



PTT Global Chemical Public Company Limited

Management Discussion and Analysis Q3/2022

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1. Executive Summary

In Q3/2022, PTT Global Chemical Public Company Limited (“the Company”) had total sales revenue of Baht 181,536 million, decreased by 8% from Q2/2022 and increased by 62% from Q3/2021. The total revenue has declined by concerns on economic recession which resulted in a decline in global demand and prices of petroleum and petrochemical products. The Company had Adjusted EBITDA of Baht 10,374 million in this quarter, decreased from Q2/2022 and Q3/2021 by 51% and 34%, respectively, following, prices and spreads weakened for all major petroleum and petrochemical products. This is because of China's zero-COVID policy, which dragged down global economy. Additionally, market continue to be under pressure as many new suppliers are entering the market. Despite the aforementioned factors, the Company had Net Operating Profit Recurring (excluding Stock Loss Net NRV, Foreign Exchange Loss and Gain from financial derivative, Loss from commodity hedging, and Extraordinary items) of Baht 813 million. However, the oil price and exchange rates fluctuated due to the economic uncertainties. As a result, the Company had Stock Loss Net NRV of Baht 8,108 million, Loss from commodity hedging of Baht 2,111 million as the products spread was higher prices compared to the hedged prices of the commodity hedging which consists of realized loss of Baht 5,660 million and Unrealized gain of Baht 3,549 million, Foreign Exchange Loss of Baht 4,426 million, and Gain from financial derivatives of Baht 1,128 million. The Company had Share of Profit from Investments at Baht 306 million, declined from Q2/2022, mainly due to softened performance of petrochemical business. The Company recorded Net loss in Q3/2022 at Baht 13,384 million (Baht -2.97/share).

Table 1 : Performance Summary

(Unit: Million Baht)	Q3/2021	Q2/2022	Q3/2022	YoY		9M/2021	9M/2022	YoY	
				% +/-	QoQ			% +/-	% +/-
Sales Revenue	112,173	196,397	181,536	62%	-8%	325,830	553,487	70%	
EBITDA	15,251	11,380	155	-99%	-99%	48,465	22,123	-54%	
EBITDA Margin (%)	14%	6%	0.1%	-14%	-6%	15%	4%	-11%	
Share of profit of investments in JV and Associates	1,295	1,833	306	-76%	-83%	5,520	3,289	-40%	
Net Profit	7,005	1,388	(13,384)	<-200%	<-200%	41,735	(7,784)	-119%	
EPS (Baht/Share)	1.56	0.31	(2.97)	<-200%	<-200%	9.30	(1.73)	-119%	
Adjusted EBITDA*	15,756	21,029	10,374	-34%	-51%	46,453	45,676	-2%	
Adjusted EBITDA Margin (%)	14%	11%	6%	-8%	-5%	14%	8%	-6%	

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

In Q3/2022, The Company commenced to report the performance by segment into five new business groups, including Upstream, Intermediates, Polymers & Chemicals, Bio & Circularity, and Performance Chemicals, which aligns to the strategic direction and long-term growth target of the Company.

In Q3/2022, Upstream Business performance slowed down compared to previous quarter due to spreads weakened for all major petroleum products as the demand dropped, and concerns about economic recession. The Market GRM was at 9.8 USD per barrel, supported by spread margin of Diesel which remained at high level. There was a decrease in products spreads both Paraxylene and Benzene from weak demand for end products, this resulted

to the BTX P2F was dropped to 78 USD per ton. For Olefin products, the price of ethylene has dropped significantly more than feedstock prices.

Intermediates Business performance slowed down compared to previous quarter due to Phenol market was weak as the pressure of weak downstream demand and oversupply, especially Bisphenol A (BPA) products. PTA products was under pressure from weak downstream demand. For Polymers & Chemicals in Q3/2022, the performance was slightly decreased form previous quarter due to the decrease in plastic resins prices, in line with a decline in feedstock costs, low demand caused by China's zero-COVID policy and concerns on economic recession.

Bio & Circularity Business performance declined compared to previous quarter due to weak margins of Methyl Ester and Fatty alcohols, as demand weakened. Performance Chemicals Business can still maintain effective cost and price management. Even though, total sale volume slightly declined from previous quarter due to sluggish downstream demand.

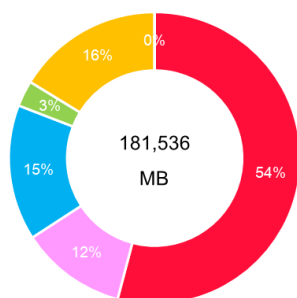
Table 2 : Adjusted EBITDA by Business Unit

Adjusted EBITDA Margin by Business Unit	Q3/2021	Q2/2022	Q3/2022	YoY	QoQ	9M/2021	9M/2022	YoY
				% +/-	% +/-			% +/-
Adjusted EBITDA (Million Baht)								
Upstream	6,148	11,558	3,559	-42%	-69%	18,711	19,958	7%
Intermediates	5,511	1,625	707	-87%	-57%	15,178	4,953	-67%
Polymers & Chemicals	2,754	3,148	2,655	-4%	-16%	9,400	7,413	-21%
Bio & Circularity	440	649	352	-20%	-46%	917	1,689	84%
Performance Chemicals	699	3,665	2,330	>200%	-36%	1,357	10,202	>200%
Service and Others	204	384	770	>200%	100%	890	1,460	64%
total	15,756	21,029	10,374	-34%	-51%	46,453	45,676	-2%
Adjusted EBITDA margin (%)								
Upstream	12	11	4	(8)	(8)	11	7	(4)
Intermediates	23	6	3	(20)	(3)	24	7	(17)
Polymers & Chemicals	10	10	10	(0)	(1)	12	8	(4)
Bio & Circularity	10	10	7	(3)	(3)	7	9	2
Performance Chemicals	18	12	8	(10)	(4)	13	11	(2)
Average	14	11	6	(8)	(5)	14	8	(6)

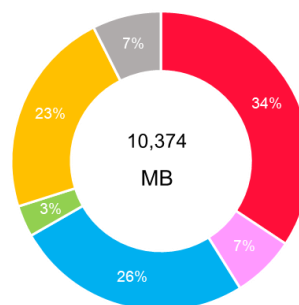
* Adjusted EBITDA refers to EBITDA excluding Stock gain/(loss),NRV, Gain/(loss) from commodity hedging, and Extra item

Q3'2022

Sales Revenue



Adjusted EBITDA



2. Performance Analysis by Business Unit

2.1 Upstream

Table 3: Price, Product Spreads and performance of Upstream

	Q3/2021	Q2/2022	Q3/2022	YoY % +/-	QoQ % +/-	9M/2021	9M/2022	YoY % +/-
Dubai Crude Oil (\$/bbl)	71.7	108.1	96.9	35%	-10%	66.2	100.2	51%
Diesel-Dubai (\$/bbl)	5.4	43.1	35.2	>200%	-18%	5.1	32.6	>200%
LSFO-Dubai (\$/bbl)	11.4	33.2	21.1	85%	-36%	12.1	25.1	108%
Gasoline-Dubai (\$/bbl)	11.6	35.0	13.2	14%	-62%	9.6	22.0	129%
Jet-Dubai (\$/bbl)	5.3	39.2	32.4	>200%	-17%	4.4	29.3	>200%
Market GRM (\$/bbl)	3.2	21.1	9.8	>200%	-54%	2.8	12.8	>200%
Condensate (\$/ton)	616	933	820	33%	-12%	567	863	52%
Paraxylene (FECP)-Condensate (\$/ton)	304	327	276	-9%	-16%	276	284	3%
Benzene-Condensate (\$/ton)	377	306	158	-58%	-48%	337	234	-31%
BTX P2F (\$/ton)	188	117	78	-58%	-33%	172	81	-53%
Naphtha (MOPJ) (\$/ton)	676	875	714	6%	-18%	613	822	34%
Ethylene (SEA) (\$/ton)	992	1,197	942	-5%	-21%	980	1,104	13%
Propylene (SEA) (\$/ton)	930	1,106	895	-4%	-19%	975	1,051	8%
Hedging Gain/(Loss) (MB)	(1,492)	(12,734)	(2,111)	-41%	83%	(2,701)	(23,422)	<-200%
Stock Gain/(Loss) and NRV (MB)	1,151	3,256	(8,025)	<-200%	<-200%	4,901	1,394	-72%
Adjusted EBITDA* (MB)	6,148	11,558	3,559	-42%	-69%	18,711	19,958	7%
Adjusted EBITDA (%)	12%	11%	4%	-8%	-8%	11%	7%	-4%
Petroleum Product Sales Volume (million bbl)	10.43	14.13	15.26	46%	8%	37.53	43.12	15%
Petrochemical Product Sales Volume (million ton)	1.46	1.24	1.30	-11%	5%	4.15	3.91	-6%

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

For Upstream in Q3/2022, The Adjusted EBITDA was Baht 3,559 million, which decreased from the previous quarter by 69%, and the Adjusted EBITDA Margin was at 4%. The overall product sales volume increased from Q2/2022 with Petroleum sales volume at 15.26 million barrels and Petrochemical sales volume at 1.30 million tons after the completion of the planned maintenance shutdown of Olefins plant 3 in Q3/2022, while the Refinery business had full operating rate in this quarter. The performance decreased as follows:

1. For the Refinery business in Q3/2022, the performance decreased from the previous quarter resulting from a decline in main product spreads which included Diesel, Low Sulfur Fuel Oil, and Gasoline spread mainly due to weak demand after the end of the driving season in North America and heavy monsoon rainfalls in Asia. Also, the crude oil market was pressured by the increase of supply in Asia due to a higher export from China and the Middle East resulting in the Market GRM being decreased to 9.8 USD per barrel.
2. For the Aromatics business in Q3/2022, the performance decreased from the previous quarter resulting from a decline in Paraxylene (FECP) and Benzene over Condensate spread due to lower demand of the Polyester

market. Also, the level of production for Polyester has been pressured by the Zero Covid policy in China, despite the slowdown in production by some local paraxylene producers. While Benzene was pressured by a weak downstream market even with low inventory in China resulting in the Market P2F being decreased to 78 USD per ton.

- For the Olefins business in Q3/2022, the performance decreased from the previous quarter resulting from the Ethylene price was decreased following the Crude oil price and the downside of the downstream market from the Zero Covid policy in China and global economic recession concern even the slowdown in production of some olefins producers in the region.

2.2 Intermediates

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

(Unit : USD per ton)	Q3/2021	Q2/2022	Q3/2022	YoY % +/-	QoQ % +/-	9M/2021	9M/2022	YoY % +/-
Mono-ethylene glycol (MEG -ACP)	845	968	897	6%	-7%	816	926	13%
MEG - 0.65 Ethylene	200	190	284	42%	49%	179	208	16%
Phenol	1,248	1,438	1,211	-3%	-16%	1,144	1,381	21%
Phenol spread*	399	294	301	-25%	2%	443	358	-19%
Bisphenol A (BPA)	3,322	2,061	1,580	-52%	-23%	3,027	1,993	-34%
BPA spread*	2,052	627	381	-81%	-39%	1,805	620	-66%
Propylene Oxide (PO)	2,037	1,347	1,098	-46%	-19%	2,119	1,289	-39%
Purified Terephthalic Acid (PTA)	707	951	845	20%	-11%	657	875	33%
PTA - 0.67PX	90	107	111	23%	4%	93	106	15%
Acrylonitrile (AN)	2,174	1,846	1,539	-29%	-17%	2,254	1,754	-22%
AN - Propylene	1,244	740	644	-48%	-13%	1,279	703	-45%
Methyl Methacrylate (MMA)	2,058	2,169	1,814	-12%	-16%	1,988	1,968	-1%
MMA - Naphtha	1,382	1,293	1,100	-20%	-15%	1,375	1,146	-17%
Adjusted EBITDA (MB)	5,511	1,625	707	-87%	-57%	15,178	4,953	-67%
Adjusted EBITDA (%)	23%	6%	3%	-20%	-3%	24%	7%	-17%
Sales Volume (Kton)	789	767	709	-10%	-8%	2,167	2,202	2%
Share of gain/(loss) from investment (MB)	20	3	(214)	<-200%	<-200%	1,010	(256)	-125%

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

For Intermediates in Q3/2022, the Adjusted EBITDA was Baht 707 million, which decreased from the previous quarter by 57%, and the Adjusted EBITDA Margin was at 3%. The overall product sales volume was 709 Kton which decreased from Q2/2022 by 8% due to the planned maintenance shutdown of the BPA plant for 33 days. Overall, the Intermediates products spread were lower. Also, the decline in the Phenol, MEG, and PTA market due to global economic recession and inflation concern impacted the demand downstream, especially the textile industry, construction industry, and electronic industry in China, which is the major market. There were BPA producers in China which started commercial operation in Q3/2022 which impacted the slowdown of Intermediates product prices from the previous quarter even though the PTA product spread was stable due to the constant market demand.

2.3 Polymers & Chemicals

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

(Unit : USD per ton)	Q3/2021	Q2/2022	Q3/2022	YoY % +/-	QoQ % +/-	9M/2021	9M/2022	YoY % +/-
Average Polyethylene(PE)	1,240	1,461	1,168	-6%	-20%	1,273	1,355	6%
High-Density Polyethylene (HDPE)	1,138	1,341	1,104	-3%	-18%	1,158	1,258	9%
HDPE-Ethylene	146	144	162	11%	12%	178	154	-14%
Linear Low-Density Polyethylene (LLDPE)	1,185	1,383	1,100	-7%	-20%	1,172	1,276	9%
LLDPE-Ethylene	193	186	158	-18%	-15%	192	171	-11%
Low-Density Polyethylen (LDPE)	1,398	1,658	1,300	-7%	-22%	1,490	1,532	3%
LDPE-Ethylene	406	461	358	-12%	-22%	511	428	-16%
Polyethylene Terephthalate (PET)	965	1,227	1,096	14%	-11%	939	1,158	23%
Polypropylene (PP)	1,250	1,356	1,088	-13%	-20%	1,317	1,276	-3%
PP- Naphtha	574	480	374	-35%	-22%	704	454	-36%
Polyvinyl chloride (PVC)	1,332	1,346	918	-31%	-32%	1,370	1,213	-11%
PVC-0.5Ethylene	836	748	447	-47%	-40%	880	661	-25%
Polyols	2,308	1,812	1,407	-39%	-22%	2,482	1,741	-30%
Polyols-0.92PO	433	572	397	-8%	-31%	532	556	4%
Adjusted EBITDA (MB)	2,754	3,148	2,655	-4%	-16%	9,400	7,413	-21%
Adjusted EBITDA (%)	10%	10%	10%	0%	-1%	12%	8%	-4%
Sales Volume (Kton)	613	545	515	-16%	-5%	1,763	1,658	-6%
Share of gain/(loss) from investment (MB)	735	812	207	-72%	-75%	2,437	1,699	-30%

For Polymers and Chemicals in Q3/2022, the Adjusted EBITDA was Baht 2,655 million, which decreased from the previous quarter by 16%, and the Adjusted EBITDA Margin was at 10%. The overall product sales volume was 515 Kton which decreased from Q2/2022 by 5%.

The Polymers market demand was under pressure mainly due to Zero Covid policy in China, which led to lockdowns in many cities and impacted the slowdown in demand. Also, the inventory of buyers remains in a wait-and-see mode as the concerns for global economic recession and high inflation. The supply was adequate and increased from higher production in China, Malaysia, and the Middle East, despite some producers reducing their production rates in this quarter.

According to the market situation and lower crude oil prices, the Polymer price decreased, and the average Polyethylene (PE) price was 1,168 USD per ton, which decreased from Q2/2022 by 20%. Polypropylene (PP) price was 1,088 USD per ton, which decreased from Q2/2022 by 20%, while PET price was 1,096 USD per ton decreased from Q2/2022 by 11% in line the Crude oil price, while the demand for PET was only slightly decreased due to the stability demand from the food packaging industry. Polyols price was 1,407 USD per ton, which decreased from Q2/2022 by 22% due to the higher supply of Polyols manufactories in China, and the downside from the slowdown of demand in China from the Zero Covid policy.

2.4 Bio & Circularity

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

(Unit : USD per ton)	Q3/2021	Q2/2022	Q3/2022	YoY % +/-	QoQ % +/-	9M/2021	9M/2022	YoY % +/-
Methyl Ester (ME) P2F (THB per Kilogram)	3.11	3.11	3.11	0%	0%	3.11	3.11	0%
Fatty Alcohol (FA) P2F	315	580	641	103%	11%	285	487	71%
Adjusted EBITDA (MB)	440	649	352	-20%	-46%	917	1689	84%
Adjusted EBITDA (%)	10%	10%	7%	-3%	-3%	7%	9%	2%
ME Sales Volume (Kton)	76	70	74	-2%	6%	243	217	-11%
FA Sales Volume (Kton)	26	25	28	8%	12%	64	76	18%
Share of gain/(loss) from investment (MB)	342	589	206	-40%	-65%	1,043	1,287	23%

For Bio and Circularity in Q3/2022, the Adjusted EBITDA was Baht 352 million, which decreased from the previous quarter by 46%, and the Adjusted EBITDA Margin was at 7%. Methyl Ester (ME) and Fatty Alcohol (FA) sales volume increased from the previous quarter since the period of maintenance shutdown of FA plant in Q2/2022 was longer than the maintenance period in Q3/2022. In term of demand of ME market, besides the recovery of COVID-19 outbreak in Thailand, the demand was still soft. In addition, the government policy has stipulated biodiesel B5 by decreasing biodiesel blending portion and no longer offering for B7, B10, and B20 since February 2022 to relieve the high cost of living during energy crisis. Hence, this affected the decrease in ME demand compared to last year. The demand of FA market has risen from the COVID-19 recovery in main customers from various countries.

2.5 Performance Chemicals

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

(Unit : USD per ton)	Q3/2021	Q2/2022	Q3/2022	YoY % +/-	QoQ % +/-	9M/2021	9M/2022	YoY % +/-
Adjusted EBITDA (MB)	699	3,665	2,330	>200%	-36%	1,357	10,202	>200%
Adjusted EBITDA (%)	18%	12%	8%	-10%	-4%	13%	11%	-2%
Sales Volume (million ton)	12	221	205	>200%	-7%	708	653	-8%
Share of gain/(loss) from investment (MB)	(5.9)	9.6	(1.6)	73%	-117%	-15.8	-4.5	71%

Note : the Company realized allnex performance since January 2022.

For Performance Chemicals in Q3/2022, the Adjusted EBITDA was Baht 2,330 million, which decreased from the previous quarter by 36%, and the Adjusted EBITDA Margin was at 8% due to the weak demand resulting in the drop in sales volume from last quarter. 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, global economic recession 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.

3. Operating Performance

Unit : MB		Q3/2021	Q2/2022	Q3/2022	YoY % + /(-)	QoQ % + /(-)	9M/2021	9M/2022	YoY % + /(-)
1	Sales Revenue	112,173	196,397	181,536	62%	-8%	325,830	553,487	70%
2	Feedstock cost	(80,121)	(150,265)	(143,018)	79%	-5%	(235,211)	(428,711)	82%
3	Product to Feed Margin	32,052	46,132	38,518	20%	-17%	90,619	124,776	38%
4	Variable Cost	(8,322)	(11,636)	(13,854)	66%	19%	(23,493)	(38,096)	62%
5	Fixed OH	(4,705)	(7,316)	(8,341)	77%	14%	(12,237)	(22,593)	85%
6	Stock Gain/(Loss) and NRV	1,171	3,085	(8,108)	<-200%	<-200%	4,914	(140)	-103%
7	Gain/(Loss) on Commodity Hedging	(1,676)	(12,734)	(2,111)	-26%	83%	(2,902)	(23,413)	<-200%
8	Other Revenue	1,279	1,587	1,875	47%	18%	3,466	4,993	44%
9	SG&A Expenses	(4,548)	(7,738)	(7,824)	72%	1%	(11,902)	(23,404)	97%
10	EBITDA	15,251	11,380	155	-99%	-99%	48,465	22,123	-54%
11	Depreciation & Amortization	(5,893)	(6,768)	(7,123)	21%	5%	(17,185)	(20,411)	19%
12	Loss from impairment of assets	-	-	-	-	-	(3,021)	-	-100%
13	Gain on sale of investment	-	-	-	-	-	11,834	-	-100%
14	Gain from remaining investment reclassification	-	-	-	-	-	10,565	-	-100%
15	Technical incident in the warehouse construction project	-	-	(851)	-	100%	-	(851)	100%
16	EBIT	9,358	4,612	(7,819)	-184%	<-200%	50,659	861	-98%
17	Net financial expense	(1,540)	(2,277)	(2,474)	61%	9%	(4,034)	(6,766)	68%
18	FX Gain(Loss)	(1,147)	(2,666)	(3,298)	-187%	-24%	(2,865)	(4,303)	<-200%
19	Share of gain/(loss) from investment	1,295	1,833	306	-76%	-83%	5,520	3,289	-40%
20	Corporate Income Tax	(727)	324	101	-114%	-69%	(7,038)	242	-103%
21	Net Profit after Tax	7,239	1,826	-13,184	<-200%	<-200%	42,242	-6,677	-116%
Profit/(loss) attributable to:									
22	Non-controlling interests	234	438	200	-15%	-54%	507	1,107	>200%
23	Owners of the Company	7,005	1,388	-13,384	<-200%	<-200%	41,735	-7,784	-119%
24	Adjusted EBITDA*	15,756	21,029	10,374	-34%	-51%	46,453	45,676	-2%

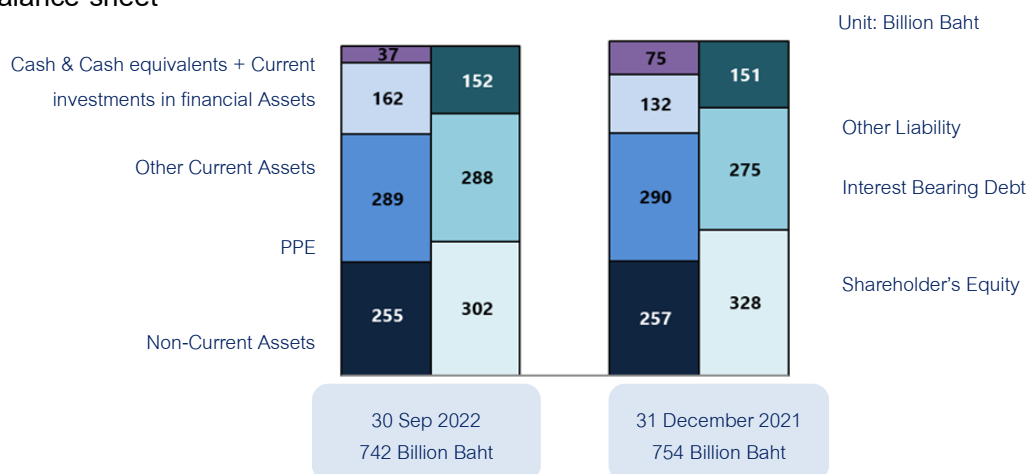
Note: * Adjusted EBITDA refers to EBITDA excluding Stock gain/(loss),NRV, Gain/(loss) from commodity hedging, and Extra item

- In Q3/2022, the Company had higher sales revenue of Baht 181,536 million than Q3/2021 as the overall products price increased due to higher crude oil price and consolidation of allnex's financial performance. While the Company had lower sales revenue than Q2/2022 as the overall products price decreased due to a slowdown in demand from global economic recession and inflation concern. The lower sales revenue was primarily due the decline in the revenue of the Upstream business units.
- The Company had higher Variable costs than Q2/2022 and Q3/2021 due to Variable costs from allnex and higher fuel costs. In addition, the Company had planned maintenance shutdown of the Olefins plant 3 in Q2/2022.
- Fixed overhead and SG&A expenses went up from the previous quarter and Q3/2021 because of consolidation of allnex's expenses and higher energy service expenses of Baht 293 million.
- Depreciation and Amortization increased from Q2/2021 due to allnex's depreciation and amortization.
- Expense related to technical incident in the warehouse construction project in Q3/2022 was recorded of provision for the loss of the damaged inventory and the expenditure of recovery of the technical Incident related to warehouse construction for 851 million baht.
- The Company had an increase in Financial Expenses from Q2/2022 due to additional debt financing and bond issuance in June 2022.

- The Company had Foreign Exchange loss in Q3/2022 by Baht 4,426 million due to the depreciation in Baht currency from Q2/2022. However, the Company had Financial Derivatives gain of Baht 1,128 million, resulting in a net loss of 3,298 million.
- In Q3/2022, the Company's share from investment decreased from the previous quarter mainly driven by the decreased performance from the global economic recession, which impacted to decline in the product spread.

4. Statements of Financial Position

4.1 Balance sheet



Assets

As of September 30, 2022, the Company had total asset of Baht 742,464 million, decreased by 2% or Baht 11,651 million from December 31, 2021 and variance of assets were described as follows:

- Total Current asset decreased by Baht 8,430 million mainly due to 1) a decrease in Cash and Cash Equivalents and Current Investments in financial assets by Baht 38,312 million due to repayment of USD bond by USD 1,000 million in September 2022 (refer to cash flows analysis) 2) an increase in Account Receivable by Baht 4,605 million, 3) Inventories was increased by Baht 18,528 million due to higher crude oil and product prices.
- Property plant and equipment decreased by Baht 743 million mainly due to depreciation for the 9-month period which increased by Baht 14,768 million, while the projects in progress that were completed during the period was Baht 14,020 million.
- Non-current asset decreased by Baht 2,478 million from 1) Other non-current financial assets decreased by Baht 7,171 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 4,970 million and goodwill by Baht 1,211 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 6,156 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%. On 1st July 2022, VNT's amalgamation was completed and re-named as AGC Vinythai Public Company Limited (AVT), 4) Non-current derivative assets was increased by Baht 3,289 million due to Cross Currency Swap.

Liabilities

As of September 30, 2022, the Company had total liabilities of Baht 440,358 million, increased by 3% or Baht 13,846 million from December 31, 2021 and movements of liabilities were as follows:

- Interest-bearing debt increased by Baht 12,669 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, and repayment of USD 1,000 million bonds in September 2022.

- Other liabilities increased by Baht 1,177 million due to 1) Account payable increased by Baht 8,175 million due to higher raw material price and Account payable of allnex. 2) Other current liabilities decreased by Baht 2,532 million resulting from the transaction related to allnex acquisition at the end of 2021. 3) Other non-current liabilities decreased by Baht 4,465 million due to decreased Deferred tax liabilities.

Shareholder's Equity

As of September 30, 2022, the Company had total Shareholder's Equity of Baht 302,106 million, which decreased by Baht 25,497 million from December 31, 2021, as a result from Net loss for 9 months of Baht 7,784 million. The Company had dividend payment for 2021 of Baht 7,890 million and interim dividend payment for 2022 of Baht 3,382 million. Additionally, the Company had lower Other components of equity by Baht 6,999 million.

4.2 Cashflow statement

Cashflow (Unit: Million Baht)	For the 9 months period Ended 30 Sep 2022
Net cash flows provided by operating activities	(1)
Net cash flows used in investing activities	533
Net cash flows provided by financing activities	(22,790)
Net increase (decrease) in cash and cash equivalents, before effect from foreign exchange rate	(22,258)
Effects of exchange rates on cash and cash equivalents	1,368
Net decrease in cash and cash equivalents during the period	(20,890)
Cash and cash equivalents at the beginning of the period	55,613
Cash and cash equivalents at the end of the period	34,723
Current investments in financial assets at the end of the period	1,959
Net cash and cash equivalent and investment at the end of the period	36,682

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

- Cash flows used by operating activities of Baht 1 million due to Loss in Net Profit for 9 months (included Non-controlling profit) of Baht 6,677 million, and add back Non-cash items of Baht 39,211 million. The Company had Share of Profit from Investments in JV and associates of Baht 2,941 million, and Changes in operating assets and liabilities of Baht 32,535 million.
- Cash flow used in investing activities of Baht 533 million. The bond proceeds was applied to invest in financial assets of Baht 17,560 million. The Company had dividend from Investments in JV and

associates of Baht 2,876 million, and cash paid for property, plant, and equipment, and intangible assets amounting to Baht 14,543 million, for example, Olefins 2 Modification Project (OMP) and planned maintenance shutdown of Ethane Cracker. The Company had cash paid for investment subsidiaries, associates, and joint ventures of Baht 6,081 million, which was mainly from the purchase of VNT shares by Baht 5,934 million.

- Cash flow provided by financing activities of Baht 22,790 million mainly due to the proceeds from Bonds issuance by Baht 100,042 million, PTT TCC long-term loan prepayment by Baht 55,600 million, cash paid for finance costs by Baht 9,420 million, Dividend payment by Baht 11,746 million, and cash paid for financial costs by Baht 7,545 million.
- As a result, as of September 30, 2022, the Company had total Cash and Cash Equivalents of Baht 34,723 million, along with Current investments in financial assets of Baht 1,959 million. Hence, the Company had total cash and cash equivalent and investment of Baht 36,682 million. The Company had Net interest-bearing debt to equity at 0.77 times and Net interest-bearing debt to EBITDA at 7.22 times.

4.3 Key Financial Ratios

Financial Ratios	Q3/2021	Q2/2022	Q3/2022
Current Ratio (Times)	2.18	1.52	1.60
EBITDA to Sales Revenue (%)	14.27%	8.00%	5.02%
Net Profits to Sales Revenues (%)	11.65%	2.54%	-0.65%
Return on Total Assets (%)	11.96%	3.73%	0.81%
Return on Equity (%)	16.38%	5.12%	-1.50%
Interest Bearing Debt to Equity (Times)	0.58	0.99	0.95
Net Interest Bearing Debt to Equity (Times)	0.20	0.72	0.83
Interest Bearing Debt to EBITDA (Times)	3.15	6.30	8.28
Net Interest Bearing Debt to EBITDA (Times)	1.19	4.58	7.22

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 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 Q1/2023.
- 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	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.

6. Market and Business Outlook in 2023

The global economy continues to be impacted by multiple factors, a prolonged period of the Russia-Ukraine conflict. In response to Russia's invasion of Ukraine, sanctions were imposed on Russian economy and energy, which have caused direct impacts on economies around the globe. These resulted to impact to the global energy supply and prices, and global inflationary. Additionally, there is uncertainty surrounding the COVID-19, specifically from China's zero-COVID policy, which has continued to hamper the economy. The IMF has revised down the expected world economy growth to 2.7% in 2022 (As of October 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.

Upstream business unit

The Company anticipates that the average price of Dubai crude oil will be within the range of 85-90 USD per barrel. The International Energy Agency (IEA) had estimated the crude oil demand (as of October 2022) in 2023 at 101.3 million barrels per day, increased by 1.7 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, especially in China, the increase in OPEC supply, and global economic trends and prospects.

For Petroleum products, the Company anticipates that products price and products spread will be softened in 2023 comparing with this year 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 22-24 USD per barrel while Low Sulfur Fuel Oil (LSFO) over Dubai crude oil spread to be 16-20 USD per barrel. The expected Gasoline over Dubai crude oil spread is 12-15 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 101%.

For Aromatics products, Paraxylene over Naphtha spread is expected to be stable at 300-310 USD per ton. As more producers enter the market, 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 by easing lockdown. Benzene over Naphtha spread is expected to be 240-255 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 91% 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 1,070-1,090 USD per ton. Propylene is expected to be 1,030-1,050 USD per ton, however, the supply will be pressured by new capacity in China. The Company expects Olefins utilization rate to be around 89% 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

Phenol market trend in 2023, the Company anticipates that Phenol P2F spread will be at 300-320 USD per ton, new supply is predicted to enter the market, along with new capacity from Bisphenol A (BPA). The demand for end products recovery is continuing from policies launching in China to stimulate vehicle and construction markets.

For MEG and PTA market, the Company expects that the average MEG price will be 660-670 USD per ton which higher than the current average market price. PTA price is expected to be stable. The expected demand from downstream business is expected to gradually recover same as Paraxylene products.

Polymers & Chemicals Business unit

The Company anticipates that the average HDPE price is expected to be 1,210-1,220 USD per ton. This supported by the stronger demand for packaging, along with the decrease of new capacity, even there are concerns about the economic uncertainty. The Company expects that Polyethylene plants utilization rate will be around 102% in 2023.

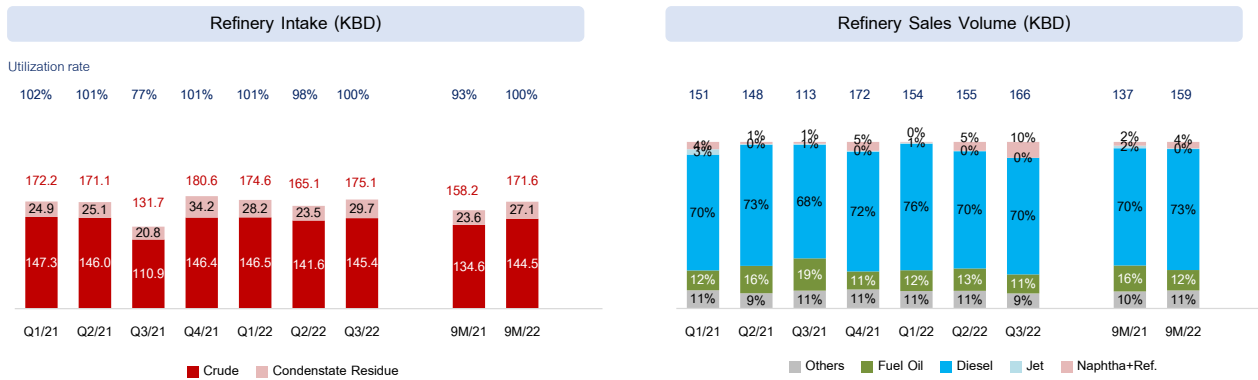
Performance Chemicals Business unit

The end markets industry such as automotive industry, and construction industry are expected to be recovered next year as the launches policies to expand and stimulate both industries in China. For packaging industry is expected to grow follow an upward economic growth trend.

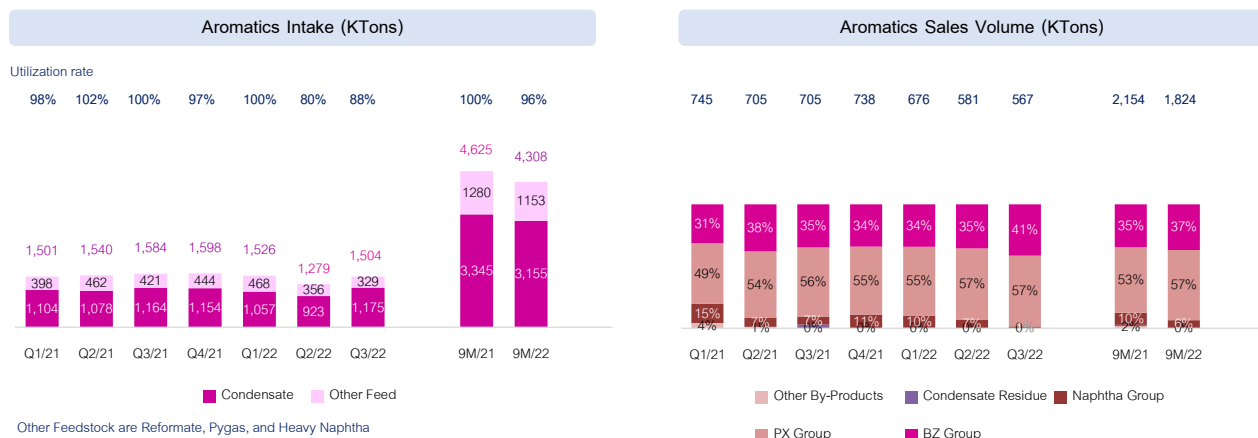
7. Appendix

7.1 Production and Sales

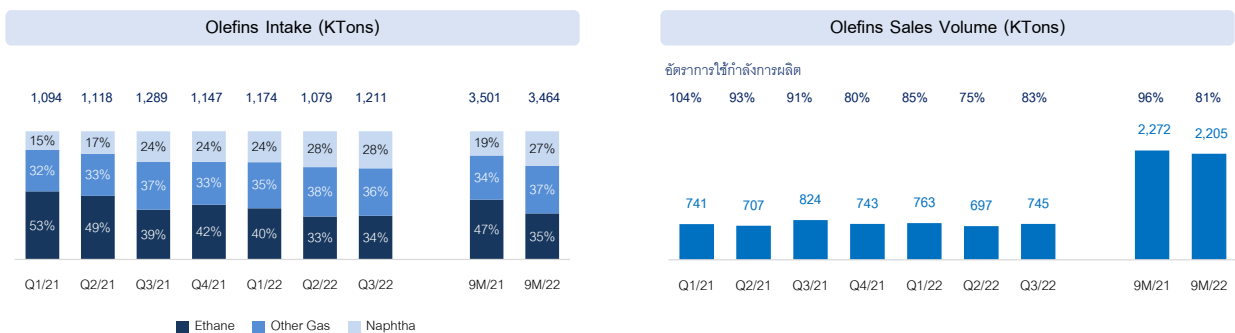
Graph 1: Refinery Intake and Sales Volume



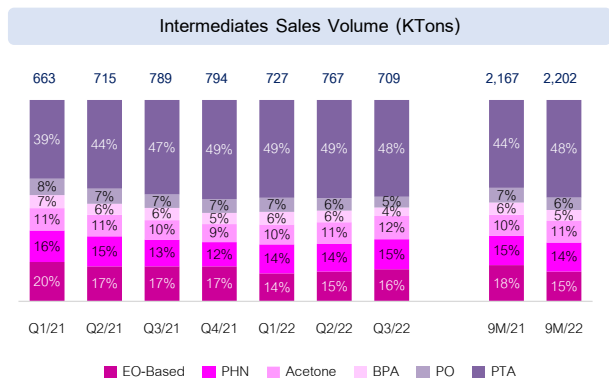
Graph 2: Aromatics Intake and Sales Volume (BTX)



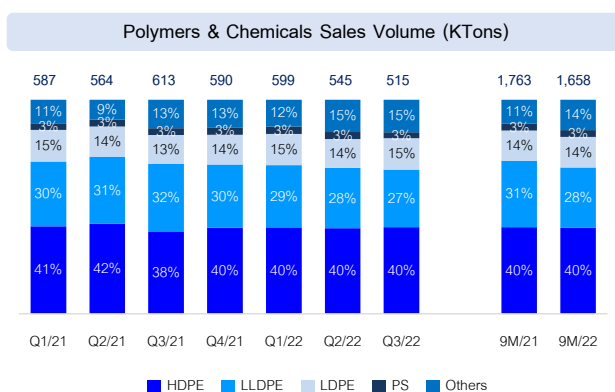
Graph 3: Olefins Intake and Olefins and Derivatives Sales Volume



Graph 4: Intermediates products sales Volume



Graph 5: Polymers & Chemicals products sales Volume



Graph 6: Utilization rate

Utilization rate	Q1/21	Q2/21	Q3/21	Q4/21	Q1/22	Q2/22	Q3/22	9M/21	9M/22
Upstream									
- Refinery	102%	101%	77%	101%	101%	98%	100%	93%	100%
- Aromatics	98%	102%	100%	97%	100%	80%	88%	100%	96%
- Olefins	104%	93%	91%	80%	85%	75%	83%	96%	81%
Intermediates									
- MEG	105%	104%	110%	99%	66%	88%	84%	106%	79%
- Phenol	119%	115%	118%	101%	119%	118%	116%	117%	118%
- BPA	114%	103%	121%	107%	119%	112%	71%	113%	100%
- PO	89%	100%	99%	53%	104%	81%	69%	96%	84%
Polymers & Chemicals									
HDPE	107%	107%	104%	102%	111%	102%	95%	106%	103%
LLDPE	96%	106%	95%	93%	92%	80%	97%	99%	90%
LDPE	123%	100%	123%	100%	128%	85%	128%	115%	114%
Total PE	105%	105%	104%	98%	106%	90%	101%	105%	99%

7.2 Detail of Adjusted EBITDA by Business Unit

Adjusted EBITDA Margin by Business Unit	Q3/2021	Q4/2021	Q1/2022	Q2/2022	Q3/2022	YoY	QoQ	9M/2021	9M/2022	YoY
						% +/-	% +/-			% +/-
Adjusted EBITDA (Million Baht)										
Upstream	6,148	4,115	4,841	11,558	3,559	-42%	-69%	18,711	19,958	7%
Refinery	528	2,586	3,342	10,297	4,958	>200%	-52%	1,882	18,596	>200%
Aromatics	2,449	133	-1,106	673	-8	-100%	-101%	5,574	-441	-108%
Olefins	3,171	1,397	2,606	588	-1,391	-144%	<-200%	11,254	1,803	-84%
Intermediates	5,511	3,851	2,621	1,625	707	-87%	-57%	15,178	4,953	-67%
Polymers & Chemicals	2,754	2,418	1,610	3,148	2,655	-4%	-16%	9,400	7,413	-21%
Bio & Circularity	440	580	687	649	352	-20%	-46%	917	1,689	84%
Performance Chemicals	699	422	4,207	3,665	2,330	>200%	-36%	1,357	10,202	>200%
Service and Others	204	-1,213	306	384	770	>200%	100%	890	1,460	64%
total	15,756	10,173	14,273	21,029	10,374	-34%	-51%	46,453	45,676	-2%
Adjusted EBITDA margin (%)										
Upstream	12	5	6	11	4	(8)	(8)	11	7	(4)
Intermediates	23	16	12	6	3	(20)	(3)	24	7	(17)
Polymers & Chemicals	10	9	5	10	10	(0)	(1)	12	8	(4)
Bio & Circularity	10	10	11	10	7	(3)	(3)	7	9	2
Performance Chemicals	18	11	14	12	8	(10)	(4)	13	11	(2)
Average	14	7	8	11	6	(8)	(5)	14	8	(6)

7.3 Planned Maintenance Shutdown Schedule 2023

Plant		2023												
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
OLE	Cracker		59						39		OLE1 T/A			
	Oleflex		OLE2/2 T/A *Postpone from Dec'22					65						
POL	HDPE								21		HDPE1/1			
									23		HDPE1/2			
									16		HDPE2			
	LDPE		12								24			
	LLDPE I				30									
	LLDPE II											20		
	PS									21				
EOB	TOCGC	61												
	EA	67												
PHN	Phenol I												15	
	Phenol II									32				
	BPA											18		
REF	Refinery													
ARO1	Aromatics I													
ARO2	Aromatics II						37							
GCO	PO													