PTT Global Chemical Public Company Limited

Management Discussion and Analysis Q2/2023

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Content

	Page
1. Executive Summary	3-5
2. Performance Analysis by Business Unit	
2.1 Upstream Business Unit	6-7
2.2 Intermediates Business Unit	7-8
2.3 Polymers and Chemicals Business Unit	8-9
2.4 Bio & Circularity Business Unit	9
2.5 Performance Chemicals Business Unit	9-10
3. Operating Performance	10-11
4. Statement of Financial Position	
4.1 Balance sheet	12-13
4.2 Cashflow statement	13
4.3 Key Financial Ratios	14
5. Project Progress	15
6. Market and Business Outlook in 2023	16-17
7. Sustainability Management (Environment Social Governance)	18-19
8. Appendix	
8.1 Production and Sales	20-21
8.2 Detail of Adjusted EBITDA by Business Unit	22
8.3 Planned Maintenance Shutdown Schedule	23

1. Executive Summary

In Q2/2023, PTT Global Chemical Public Company Limited ("the Company") had total sales revenue of Baht 146,731 million, decreased by 25% from Q2/2022. The total revenue has decreased mainly due to upstream business especially in Refinery sector as petrochemical prices decreased along with the drop in crude oil prices. The revenue in petrochemical business increased along with increased sales volume and utilization rate in this quarter. The Company had Adjusted EBITDA of Baht 6,835 million in this quarter, decreased by 28% from Q1/2023, as Upstream Business performance decreased, especially in Refinery sector due to a narrowing of the product spreads. While Aromatics business has a weak performance mainly due to lower by-product spreads. Additionally, Polymers & Chemicals business performance decreased from the demand was weaker than expected after China's reopening. In turn, Intermediate petrochemical performance slightly improved mainly from Phenol. Performance Chemicals business performance remained steady in this quarter. However, overall, the petrochemical market remained soft, with demand across most value chains heavily capped by recession fears and new petrochemical capacity from China, which impacted the performance of petrochemical associates and joint ventures companies. As a result, the Company had Share of Loss from Investments at Baht 405 million, decreased from previous quarter. The Company had Net Operating Loss Recurring (excluding Stock Loss Net NRV, Foreign Exchange Loss and Gain from financial derivative, Gain from commodity hedging, and Extraordinary items) of Baht 2,620 million. The Company recorded extraordinary items from Stock Loss Net NRV of Baht 2,659 million, Gain from commodity hedging of Baht 327 million, Net loss from Foreign Exchange Loss and financial derivatives Gain of Baht 1,047 million. Moreover, in Q2/2023, the Company recorded Net gain from allnex's sale and lease back transaction of Baht 485 million. As a result, The Company recorded Net loss in Q2/2023 at Baht 5,591 million (Baht -1.24/share).

Table 1 : Performance Summary

(Unit: Million Baht)	Q2/2022 [1]	Q1/2023	Q2/2023	YoY % +/(-)	QoQ % +/(-)	6M/2022 [1]	6M/2023	YoY % +/(-)
Sales Revenue	196,397	147,248	146,731	-25%	0%	371,951	293,979	-21%
EBITDA	11,389	9,115	4,503	-60%	-51%	20,188	13,618	-33%
EBITDA Margin (%)	6%	6%	3%	-3%	-3%	5%	5%	0%
Share of profit /(loss) of investments in JV and Associates	1,833	(152)	(405)	-122%	-166%	2,983	(557)	-119%
Net Profit/(Loss)	1,378	82	(5,591)	<-200%	<-200%	3,975	(5,509)	<-200%
EPS (Baht/Share)	0.31	0.02	(1.24)	<-200%	<-200%	0.88	(1.22)	<-200%
Adjusted EBITDA [2]	21,039	9,530	6,835	-68%	-28%	33,522	16,365	-51%
Adjusted EBITDA Margin (%)	11%	6%	5%	-6%	-1%	9%	6%	-3%

Note:

1) There was a restatement of financial statement for the period of three months and six months ended June 30, 2023 since the measurements of net assets acquired from acquisition of Allnex Holding GmbH have been completed by an independent appraiser in the fourth quarter of the year 2022. The Company has adjusted the fair values of assets and liabilities acquired to reflect the final fair value determination in accordance with the accounting adjustment condition for business acquisition. The adjustment has no effect to the financial statement for the period of twelve months of fiscal year 2022 as previously reported.

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

In Q2/2023, Upstream Business has a significant decrease in performance. The Market GRM was decreased from 10.3 USD per barrel to 5.7 USD per barrel, mainly due to lower spreads for both Diesel and Low Sulfur Fuel Oils

(LSFO). Even though, there was a decline in the crude premium in this quarter and the production level was fully utilized. Aromatics performance decreased following the drop in product spreads of Benzene and By-products. Although, there was an increase in Paraxylene spreads. Olefins performance steadily increased, driven by the increase of the Olefins utilization rate, and the decrease of raw materials costs along with the drop in oil prices.

Intermediates Business performance improved compared to previous quarter due to Phenol spread has strengthened from feedstock costs decreased. Although, the market continues to be impacted by the weak downstream demand and oversupply in China. PTA products spread increased, supported by the seasonal recovery in downstream demand for the fiber and textile industry, tightening supply from maintenance shutdown, and production control. Monoethylene Glycol plant remained shut down in Q2/2023 for the scheduled maintenance. For Polymers & Chemicals business, the performance faced downward pressure from the previous quarter due to the decrease in plastic resins prices and the weaker than expected demand after China's reopening.

Bio & Circularity Business performance decreased compared to the previous quarter due to the decline in demand from the Fatty Alcohol downstream industries. Performance Chemicals Business can still maintain effective cost and price management, while the total sale volume was maintained steady from the previous quarter as downward pressure from overall economic situation remained.

Table 2 : Adjusted EBITDA by Business Unit

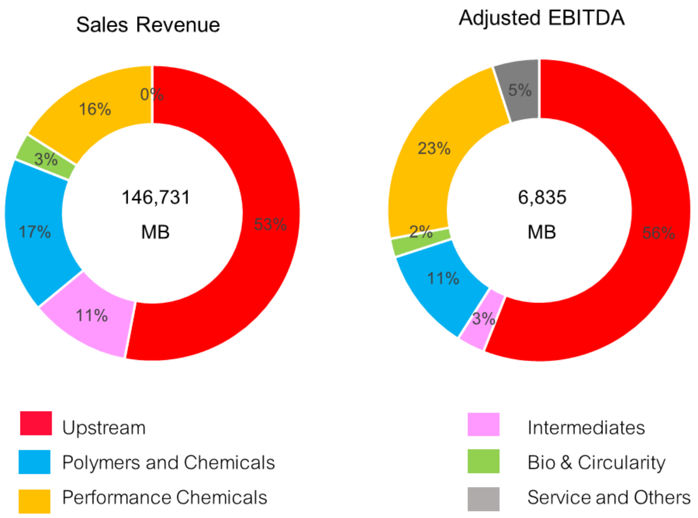
Adjusted EBITDA Margin by Business Unit	Q2/2022	Q1/2023	Q2/2023	YoY % +/(-)	QoQ % +/(-)	6M/2022	6M/2023	YoY % +/(-)
Adjusted EBITDA (Million Baht)								
Upstream	11,558	6,632	3,835	-67%	-42%	16,399	10,467	-36%
Intermediates	1,625	(978)	189	-88%	119%	4,246	(789)	-119%
Polymers & Chemicals	3,148	1,704	780	-75%	-54%	4,758	2,484	-48%
Bio & Circularity	649	269	119	-82%	-56%	1,336	388	-71%
Performance Chemicals	3,675	1,660	1,599	-56%	-4%	6,092	3,259	-47%
Service and Others	384	243	312	-19%	29%	690	555	-20%
Total	21,039	9,530	6,835	-68%	-28%	33,522	16,365	-51%
Adjusted EBITDA margin (%)								
Upstream	11	8	5	(6)	(3)	9	7	(2)
Intermediates	6	(6)	1	(5)	7	9	(2)	(11)
Polymers & Chemicals	10	8	3	(7)	(5)	8	5	(2)
Bio & Circularity	10	7	3	(7)	(4)	10	5	(5)
Performance Chemicals	12	7	7	(5)	(0)	10	7	(4)
Average	11	6	5	(6)	(1)	9	6	(3)

Note

1) There was a restatement of financial statement for the period of three months and six months ended June 30,2022 since the measurements of net assets acquired from acquisition of Allnex Holding GmbH have been completed by an independent appraiser in the fourth quarter of the year 2022. The Company has adjusted the fair values of assets and liabilities acquired to reflect the final fair value determination in accordance with the accounting adjustment condition for business acquisition. The adjustment has no effect to the financial statement for the period of twelve months of fiscal year 2022 as previously reported.

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

Q2/2023



2. Performance Analysis by Business Unit

2.1 Upstream

Table 3: Price, Product Spreads and performance of Upstream

	Q2/2022	Q1/2023	Q2/2023	YoY % +/(-)	QoQ % +/(-)	6M/2022	6M/2023	YoY % +/(-)
Dubai Crude Oil ($/bbl)	108.1	80.3	77.8	-28%	-3%	101.8	79.0	-22%
Diesel-Dubai ($/bbl)	43.1	25.2	14.6	-66%	-42%	31.3	19.9	-37%
LSFO-Dubai ($/bbl)	33.2	12.3	10.7	-68%	-13%	27.1	11.5	-57%
Gasoline-Dubai ($/bbl)	35.0	18.6	16.6	-53%	-11%	26.4	17.6	-33%
Jet-Dubai ($/bbl)	39.2	26.5	14.0	-64%	-47%	27.7	20.2	-27%
Market GRM ($/bbl)	**21.1**	**10.3**	**5.7**	-73%	-45%	**14.3**	**8.0**	-44%
Condensate ($/ton)	933	678	636	-32%	-6%	884	657	-26%
Paraxylene (FECP)-Condensate ($/ton)	327	355	395	20%	11%	288	375	30%
Benzene-Condensate ($/ton)	306	252	236	-23%	-6%	272	244	-10%
BTX P2F ($/ton)	**117**	**248**	**165**	40%	-34%	**81**	**207**	154%
Naphtha (MOPJ) ($/ton)	875	689	601	-31%	-13%	876	645	-26%
Ethylene (SEA) ($/ton)	1,197	923	874	-27%	-5%	1,185	899	-24%
Propylene (SEA) ($/ton)	1,106	959	844	-24%	-12%	1,129	902	-20%
Hedging Gain/(Loss) (MB)	(12,734)	943	327	103%	-65%	(21,302)	1,270	106%
Stock Gain/(Loss) และ NRV (MB)	3,256	(1,505)	(2,279)	-170%	-51%	8,283	(3,784)	-146%
Adjusted EBITDA* (MB)	**11,558**	**6,632**	**3,835**	-67%	-42%	**16,399**	**10,467**	-36%
Adjusted EBITDA (%)	**11%**	**8%**	**5%**	-6%	-3%	**9%**	**7%**	-2%
Petroleum Product Sales Volume (million bbl)	14.1	14.9	15.6	10%	4%	27.9	30.5	9%
Petrochemical Product Sales Volume (million ton)	1.2	1.2	1.3	5%	7%	2.6	2.5	-4%

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

In Q2/2023, Upstream business had Adjusted EBITDA of 3,835 million, decreased by 42% from the previous quarter, and Adjusted EBITDA Margin at 5%. Overall sales volume increased from Q1/2023. Petroleum product sales volume was 15.6 million barrels as the Refinery was fully utilized and the Petrochemical product sales volume was 1.3 million ton. The factors supported increase in the performance are as follows:

1. Refinery performance decreased from the previous quarter resulting from the economic recession. Despite the China's re-opening in January 2023, the economic indicators presented the slowdown of economic activities and reflected that demand recovery was weaker than expected, which impacted the demand of Petroleum products in China. In addition, the Petroleum product supply increased after seasonal refinery turnaround of regional refiners. Diesel spreads decreased due to the continued export from China while Russia was still able to export even during the sanctions by the European Union. Low Sulfur Fuel Oil spread decreased as more supply from the new refineries in the Middle East and more export from America and Europe. Gasoline spreads decreased due to the continued export from China while the slowdown of economic activities. The Company's Market GRM decreased by 5.7 USD per

barrel and Crude premium continued to decline coupled with the decrease of Crude oil price. As a resulted, the Company recorded Stock Loss Net NRV in this period.

2. Aromatics performance, in Q2/2023, decreased from the previous quarter resulting from Paraxylene over Condensate spread slightly increased while Benzene over Condensate spread decreased. The spread was pressured by China's reopening is weaker than expected, especially in the Polyester and textile market, and the Benzene downstream market. Even though, the raw materials supply for paraxylene was tighten by the shift to gasoline blending. The demand of Styrene monomer was still impacted by the economic recession. Also, By-products spread decreased in Q2/2023, especially the reduction of LPG spread after the winter season ended. These multiple factors weighed on the market and resulted in Market P2F of this quarter declined to 165 USD per ton.

3. Olefins performance, in Q2/2023, increased from the previous quarter. Olefins product spread was increased due to tight supply from seasonal turnaround in China. Ethylene demand recovered from China's re-opening, however, the market was pressured by concerns on global economic recession and new capacities in China even some Asian producers already reduced production rate to control supply in the market.

2.2 Intermediates

Table 4: Price, Product Spreads and and performance of Intermediates

(Unit : USD per ton)	Q2/2022	Q1/2023	Q2/2023	YoY % +/(-)	QoQ % +/(-)	6M/2022	6M/2023	YoY % +/(-)
Mono-ethylene glycol (MEG -ACP)	968	860	877	-9%	2%	940	869	-8%
MEG - 0.65 Ethylene	190	260	309	62%	19%	169	284	69%
Phenol	1,438	1,017	952	-34%	-6%	1,466	985	-33%
Phenol spread*	294	174	246	-16%	41%	387	210	-46%
Bisphenol A (BPA)	2,061	1,299	1,251	-39%	-4%	2,199	1,275	-42%
BPA spread*	627	242	235	-63%	-3%	740	238	-68%
Propylene Oxide (PO)	1,347	1,150	1,133	-16%	-1%	1,384	1,142	-18%
Purified Terephthalic Acid (PTA)	951	775	797	-16%	3%	889	786	-12%
PTA - 0.67PX	107	82	106	0%	29%	104	94	-9%
Acrylonitrile (AN)	1,846	1,504	1,332	-28%	-11%	1,861	1,418	-24%
AN - Propylene	740	544	488	-34%	-10%	733	516	-30%
Methyl Methacrylate (MMA)	2,169	1,530	1,580	-27%	3%	2,045	1,555	-24%
MMA - Naphtha	1,293	841	979	-24%	16%	1,168	910	-22%
Adjusted EBITDA (MB)	**1,625**	**(978)**	**189**	-88%	119%	4,246	(789)	-119%
Adjusted EBITDA (%)	**6%**	**-6%**	**1%**	-5%	7%	**9%**	**-2%**	-11%
Sales Volume (Kton)	767	612	615	-20%	0%	1,494	1,227	-18%
Share of gain/(loss) from investment (MB)	3	(309)	(250)	<-200%	19%	(42)	(559)	<-200%

Note : Phenol spread derives from Phenol-0.878 BZ-0.474Propylene+0.616 Acetone and BPA spread derives from BPA-0.853 Phenol-0.273 Acetone

In Q2/2023, Intermediates Business had Adjusted EBITDA of Baht 189 million, increased by 119% from the previous quarter, and Adjusted EBITDA Margin at 1%. Overall sales volume was approximately 615,000 tons and the

Company had planned maintenance shutdown of Phenol for 12 days and the planned maintenance shutdown of Monoethylene glycol (MEG) plant since the previous quarter.

In this quarter, the performance increased from the previous quarter resulting from lower cost of feedstocks. Also, some producers have already cut their production and planned maintenance shutdown which impacted on increased Intermediates products spread, especially Phenol. However, global economic recession still impacted to downstream demand of Phenol, BPA, and PTA. Textile industry (Filament and Staple Fiber), construction industry, and Electrical and Electronics (E&E) industry has weaker recovery in the main market such as China than expected. For supply situation, Phenol and BPA producers has encountered with new capacities that started up in China during April and June, even though some producers have already cut their production.

2.3 Polymers & Chemicals

Table 5: Price, Product Spreads and and performance of Polymers & Chemicals

(Unit : USD per ton)	Q2/2022	Q1/2023	Q2/2023	YoY % +/(-)	QoQ % +/(-)	6M/2022	6M/2023	YoY % +/(-)
Average Polyethylene(PE)	1,461	1,096	1,029	-30%	-6%	1,450	1,063	-27%
High-Density Polyethylene (HDPE)	1,341	1,085	1,036	-23%	-5%	1,336	1,060	-21%
HDPE-Ethylene	144	162	162	12%	0%	150	162	7%
Linear Low-Density Polyethylene (LLDPE)	1,383	1,074	1,014	-27%	-6%	1,364	1,044	-23%
LLDPE-Ethylene	186	151	140	-25%	-7%	179	146	-19%
Low-Density Polyethylen (LDPE)	1,658	1,130	1,036	-38%	-8%	1,649	1,083	-34%
LDPE-Ethylene	461	207	162	-65%	-22%	464	185	-60%
Polyethylene Terephthalate (PET)	1,227	971	955	-22%	-2%	1,190	963	-19%
Polypropylene (PP)	1,356	1,096	996	-27%	-9%	1,371	1,046	-24%
PP- Naphtha	480	407	395	-18%	-3%	495	401	-19%
Polyvinyl chloride (PVC)	1,346	885	791	-41%	-11%	1,360	838	-38%
PVC-0.5Ethylene	748	423	354	-53%	-16%	768	389	-49%
Polyols	1,812	1,430	1,456	-20%	2%	1,908	1,443	-24%
Polyols-0.92PO	572	372	414	-28%	11%	635	393	-38%
Adjusted EBITDA (MB)	3,148	1,704	780	-75%	-54%	4,758	2,484	-48%
Adjusted EBITDA (%)	10%	8%	3%	-7%	-5%	12%	8%	-4%
Sales Volume (Kton)	545	535	574	5%	7%	1,143	1,109	-3%
Share of gain/(loss) from investment (MB)	889	(164)	(161)	-118%	1%	1,549	(325)	-121%

In Q2/2023, Polymers and Chemicals Business had Adjusted EBITDA of Baht 780 million, decreased by 54% from the previous quarter, and Adjusted EBITDA Margin at 3%. Overall sales volume was approximately 574,000 tons which increased by 7% from Q1/2023.

Despite the reopening in China, demand for Polymers in Q2/2023 remained sluggish compared with the previous quarter, driven by the volatility of feedstock price that showed the downward trend. In addition, at the end of Q2/2023 China's Yuan currency was depreciated against the US dollar that resulted to negative impact as Polyethylene importers tended to defer their purchases. In term of supply, the market was pressured by addition of new capacities in China and the upcoming plant in Vietnam. In Q2/2023, the Company sold off-spec products of Polyethylene, related to the warehouse incident last year, at discounted price. This had a negative impact on the overall Adjusted EBITDA of Polymers and Chemicals Business, which decreased from last quarter.

2.4 Bio & Circularity

Table 6: Price, Product Spreads and and performance of Bio & Circularity

(Unit : USD per ton)	Q2/2022	Q1/2023	Q2/2023	YoY % +/(-)	QoQ % +/(-)	6M/2022	6M/2023	YoY % +/(-)
Methyl Ester (ME) P2F (THB per Kilogram)	3.1	4.3	4.3	38%	0%	3.1	3.1	39%
Fatty Alcohol (FA) P2F	580	543	443	-24%	-18%	410	493	20%
Adjusted EBITDA (MB)	**649**	**269**	**119**	-83%	-56%	**1,336**	**388**	-71%
Adjusted EBITDA (%)	**10%**	**7%**	**3%**	-7%	-4%	**10%**	**5%**	-5%
ME Sales Volume (Kton)	70	86	91	23%	20%	144	177	24%
FA Sales Volume (Kton)	25	22	22	-8%	1%	48	44	-10%
Share of gain/(loss) from investment (MB)	589	127	-90	-118%	<-200%	1,082	37	-97%

In Q2/2023, Bio and Circularity business had Adjusted EBITDA of Baht 119 million, decreased by 56% from the previous quarter, and Adjusted EBITDA Margin at 3%. Methyl Ester (ME) Sales Volume and Fatty Alcohol (FA) Sales Volume increased from the previous quarter, nevertheless, Methyl Ester (ME) price slightly increased in line with the Crude Palm Oil (CPO) prices due to supply shortage during the dry season in the southern provinces, while demand weakened due to monsoon season in Thailand and government policy to maintain B7 biodiesel mandate. Fatty Alcohol P2F was decreased due to weak end market consumption from home and personal care sectors in line with economics condition as well as the slow economy in China who is the major buyers. In addition, as Oleochemicals producer's reliance on lower-cost options instead Crude Palm Kennel Oil (CPKO), so the stockpiling of CPKO has further increased which led to lower CPKO and Fatty Alcohol price.

2.5 Performance Chemicals

Table 7: Price, Product Spreads and and performance of Performance Chemicals

(Unit : USD per ton)	Q2/2022	Q1/2023	Q2/2023	YoY % +/(-)	QoQ % +/(-)	6M/2022	6M/2023	YoY % +/(-)
Adjusted EBITDA (MB)	**3,675**	**1,660**	**1,599**	-56%	-4%	6,092	3,259	-47%
Adjusted EBITDA (%)	**12%**	**7%**	**7%**	-5%	0%	**10%**	**7%**	-3%
Sales Volume (Kton)	221	199	199	-10%	0%	448	398	-11%
Share of gain/(loss) from investment (MB)	(14)	(40)	(51)	<-200%	-30%	(24)	(91)	<-200%

In Q2/2023, Performance Chemicals business had Adjusted EBITDA of 1,559 million, decreased by 4% from the previous quarter. The performance of Vencorex, which its product HDI derivatives continued to face the slowdown of demand as global economic recession. While allnex's sale volumes were almost stable. Allnex was impacted by the slowdown of demand during global economic recession and the direct and indirect impact of Russia and Ukraine conflict. The lower volumes in the Europe region in Q2/2023 compared with Q1/2023 were offset by higher volumes in Asia Pacific as prior quarter was impacted by the Chinese New Year. America volumes slightly increased. The margins per unit of allnex was broadly maintained at the same level as previously.

3. Operating Performance

	Unit : MB	Q2/2022[1]	Q1/2023	Q2/2023	YoY % + /(-)	QoQ % + /(-)	6M/2022[1]	6M/2023	YoY % + /(-)
1	Sales Revenue	196,397	147,248	146,731	-25%	0%	371,951	293,979	-21%
2	Feedstock cost	(150,262)	(112,516)	(114,021)	-24%	1%	(285,690)	(226,538)	-21%
3	Product to Feed Margin	46,135	34,732	32,710	-29%	-6%	86,261	67,441	-22%
4	Variable Cost	(11,636)	(12,354)	(13,065)	12%	6%	(24,242)	(25,419)	5%
5	Fixed OH	(7,309)	(7,668)	(7,936)	9%	3%	(16,034)	(15,604)	-3%
6	Stock Gain/(Loss) and NRV	3,085	(1,359)	(2,659)	-186%	-96%	7,968	(4,017)	-150%
7	Gain/(Loss) on Commodity Hedging	(12,734)	943	327	103%	-65%	(21,302)	1,270	106%
8	Other Revenue	1,587	1,383	1,782	12%	29%	3,118	3,165	2%
9	SG&A Expenses	(7,739)	(6,562)	(6,656)	-14%	1%	(15,581)	(13,218)	-15%
10	EBITDA	11,389	9,115	4,503	-60%	-51%	20,188	13,618	-33%
11	Depreciation & Amortization	(6,718)	(6,960)	(6,786)	1%	-3%	(13,210)	(13,747)	4%
12	Sales asset-allnex	-	-	485	100%	100%	-	485	100%
13	EBIT	4,671	2,155	(1,798)	-138%	-183%	6,978	356	-95%
14	Net financial expense	(2,277)	(2,683)	(2,628)	15%	-2%	(4,291)	(5,310)	24%
15	FX Gain(Loss)	(2,666)	696	(1,047)	61%	<-200%	(1,005)	(351)	65%
16	Share of gain/(loss) from investment	1,833	(152)	(405)	-122%	-166%	2,983	(557)	-119%
17	Corporate Income Tax	255	43	271	6%	>200%	217	314	45%
18	Net Profit/(Loss) after Tax	1,816	59	(5,607)	<-200%	<-200%	4,882	(5,548)	<-200%
	Profit/(loss) attributable to:								
19	Non-controlling interests	438	(23)	(16)	-104%	30%	907	(39)	-104%
20	Owners of the Company	1,378	82	(5,591)	<-200%	<-200%	3,975	(5,509)	<-200%
21	Adjusted EBITDA[2]	21,039	9,530	6,835	-68%	-28%	33,522	16,365	-51%

Note:

1) There was a restatement of financial statement for the period of three months and six months ended June 30, 2022 since the measurements of net assets acquired from acquisition of Allnex Holding GmbH have been completed by an independent appraiser in the fourth quarter of the year 2022. The Company has adjusted the fair values of assets and liabilities acquired to reflect the final fair value determination in accordance with the accounting adjustment condition for business acquisition. The adjustment has no effect to the financial statement for the period of twelve months of fiscal year 2022 as previously reported.

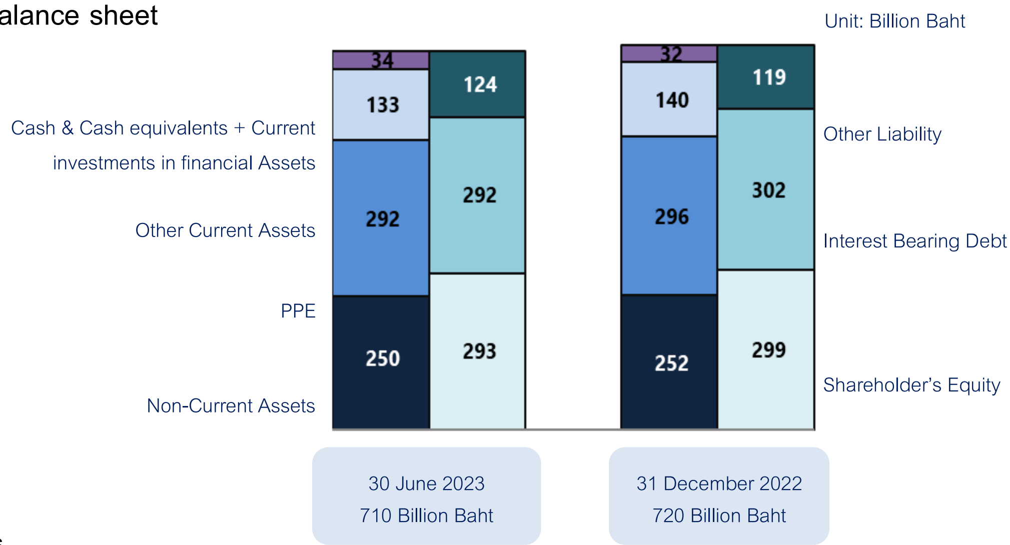
2) Adjusted EBITDA refers to EBITDA excluding Stock gain/(loss),NRV, Gain/(loss) from commodity hedging, and Extra item.

- In Q2/2023, Sales revenue accounted for Baht 146,731 million dropped by 0.4 percent compared with Q1/2023 and by 25 percent compared with Q2/2022. This was mainly attributable to the lower prices of Petroleum and Petrochemical products during sluggish economic recovery.

- Variable costs slightly increased from Q1/2023 by 6 percent. This was mainly due to the planned maintenance shutdown of Olefins plant 2/2 in Q1/2023.
- Fixed overhead and SG&A expenses increased from Q1/2023 by 3 percent compared with Q1/2023. This was primarily the result of an increase in the cost of services of GC Maintenance and Engineering Ltd. in line with the increase in other revenue compared with the previous quarter.
- Depreciation and Amortization decreased from Q1/2023 by 3 percent. This was mainly attributable to the reversal of provision for off-spec products of Polyethylene sold in Q2/2023. The provision for off-spec products of Polyethylene had been recorded in Q3/2022 when the warehouse incident occurred.
- Although the interest rate in the market has increased, financial expenses decreased from the previous quarter mainly due to bond buyback transaction for USD 80 million in Q2/2023 and totaling to USD 130 million within the first half of 2023.
- The Company had a Foreign Exchange loss in Q2/2023 of Baht 1,037 million due to the depreciation in Baht currency against the US dollar compared with Q1/2023.
- Share of loss from investment slightly decreased from the previous quarter mainly driven by weak performance from the global economic recession, which resulted in softening product spread.
- In Q2/2023, the Company had a non-recurring item relative to allnex's sale and leaseback transaction which recognized net gain from selling assets amounting to Baht 485 million.

4. Statements of Financial Position

4.1 Balance sheet



Assets

As of June 30, 2023, the Company had total asset of Baht 709,552 million, decreased by Baht 10,414 million from December 31, 2022 and variance of the assets were described as follows:

- Total Current asset decreased by Baht 4,914 million mainly due to a decrease in Inventories by Baht 3,416 million as lower feedstock from the end of 2022. There was an increase in Cash and Cash Equivalents by Baht 2,433 million, and an increase in Account Receivables by Baht 2,115 million due to the Petrochemical products price and sales volume increased. Other current assets decreased by Baht 6,047 million mainly due to a decrease in Value-added tax receivable related to the importing of raw materials and a decrease in Receivable from oil fuel fund according to the decline in crude oil prices.
- Property plant and equipment decreased by Baht 3,932 million mainly due to the completion of projects and depreciation.
- Non-current assets decreased by Baht 1,568 million from the fair value measurements on the investment in Global Power Synergy Public Company Limited (GPSC).

Liabilities

As of June 30, 2023, the Company had total liabilities of Baht 416,288 million, decreased by Baht 4,849 million from December 31, 2022 and movements of liabilities were as follows:

- Interest-bearing debt (including Lease liabilities) decreased by Baht 9,504 million due to the repayment of Short-term and Long-term borrowings from financial institutions and USD Bond buy back by USD 130 million in the first half of the year.
- Trade accounts payable increased by Baht 10,140 million mainly due to higher crude purchased after the completion of planned maintenance shutdown in Q4/2022
- Other liabilities decreased by Baht 4,714 million due to Other payable decreased, such as a decline in Payables to contractors due to the payment to contractors related to projects, and a decrease in Derivatives Liabilities related to Commodity hedging for Petroleum and Aromatics products.

Shareholder's Equity

As of June 30, 2023, the Company had total Shareholder's Equity of Baht 293,263 million, which decreased by Baht 5,564 million from December 31, 2022, as a result from net loss for the six months ended 30 June 2023 of Baht 5,509 million.

4.2 Cashflow statement

Cashflow (Unit: Million Baht)	For six months Ended 30 June 2023
Net cash flows provided by operating activities	28,283
Net cash flows used in investing activities	(4,534)
Net cash flows provided by financing activities	(22,277)
Net increase (decrease) in cash and cash equivalents, before effect from foreign exchange rate	1,472
Effects of exchange rates on cash and cash equivalents	921
Net decrease in cash and cash equivalents during the period	2,393
Cash and cash equivalents at the beginning of the period	25,940
Cash and cash equivalents at the end of the period	28,333
Current investments in financial assets at the end of the period	6,063
Net cash and cash equivalent and investment at the end of the period	34,396

For the period ended June 30, 2023, the company had cash flow activities as follows:

- Cash flows received by operating activities of Baht 28,283 million.
- Cash flow used in investing activities of Baht 4,534 million. The Company had cash paid for property, plant, and equipment, and intangible assets amounting to Baht 10,399 million, mainly related to the Olefins 2 Modification Project (OMP). The Company had cash receive from disposal of property, plant and equipment by Baht 3,054 million and Dividends received by Baht 2,292 million.
- Cash flow provided by financing activities of Baht 22,277 million mainly due to the repayment of Short-term and Long-term borrowings from financial institutions by Baht 10,147 million and cash paid for bond repayment by Baht 4,013 million.

As a result, as of June 30, 2023, the Company had total Cash and Cash Equivalents of Baht 28,333 million, along with Current investments in financial assets of Baht 6,063 million. Hence, the Company had total cash and cash equivalent and investment of Baht 34,396 million. The Company had Net interest-bearing debt to equity at 0.91 times and Net interest-bearing debt to EBITDA at 16.88 times.

4.3 Key Financial Ratios

Financial Ratios	Q2/2023 (Restatement)	Q1/2023	Q2/2023
Current Ratio (Times)	1.53	1.65	1.58
EBITDA to Sales Revenue (%)	7.72%	3.50%	2.64%
Net Profits to Sales Revenues (%)	2.28%	-1.73%	-3.04%
Return on Total Assets (%)	3.50%	-0.33%	-1.27%
Return on Equity (%)	4.60%	-3.72%	-6.16%
Interest Bearing Debt to Equity (Times)	1.00	0.99	1.03
Net Interest Bearing Debt to Equity (Times)	0.72	0.87	0.91
Interest Bearing Debt to EBITDA (Times)	6.54	13.02	19.05
Net Interest Bearing Debt to EBITDA (Times)	4.75	11.44	16.88

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 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 Q3/2023.

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	Estimated Annual CAPEX (M.USD)				
	2023-2027	2023	2024	2025	2026	2027
1) Olefin 2 Modification Project	33	33	-	-	-	-
2) Other projects	269	225	27	16	-	-
total	302	258	27	16	-	-
3) allnex expansion & growth Capex	491	80	111	114	95	91
GC group Grand total	793	338	139	130	95	91

Notes: 1. Group annual maintenance ~ 400 M.USD (including allnex Holding GmbH)

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

3. allnex expansion & growth Capex based on capex plan, including committed and uncommitted projects

6. Market and Business Outlook in 2023

The global economic outlook in 2023 continues to be impacted by multiple factors. A prolonged period of the Russia-Ukraine conflict, which in response to Russia's invasion of Ukraine, sanctions were imposed on Russian economy and energy, which have caused direct impacts on global economy. These resulted in an impact on the global energy supply and prices, and high inflation. In addition, demand in China after the reopening has been sluggish and slow recovery. The IMF has revised down the expected world economy growth to 3.0% in 2023 (As of Jul 2023). The global economy is expected to further 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.

Upstream business unit

The Company anticipates that the average price of Dubai crude oil in 2023 will be within the range of 75-85 USD per barrel. The International Energy Agency (IEA) had estimated the crude oil demand (as of July 2023) in 2023 at 102.1 million barrels per day, increased by 2.2 million barrels per day from the 2022 demand. However, downside risk exists. The energy crisis continues to be a major concern, along with a recovery in demand in the second half of this year after China re-opening, OPEC-Plus supply control, and global economic trends and economic recession.

For Petroleum products, the Company anticipates that products price and products spread will be softened in 2023 comparing with 2022 which products spread has stood at high level due to tight supply in the market impacted from the consequence of the conflicts in Europe. As a result, Diesel over Dubai crude oil spread is expected to be 19-21 USD per barrel while Low Sulfur Fuel Oil (LSFO) over Dubai crude oil spread to be 10-13 USD per barrel. The expected Gasoline over Dubai crude oil spread is 15-19 USD per barrel. 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 2023 will be operated at around 103%.

For Aromatics products, Paraxylene over Naphtha spread is expected to be stable at 380-400 USD per ton, increased from the previous year following the upward trend of Gasoline product in Q1/2023. In term of demand, 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 supported by food and beverage industry, e-commerce industry and the recovery in global economy by China reopening. However, new producers entering to the market in 2023 will pressure the market. Benzene over Naphtha spread is expected to be 240-260 USD per ton, supported by the new capacity of downstream products such as Phenol. The Company expects that the Aromatics utilization rate of 2023 will be 85% due to the planned maintenance shutdown of Aromatics plant in Q3/2023.

The outlook for Olefins products, the Company anticipates that Ethylene products price will be at 860-910 USD per ton. Propylene is expected to be 850-910 USD per ton, however, the supply will be pressured by new capacity in China. The Company expects Olefins utilization rate to be around 85% due to the planned maintenance for the preparation for the commercial operation of Olefins plant 2/2 modification project in Q1/2023 and the planned maintenance shutdown of Olefins plant 1 in Q3/2023.

Intermediates business unit

For Phenol market trend in 2023, the Company anticipates that Phenol P2F spread will be at 240-250 USD per ton decreased from the previous year, as new Phenol supply is predicted to enter the market. The demand for end products is not yet recovered in first half of 2023. However, with policies launching in China to stimulate vehicle and construction markets, this will gradually support the consumption in the second half of 2023.

For MEG and PTA market, the Company expects that the average MEG price will be 500-520 USD per ton and PTA price is expected to be stable. This year, the expected demand from downstream business is expected to gradually recover, the same as Paraxylene product.

Polymers & Chemicals Business unit

The Company anticipates that the average Polyethylene price in 2023 is expected to be 1,050-1,100 USD per ton, decreased from 2022. This is relative to the improvement of demand in China after reopening. However, the positive factors are demand for packaging and the decrease of new capacity entered into the rest of the year, even though there are concerns about ongoing economic crisis. The Company expects that the Polyethylene plants utilization rate will be around 102% in 2023. The expected market outlook of Polyethylene Terephthalate (PET) is as aforementioned.

Performance Chemicals Business unit

The end markets industry such as automotive industry, and construction industry are expected to gradually be recovered in 2023. For packaging industry is expected to grow following an upward economic growth trend. However, overall demand for this year is still challenging driven by economic recessions, directly and indirectly factors impacted by the tension between Russia and Ukraine.

7. Sustainability Management (Environment - Social - Governance)

GC strives to operate for the organization's growth as well as the balance of the three dimensions, namely environment, social, governance and economic (ESG). Our success has been reflected throughout the recognitions both national and international. The company has implemented sustainability strategies and achieved the objectives as our goals. We have also attained outstanding results under sustainability strategy (Step up):

<u>Sustainability Management in the Environmental Dimension</u>

Efficiency-driven: GC is undertaking a project to enhance energy efficiency in the production process and transition to alternative energy sources. The project aims to reduce greenhouse gas emissions in accordance with the targets set for scopes 1 and 2. Additionally, the company is studying the feasibility of new technologies to explore further opportunities for reducing greenhouse gas emissions, such as the technology of converting ammonia to hydrogen (NH3 Decomposition) for use as a fuel.

Portfolio-driven: GC is taking the lead in rebalancing its business towards low carbon emission operations by investing in High Value Business (HVB) ventures and businesses that align with the principles of a circular economy. The company also actively seeking opportunities to create synergy (Leverage Synergy) to generate maximum value from current business, such as the Bio-Refinery: the US Mechanical Recycling project, and the study and analysis of the company's green business data.

Compensation-driven: GC is implementing a project to restore and reinforce the balance of forest ecosystems in collaboration with the government, the private sector, the society and communities continuously. In the year 2023, the company began the process of planting and preparing data for registering carbon credits under the T-VER (Thailand Voluntary Emission Reduction) project for the first phase covering an area of 929.84 rai. Additionally, they are in the process of contracting with entrepreneurs to plant and manage mangrove forests for the second phase, covering an area of 2,527.55 rai. Furthermore, the company is exploring the possibility of participating in other forest restoration projects, such as reforestation, to create more opportunities for generating carbon credits. Currently, the company are studying the feasibility of technology and assessing the investment required for carbon capture from factories to be transported to collection terminals.

<u>Sustainability Management in the Social Dimension</u>

GC carries out activities in social responsibility according to a plan to optimize resource utilization, aligning with the company's strategies and the needs of the community and society. These activities are organized into 5 project groups, with the following key activities:

1. Flagship Project: Implementing the "More Trees, More Good" tree-planting project, transforming waste areas into forests in collaboration with Bangkok and Kasetsart University continuously. The goal is to plant forests in an area of 55 rai, resulting in a carbon credit of approximately 165 tCO2e per year. This project has been an ongoing effort in additional areas since 2022.

2. Impact-Driven Project: Carrying out the Community Waste Model project, currently in the process of expanding the Recycle Hub operations in Rayong province. Three additional locations are planned to be established, enabling the delivery of 41 tons of PET and HDPE waste to the company ENVICCO, equivalent to approximately 95 tCO2e of carbon credit per year.
3. Strategic Fit Project: Carrying out the Upcycling SE (Social Enterprise) project under the company "Sanplang Social Enterprise Limited," which is a subsidiary of PTT Group. The project involves selling upcycled t-shirts and bags designed by youth from Koh Mak Island, Trat province, on World Ocean Day, generating an income of 13,000 baht in revenue, contributing back to society.
4. General ESG Project: General ESG Project: Implementing a community economic development project by organizing a market fair to boost income for local community shops and businesses in Rayong province. For instance, the "Happy Day Market - GC Marketplace" has successfully generated 2.6 million baht in revenue, contributing back to community.
5. Traditional CSR Project: Creating the "GC Volunteer" project, encouraging employee volunteering by organizing competitions between departments to promote CSR activities based on the BCG Model. In total, 1,200 employees (19 teams) have participated in this project.

Sustainability Management in the Governance & Economic Dimension

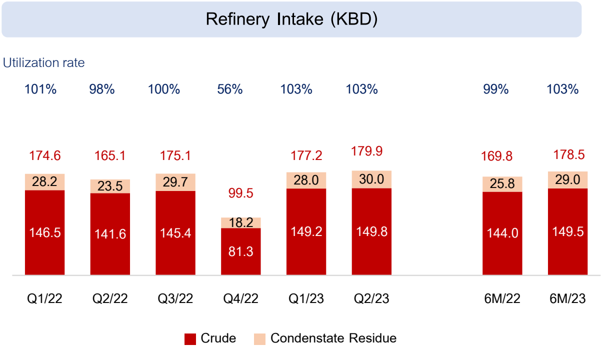
GC is dedicated to actively promoting sustainable practices that align with the country's direction and adhere to international standards. The company conducts data analysis to improve and review its operations to align with the criteria used in the assessment of the Dow Jones Sustainability Indices (DJSI) and the Carbon Disclosure Project (CDP) sustainability indices. This includes a focus on climate change management and water security, particularly emphasizing stringent evaluation criteria. Additionally, preliminary scores have been assessed to expedite improvements and advance the company's progress in maintaining a globally recognized sustainability benchmark.

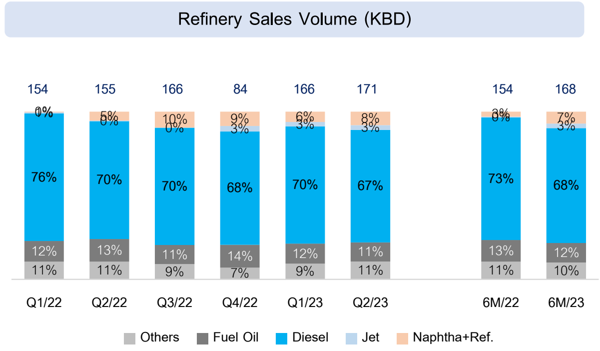
GC participated in the DJSI evaluation for the year 2023 and anticipated maintaining its position as one of the top three global leaders in sustainability. Additionally, the company engaged in the EcoVadis assessment, a global sustainability index that emphasizes collaborative actions within the supply chain. The company was awarded the highest Platinum level by EcoVadis, recognizing its outstanding sustainability practices in the dimensions of labor and human rights, business ethics, and sustainable procurement. In the environmental dimension, the company achieved an outstanding score, placing it in the top 1% globally within the chemical manufacturing industry. The EcoVadis evaluation supports the company's DJSI assessment, particularly in Supply Chain Management.

8. Appendix

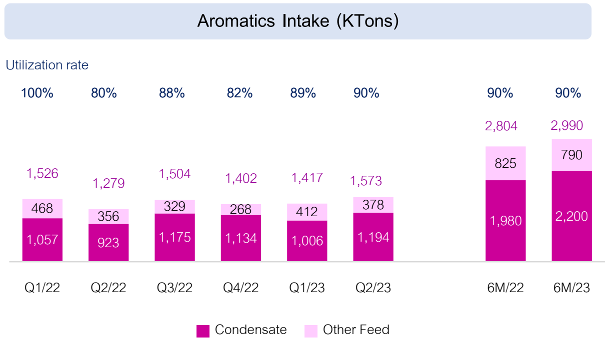
8.1 Production and Sales

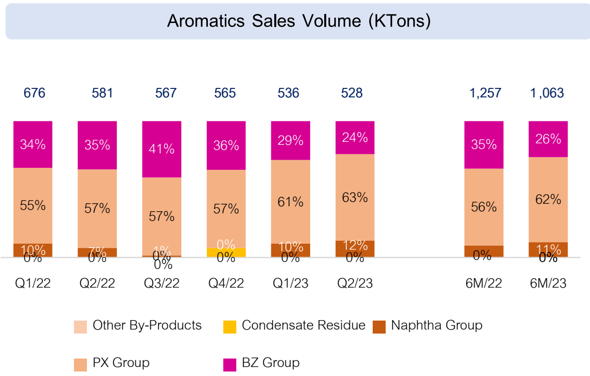
Graph 1: Refinery Intake and Sales Volume





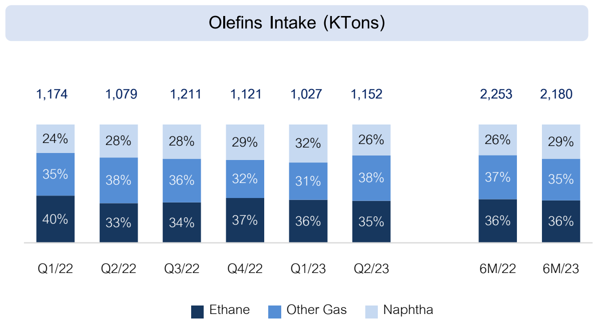
Graph 2: Aromatics Intake and Sales Volume (BTX)

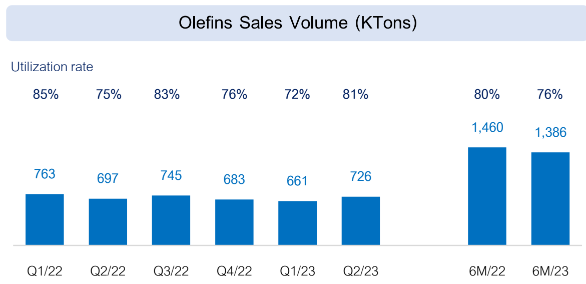




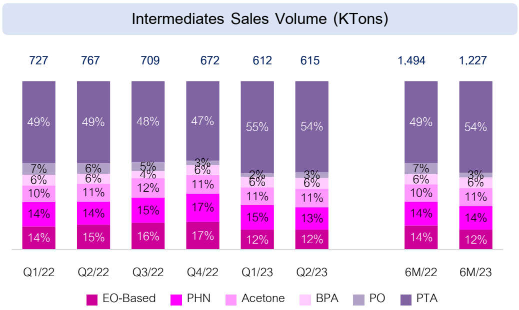
Other Feedstocks are Reformate, Pygas, and Heavy Naphtha

Graph 3: Olefins Intake and Olefins and Derivatives Sales Volume

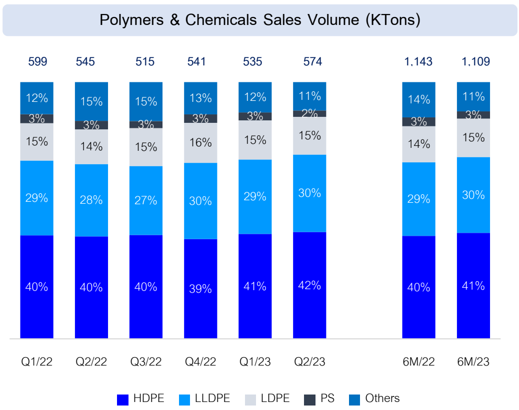




Graph 4: Intermediates products sales Volume



Graph 5: Polymers & Chemicals products sales Volume



Graph 6: Utilization rate

Utilization rate	Q1/22	Q2/22	Q3/22	Q4/22	Q1/23	Q2/23	6M/22	6M/23
Upstream								
- Refinery	101%	98%	100%	56%	103%	103%	99%	103%
- Aromatics	100%	80%	88%	82%	89%	90%	90%	90%
- Olefins	85%	75%	83%	76%	72%	81%	80%	76%
Intermediates								
- MEG	66%	88%	84%	79%	13%	4%	77%	9%
- Phenol	119%	118%	116%	107%	104%	98%	119%	101%
- BPA	119%	112%	71%	107%	98%	103%	115%	101%
- PO	104%	81%	69%	22%	26%	46%	92%	36%
Polymers & Chemicals								
HDPE	111%	102%	95%	92%	106%	110%	106%	108%
LLDPE	92%	80%	97%	88%	93%	93%	86%	93%
LDPE	128%	85%	128%	121%	96%	119%	106%	107%
Total PE	106%	90%	101%	95%	99%	104%	98%	102%

8.2 Detail of Adjusted EBITDA by Business Unit

Adjusted EBITDA Margin by Business Unit	Q2/2022	Q1/2023	Q2/2023	YoY % +/(-)	QoQ % +/(-)	6M/2022	6M/2023	YoY % +/(-)
Adjusted EBITDA (Million Baht)								
Upstream	11,558	6,632	3,835	-67%	-42%	16,399	10,467	-36%
Refinery	10,297	4,900	2,581	-75%	-47%	13,638	7,481	-45%
Aromatics	673	2,440	1,291	92%	-47%	(433)	3,732	>200%
Olefins	588	(708)	(37)	-106%	95%	3,194	(745)	-123%
Intermediates	1,625	(978)	189	-88%	119%	4,246	(789)	-119%
Polymers & Chemicals	3,148	1,704	780	-75%	-54%	4,758	2,484	-48%
Bio & Circularity	649	269	119	-82%	-56%	1,336	388	-71%
Performance Chemicals	3,675	1,660	1,599	-56%	-4%	6,092	3,259	-47%
Service and Others	384	243	312	-19%	29%	690	555	-20%
Total	21,039	9,530	6,835	-68%	-28%	33,522	16,365	-51%
Adjusted EBITDA margin (%)								
Upstream	11	8	5	(6)	(3)	9	7	(2)
Intermediates	6	(6)	1	(5)	7	9	(2)	(11)
Polymers & Chemicals	10	8	3	(7)	(5)	8	5	(2)
Bio & Circularity	10	7	3	(7)	(4)	10	5	(5)
Performance Chemicals	12	7	7	(5)	(0)	10	7	(4)
Average	11	6	5	(6)	(1)	9	6	(3)

Note:

1) There was a restatement of financial statement for the period of three months and six months ended June 30,2022 since the measurements of net assets acquired from acquisition of Allnex Holding GmbH have been completed by an independent appraiser in the fourth quarter of the year 2022. The Company has adjusted the fair values of assets and liabilities acquired to reflect the final fair value determination in accordance with the accounting adjustment condition for business acquisition. The adjustment has no effect to the financial statement for the period of twelve months of fiscal year 2022 as previously reported.

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

8.3 Planned Maintenance Shutdown Schedule 2023