graph 1: Refinery Intake and Sales Volume

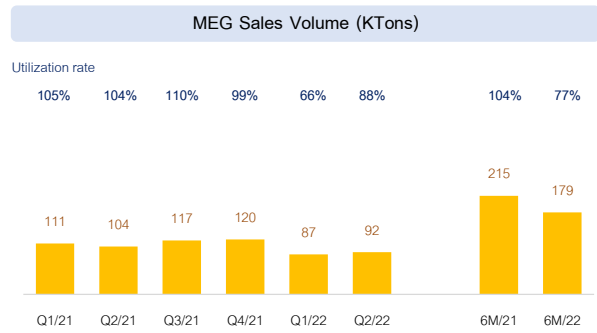
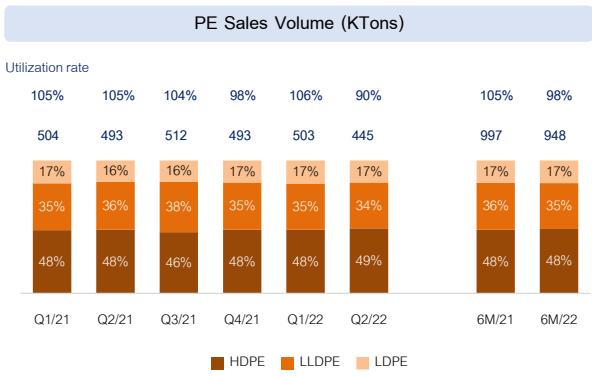


Graph 2: Aromatics Intake and Sales Volume (BTX)

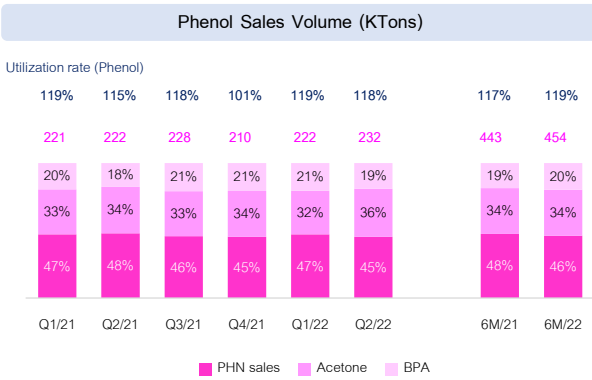


Graph 3: Olefins Intake and Olefins and Derivatives Sales Volume





Graph 4: Phenol chain Sales Volume



8.2 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
	LDPE					24							HDPE
	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												
GCO	PO											56	