

Management's Discussion and Analysis (MD&A)

Thai Oil Public Company Limited

For The Second Quarter and
The First Half of 2022



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Management's Discussion and Analysis (MD&A)
Thai Oil Public Company Limited and Subsidiaries
For the Second Quarter and the First Half of 2022

1. Company and its Subsidiaries' Operating Results

Table 1: Summary of Consolidated Financial

(Million Baht)	Q2/22	Q1/22	+ / (-)	Q2/21	+ / (-)	6M/22	6M/21	+ / (-)
Integrated Intake (kbd)	312	303	9	273	39	307	275	32
Gross Integrated Margin (GIM) ⁽¹⁾ (US\$/bbl)								
: <u>excluding</u> Stock Gain/(Loss)	25.6	7.6	18.0	5.2	20.4	17.0	4.7	12.3
: <u>including</u> Stock Gain/(Loss)	33.4	23.6	9.8	10.0	23.4	28.7	10.1	18.6

(Million Baht)	Q2/22	Q1/22	+ / (-)	Q2/21	+ / (-)	6M/22	6M/21	+ / (-)
Sales Revenue	143,892	114,506	29,386	78,120	65,772	258,397	151,570	106,827
Net Realized Loss on Financial Instruments	(10,263)	(5,727)	(4,536)	(56)	(10,207)	(15,990)	(175)	(15,815)
EBITDA	22,322	13,034	9,288	7,003	15,319	35,357	15,275	20,082
Net Gain/(Loss) on Fair Value Measurement of Financial Instruments	(2,383)	(1,625)	(758)	(1,043)	(1,340)	(4,008)	(827)	(3,181)
Net Foreign Exchange Gain/(Loss) ⁽²⁾	(1,317)	311	(1,628)	(1,286)	(31)	(1,006)	(3,889)	2,883
Gain from disposal of investment in an associate	10,038	-	10,038	-	10,038	10,038	-	10,038
Gain from reclassification of investment	7,297	-	7,297	-	7,297	7,297	-	7,297
Finance Costs	(966)	(961)	(5)	(907)	(59)	(1,926)	(1,703)	(223)
Reversal of Income Tax (Expense)	(7,509)	(1,672)	(5,837)	(358)	7,867	(5,837)	(746)	(5,091)
Net Profit/(Loss)	25,327	7,183	18,144	2,123	23,204	32,510	5,483	27,027
Basic Earnings/(Loss) per Share (Baht)	12.41	3.52	8.89	1.04	11.37	15.94	2.69	13.25

Stock Gain/(Loss)	7,557	14,472	(6,915)	3,783	3,774	22,029	8,439	13,590
Reversal/ (Write-Down) on Crude and Petroleum Product Inventory ⁽³⁾	259	(2,609)	2,868	(71)	330	(2,350)	38	(2,388)

Exchange Rate (Baht: 1 US\$)	Q2/22	Q1/22	+ / (-)	Q2/21	+ / (-)	6M/22	6M/21	+ / (-)
Average FX	34.60	33.23	1.37	31.53	3.07	33.89	30.98	2.91
Ending FX	35.46	33.46	2.00	32.22	3.24	35.46	32.22	3.24

Remark (1) Gross integrated margin is the integrated gross margin among Thaioil refinery, Thai Paraxylene Co., Ltd., LABIX Co., Ltd. and Thai Lube Base Plc.

(2) Including net foreign exchange gain / (loss) on foreign currency assets and liabilities in Q2/22, Q1/22, Q2/21, 6M/22, and 6M/21 of Baht (1,298) million, Baht 167 million, Baht (1,444) million, Baht (1,131) million, Baht (3,522) million, respectively.

(3) Including reversal / (write-down) of allowance for decline in value of crude and petroleum product inventories adjusted to net realizable value and reversal / (write-down) of petroleum product at cost.

Compared Q2/22 with Q1/22, Thaioil and Subsidiaries reported increasing integrated intake owing to stronger demand following economic recovery and lockdown easing in various states and nations. Thaioil and Subsidiaries booked sales revenue of Baht 143,892 million, or an increase of Baht 29,386 million because of higher product selling prices from 1) economic recovery leading to higher demand and 2) concerns over Russia-Ukraine situation. In addition, GIM excluding stock gain / (loss) of 25.6 US\$/bbl was recorded during the period. This increase of 18.0 US\$/bbl was due to higher gross refining margin especially from gasoline, jet/kero and gasoil from stronger demand from both lockdown easing and driving season in the US. Additionally, supply was tightened from sanction on Russian oil export. For aromatics, PX spread over ULG95 was further pressured by higher ULG95 price and lower aromatic demand since the demand for aromatic products were still suppressed by COVID-19 situation. On the other hand, gross margin from surfactant business (LAB) was still at good level following higher demand for products and lower supply of LAB from maintenance shutdown at certain plants. Moreover, lube base oil over fuel oil spread improved from higher regional demand as a result of lockdown easing and city opening. Average crude oil price in Q2/22 rose from Q1/22 due to limited increase in supply from OPEC+ alliance since a number of its members could not increase their output as much. Moreover, crude price was supported by Russia-Ukraine tensions. Therefore, Thaioil and Subsidiaries recorded stock gain of Baht 7,557 million, a decrease of Baht 6,915 million from the previous quarter, and had GIM including stock gain / (loss) of 33.4 US\$/bbl, an increase of 9.8 US\$/bbl. Furthermore, there was a reversal on crude and petroleum product inventory of Baht 259 million compared while we had a write-down of Baht 2,609 million in Q1/22. Altogether with net realized loss on financial instruments of Baht 10,263 million, Thaioil and Subsidiaries reported EBITDA of Baht 22,322 million, an increase of Baht 9,288 million from the previous quarter. However, we had net loss on fair value measurement on financial instruments of Baht 2,383, or a larger loss of Baht 758 million from the previous period. With net foreign exchange loss of Baht 1,317 million (which included net foreign exchange loss on foreign currency assets and liabilities of Baht 1,298 million) due to Thai Baht depreciation, compared with net gain of Baht 311 million in Q1/22. Nevertheless, Thaioil and Subsidiaries booked gain from investment reclassification and disposal of our investment in Global Power Synergy (GPSC) of Baht 17,334 million (before tax) or Baht 12,880 million (after tax). Offsetting with depreciation, finance costs and income tax expense, Thaioil and Subsidiaries reported net profit of Baht 25,327 million or 12.41 Baht per share, an increase of Baht 18,144 million from previous quarter.

Compared Q2/22 with Q2/21, Thaioil and Subsidiaries reported higher integrated intake following resumption in economic activities and traveling restriction being lifted. As such, sales revenue increased by Baht 65,772 million tracking higher product average selling prices, which was in line with the higher crude oil price. In addition, Thaioil and Subsidiaries booked higher GIM excluding stock gain / (loss) of 20.4 US\$/bbl mainly due to a significant improvement in gasoline, jet/kero and gasoil spreads from lockdown easing and increases in international traveling. Furthermore, surfactant business, LAB, reported higher gross profit following continually high demand. Meanwhile, lube base oil spread over fuel oil decreased due to higher regional supply from the higher production of regional refineries. At the same time, PX spread over ULG95 decreased because crude oil price was still on the rise. With this increase in crude oil price, Thaioil and Subsidiaries reported a higher stock gain of Baht 3,774 million than in Q2/21. Moreover, a reversal of crude and petroleum product inventory of Baht 259 million was booked during the period, while there was a write down of crude and petroleum product inventory of Baht 71 million in Q2/21. Altogether with a net realized loss of fair value measurement of financial instruments of Baht 10,207 million, Thaioil and Subsidiaries reported a higher EBITDA of Baht 15,319 million. In Q2/22, Thaioil and Subsidiaries booked a higher net loss on fair value measurement of financial instruments of Baht 1,340 million. With higher net foreign exchange loss of Baht 31 million, depreciation, finance costs, and tax expenses, net profit rose by Baht 23,204 million from the same period last year.

For 6M/22 compared with 6M/21, Thaioil and Subsidiaries booked sales revenue of Baht 258,397 million, or an increase of Baht 106,827 million following higher product selling price tracking higher crude oil price. Additionally, gasoline, jet/kero and gasoil spreads

improved significantly as a result of lockdown easing and international travelling being lifted. Lube base oil spread over fuel oil and gross margin from LAB business also expanded. Thus, Thaioil and Subsidiaries booked higher GIM excluding stock gain loss of 12.3 US\$/bbl totaling to 17.0 US\$/bbl. During the period, we booked stock gain of Baht 22,029 million or an increase of Baht 13,590 million from the same period last year. A write down of inventory of Baht 2,350 million was booked during the period, while there was a reversal of Baht 38 million during the same period last year. With net realized loss from financial instruments of Baht 15,990 million, Thaioil and Subsidiaries booked EBITDA of Baht 35,357 million, or an increase of Baht 20,082 million. During the period, we booked loss from fair value measurement on our financial instrument of Baht 4,008 million and net foreign exchange loss of Baht 1,006 million from Baht depreciation. Furthermore, there were gain from investment reclassification and disposal of our investment in GPSC of Baht 17,334 million (before tax), or Baht 12,880 million (after tax), finance costs of Baht 1,926 million, or an increase of Baht 223 million from higher borrowings. Offsetting with depreciation and income tax expenses, we booked net profit of Baht 32,510 million, or an increase of Baht 27,027 million from the same period last year.

2. Summary of Financial Result by Business

Table 2: Financial Result by Business

(Million Baht)

Sales Revenue	Q2/22	Q1/22	+/(-)	Q2/21	+/(-)	6M/22	6M/21	+/(-)
Consolidated	143,892	114,506	29,386	78,120	65,772	258,397	151,570	106,827
Refinery	156,585	122,928	33,657	80,543	76,042	279,513	155,123	124,390
Aromatics and LAB ⁽¹⁾	25,894	19,304	6,590	14,649	11,245	45,197	25,345	19,852
Lube Base Oil	8,402	6,808	1,594	6,358	2,044	15,209	11,320	3,889
Power Generation ⁽²⁾	2,639	2,480	159	1,660	979	5,119	3,512	1,607
Solvent ⁽³⁾	6,039	4,246	1,793	3,282	2,757	10,285	6,186	4,099
Marine Transportation ⁽⁴⁾	-	-	-	56	(56)	-	211	(211)
Ethanol ⁽⁵⁾	368	398	(30)	355	13	766	735	31
Others ⁽⁶⁾	1,613	1,579	34	1,485	128	3,192	2,937	255
EBITDA	Q2/22	Q1/22	+/(-)	Q2/21	+/(-)	6M/22	6M/21	+/(-)
Consolidated	22,322	13,034	9,288	7,003	15,319	35,357	15,275	20,082
Refinery	21,018	11,313	9,705	2,941	18,077	32,330	7,991	24,339
Aromatics and LAB	(243)	532	(775)	1,617	(1,860)	289	2,914	(2,625)
Lube Base Oil	735	455	280	1,770	(1,035)	1,190	2,799	(1,609)
Power Generation	519	433	86	429	90	952	907	45
Solvent	379	351	28	237	142	730	596	134
Olefins	(2)	(2)	-	-	(2)	(5)	-	(5)
Marine Transportation	-	-	-	6	(6)	-	33	(33)
Ethanol	1	61	(60)	42	(41)	62	133	(71)
Others	53	50	3	55	(2)	104	86	18
Net Profit / (Loss)	Q2/22	Q1/22	+/(-)	Q2/21	+/(-)	6M/22	6M/21	+/(-)
Consolidated	25,327	7,183	18,144	2,123	23,204	32,510	5,483	27,027
Refinery	25,543	6,326	19,217	(1,014)	26,557	31,868	(117)	31,985
Aromatics and LAB	(487)	62	(549)	916	(1,403)	(425)	1,550	(1,975)
Lube Base Oil	549	329	220	1,386	(837)	878	2,184	(1,306)
Power Generation ⁽⁷⁾	408	288	120	709	(301)	696	1,307	(611)
Solvent	253	226	27	147	106	479	393	86
Olefins ⁽⁸⁾	(195)	(66)	(129)	-	(195)	(262)	-	(262)
Marine Transportation	-	-	-	(1)	1	-	15	(15)
Ethanol	(17)	8	(25)	14	(31)	(9)	49	(58)
Others ⁽⁹⁾	90	128	(38)	99	(9)	219	182	37

Remark (1) Thai Paraxylene Co., Ltd. invested 75% of total investment in LABIX Co., Ltd. which produces an intermediate for the production of surfactants (LAB).

(2) Thai Oil Plc. shares 99.99% in TOP SPP Co., Ltd. and shares 73.99% in Thaioil Power Co., Ltd (TP) for small power plants (SPPs) business. On 1 February 2021, there was the entire business transfer of TP to Thai Oil Plc.

(3) Including Thaioil Solvent Co., Ltd., having respective interests in TOP Solvent Co., Ltd., Sak Chaisidhi Co., Ltd., TOP Solvent (Vietnam) LLC., PT Tirta Surya Raya, and JSKEM Private Limited

(4) Thai Oil Plc. acquired all ordinary shares in Thaioil Marine International Pte Ltd. (TOMI) from Thaioil Marine Co., Ltd. (TM), and on 30 April 2021, Thai Oil Plc. disposed and transferred all ordinary shares in TM to Phurich Marine Co., Ltd. causing TM to be terminated from a subsidiary of Thai Oil Plc.

(5) Including Thaioil Ethanol Co., Ltd., having respective interests in Sapthip Co., Ltd. (Investment in subsidiary), and Ubon Bio Ethanol Plc (Financial asset measured at fair value through other comprehensive income).

(6) Including Thaioil Energy Services Co., Ltd. (TOP holds 99.99% shares) which provides human resources management service and Thaioil Treasury Center Co., Ltd. (TOP holds 99.99% shares) which conducts the business in the area of International Business Center (IBC) and Treasury Center (TC) for Thaioil and Subsidiaries.

(7) Since 7 June 2022, Thaioil and Subsidiaries reduced share proportions in the investments in Global Power Synergy Plc. (GPSC) to 10.0% and reclassified the remaining investment as Financial assets measured at fair value through other comprehensive income.

(8) PT TOP Investment Indonesia holds 15% shares in PT Chandra Asri Petrochemical Tbk, which is the major integrated petrochemical company in Indonesia.

(9) Including net profit / (loss) from Thaioil Energy Services Co., Ltd. and Thaioil Treasury Center Co., Ltd. and share of profits from the investments in PTT Digital Solutions Co., Ltd., PTT Energy Solutions Co., Ltd. and Thai Petroleum Pipeline Co., Ltd.

2.1 Market Condition and Financial Result of Refinery Business

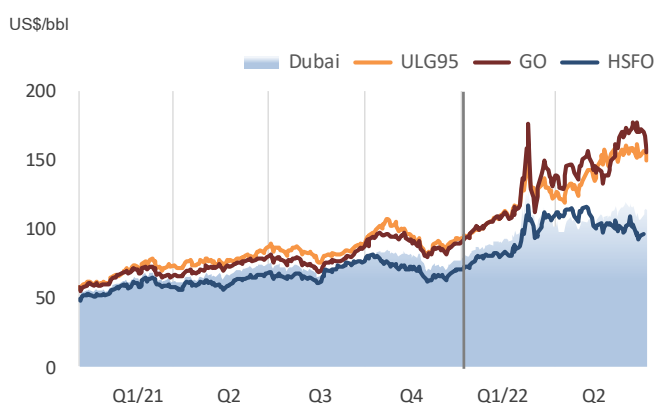
Table 3: Average Crude Oil Price, Petroleum Product Prices, Crude Premiums, and Crack Spreads

Average Prices (US\$/bbl)	Q2/22	Q1/22	+ / (-)	Q2/21	+ / (-)	6M/22	6M/21	+ / (-)
Dubai Crude Oil ⁽¹⁾	108.1	95.6	12.5	66.9	41.2	101.8	63.5	38.3
Unleaded Gasoline (ULG95)	143.0	113.3	29.7	76.8	66.2	128.2	72.0	56.2
Jet/Kero	147.2	111.8	35.4	71.4	75.8	129.5	67.4	62.1
Gasoil (GO)	151.2	115.1	36.1	72.2	79.0	133.1	68.5	64.6
Fuel Oil (HSFO)	104.9	87.2	17.7	61.1	43.8	96.0	58.8	37.2
Crude Premiums (US\$/bbl)	Q2/22	Q1/22	+ / (-)	Q2/21	+ / (-)	6M/22	6M/21	+ / (-)
Murban ⁽²⁾	7.4	4.0	3.4	1.3	6.1	5.7	1.0	4.7
Arab Light ⁽³⁾	6.2	2.8	3.4	1.6	4.6	4.5	1.2	3.3
Spreads over Dubai (US\$/bbl)	Q2/22	Q1/22	+ / (-)	Q2/21	+ / (-)	6M/22	6M/21	+ / (-)
Unleaded Gasoline (ULG95)	35.0	17.8	17.2	9.9	25.1	26.4	8.5	17.9
Jet/Kero	39.2	16.2	23.0	4.5	34.7	27.7	3.9	23.8
Gasoil (GO)	43.1	19.5	23.6	5.3	37.8	31.3	5.0	26.3
Fuel Oil (HSFO)	(3.2)	(8.3)	5.1	(5.8)	2.6	(5.8)	(4.6)	(1.2)
Very Low Sulfur Fuel Oil (VLSFO)	21.9	11.8	10.1	5.0	16.9	16.9	6.3	10.6

Remark

- 1) Closing Dubai crude oil price at the end of Q2/22, Q1/22, and Q2/21 were calculated from average Dubai price of June 2022, March 2022, and June 2021, respectively. The prices were 113.2 US\$/bbl, 110.9 US\$/bbl, and 71.6 US\$/bbl, respectively.
- 2) Murban crude premium (compared with market price) since June 2021 was calculated from the difference between average Murban price for loading month (month "M") and Dubai forward price for month "M" which was announced daily in two months before. The formula is based on ADNOC's new pricing structure.
- 3) Arab Light crude premium is announced by the producer and is priced as a differential to the Oman/Dubai average

Graph 1: Prices of Crude Oil and Petroleum Product



Dubai crude oil price in Q2/22 increased from Q1/22 and Q2/21 including higher price in 6M/22 compare with 6M/21 due to Russia-Ukraine war causing various countries to impose various forms of sanction on Russia. With limited additional supply from OPEC+ alliance since many members were unable to boost their outputs as agreed owing to the unrest in countries crude oil supply market was tightened further. However, crude oil prices were pressured from COVID-19 outbreak in many big cities in China, leading to many lockdowns. This led to concerns over the

recovery of global oil demand.

Murban crude premium over Dubai and Arab Light crude premium over average Dubai in Q2/22 rose from Q1/22 and Q2/21 including higher crude premium in 6M/22 compare with 6M/21 due to recovery of COVID-19 outbreak, causing many refineries to boost their productions in order to serve higher oil demands. In addition, supply was tightened after Russia crude oil was under sanction. This led buyers to avoid Russia crude and, in turn, purchased more from the Middle East.

Gasoline spread over Dubai in Q2/22 improved from Q1/22 and Q2/21 including higher spread in 6M/22 compare with 6M/21 supported by a recovery in driving activities after international travelling being lifted and more of city lockdown easing, as well as higher demand in the US summer. Gasoil spread over Dubai in Q2/22 also increased compared with Q1/22 and Q2/21 including higher spread in 6M/22 compare with 6M/21, which was supported by better economic indicators tracking economic recovery after the COVID-19 situation in Asia was better, leading to better demand. Moreover, gasoil supply became tighter owing to Russian oil export sanction, especially countries in Europe, which mainly import gasoil from Russia. In addition, global gasoil inventories were low, which helped support gasoil price. Moreover, jet/kero spread over Dubai in Q2/22 picked up from Q1/22 and Q2/21 including higher spread in 6M/22 compare with 6M/21 after city lockdown easing in many countries and more welcome travelers. Nevertheless, the regional demand in Asia was suppressed from travel activities in China following China's Zero-Covid during Q2/22. For high sulfur fuel oil spread over Dubai in Q2/22 boosted from Q1/22 and Q2/21. This was from Russia oil export sanction as a main exporter for high sulfur fuel oil, and the problem of productions in Singapore were not on spec. However, high sulfur fuel oil spread over Dubai in 6M/22 reduced from 6M/21 because its market was pressured from higher supply in early 2022 after many refineries boosted their production. For low sulfur fuel oil spread over Dubai in Q2/22 was higher than Q1/22 and Q2/21 including higher spread in 6M/22 compare with 6M/21 since supply from US were lower exported in Asia as a result of Russia oil export sanction, as well as limited supply because refineries adjusted their productions by adding gasoline and gasoil instead of fuel oil.

Table 4: Financial Result of Refinery Business

	Q2/22	Q1/22	+ / (-)	Q2/21	+ / (-)	6M/22	6M/21	+ / (-)
Throughput ⁽¹⁾ (%)	112%	109%	3%	98%	14%	110%	99%	11%
Intake (kbd)	308	299	9	270	38	304	272	32
Gross Refining Margin (GRM) (US\$/bbl)								
: <u>excluding</u> Stock Gain/(Loss)	25.1	6.4	18.7	0.4	24.7	16.1	0.6	15.5
: <u>including</u> Stock Gain/(Loss)	32.9	22.6	10.3	5.3	27.6	27.9	6.1	21.8

Remark (1) Throughput (%) calculated based on 275,000 barrels per day

Thaioil refinery reported better performance in both Q2/22 compared with Q1/22 and 6M/22 compared with 6M/21 as a result of both higher sale volume and petroleum product spreads. In addition, GPSC share sale transaction generated positive one-time gain which resulted in higher net profit in Q2/22 than Q1/22 and having net profit in 6M/22 compared to net loss in 6M/21.

In Q2/22, Thaioil refinery reported throughput of 112%, increased by 3% and had an increase in sales volume by 6% from the previous quarter. Sales volume was consisted of 83% domestic sales, 11% Indochina sales, and 6% export sales. Sales revenue of Baht 156,585 million, or an increase of Baht 33,657 million was booked during the period from higher product prices tracking economic recovery as well as concerns over Russia-Ukraine war. Besides, from the easing of lockdowns and travel restrictions in various countries, Thaioil refinery recorded GRM excluding stock gain/(loss) of 25.1 US\$/bbl, or an increase of 18.7 US\$/bbl from the previous quarter. This mainly came from rebounds in petroleum product spreads. However, a rise in crude oil price resulted in stock gain of 7.8 US\$/bbl or Baht 7,557 million, decreased from the previous quarter by Baht 6,915 million. However, Thaioil refinery booked a reversal on crude and petroleum product inventory of Baht 259 million in Q2/22, compared with a write-down on crude and petroleum product inventory of Baht 2,609 million in Q1/22. Combining with the net realized loss on financial instruments of Baht 10,304 million, EBITDA of Baht 21,018, or an increase of Baht 9,705 million from Q1/22 was recorded in Q2/22. Nevertheless, the refinery had a net loss on fair value measurement of financial instruments of Baht 2,354 million, higher net loss by Baht 714 million from previous quarter, which was mainly from mark-to-market

commodity hedging. In addition, the refinery also recognized net foreign exchange loss of Baht 1,415 million (including a net foreign exchange loss on foreign currency assets and liabilities of Baht 1,173 million). However, in Q2/22, there were gain from investment reclassification and disposal of investments in GPSC of Baht 18,026 million (before tax), or Baht 13,572 million (after tax). Offsetting with depreciation, finance costs, and income tax expense, the refinery recorded a net profit of Baht 25,543 million, increased by Baht 19,217 million from Q1/22 (including dividend income, the refinery had net profit of Baht 26,563 million)

Comparing Q2/22 with Q2/21, Thaioil refinery reported increases in throughput and sales volume of 14% and 18%, respectively, tracking the economic rebound and the easing of travel restrictions. The refinery booked higher sales revenue by Baht 76,042 million from higher product prices tracking economic recovery and the concerns over the Russia-Ukraine war. In addition, Thaioil refinery recorded higher GRM excluding stock gain/(loss) by 24.7 US\$/bbl, which was supported by an improvement in gasoline, jet/kero, and gasoil spreads resulting from the easing of lockdowns and international travel restrictions. Additionally, higher crude oil prices were contributed a higher stock gain of Baht 3,774 million. Moreover, the refinery recorded a reversal on crude and petroleum product inventory of Baht 259 million in Q2/22 compared with a write-down on crude and petroleum product inventory of Baht 71 million in Q2/21. Together with net realized loss on financial instruments of Baht 10,304 million, the refinery booked higher EBITDA by Baht 18,077 million than in the same period of the previous year. However, in Q2/22, the refinery reported a higher net loss on fair value measurement of financial instruments of Baht 1,325 million than Q2/21. Besides, the refinery recorded a higher net foreign exchange loss of Baht 42 million from a slight depreciation in Thai Baht. However, in Q2/22, there were gain from investment reclassification and disposal of investments in GPSC of Baht 18,026 million (before tax), or Baht 13,572 million (after tax). Offsetting with depreciation, finance costs and income tax expense, the refinery reported net profit of Baht 25,543 million in Q2/22, compared with net loss of Baht 1,014 million in the same period of previous year.

Comparing 6M/22 with 6M/21, Thaioil refinery had higher throughput by 11% following production optimization to capitalize on better market as a result of economic recovery from the easing of travel restrictions as well as the concerns over Russia-Ukraine war. As a result, from a higher sales volume by 13% and higher average selling prices, sales revenue was recorded of Baht 279,513 million, went up by Baht 124,390 million. The refinery reported GRM excluding stock gain/(loss) of 16.1 US\$/bbl, boosted by 15.5 US\$/bbl. In addition, the refinery had a stock gain of Baht 22,029 million, increased by Baht 13,590 million. However, there was the write-down on crude and petroleum product inventory of Baht 2,350 million in 6M/22 while there was the reversal on crude and petroleum product inventory of Baht 38 million in 6M/21. Altogether with net realized loss on financial instruments of Baht 16,052 million, Thaioil refinery earned EBITDA of Baht 32,330 million, improved by Baht 24,339 million. However, the refinery had net loss on fair value measurements of financial instruments of Baht 3,994 million, higher net loss by Baht 3,240 million, net foreign exchange loss of Baht 1,132 million, lower loss by Baht 2,904 million. However, in Q2/22, there were gain from investment reclassification and

disposal of investments in GPSC of Baht 18,026 million (before tax), or Baht 13,572 million (after tax). Offsetting with depreciation, finance costs and income tax expense, Thaioil refinery reported net profit of Baht 31,868 million, compared with net loss Baht 117 million the same period last year. (Including dividend income in 6M/22, the refinery had net profit of Baht 34,161 million).

2.2 Market Condition and Financial Result of Aromatics Business

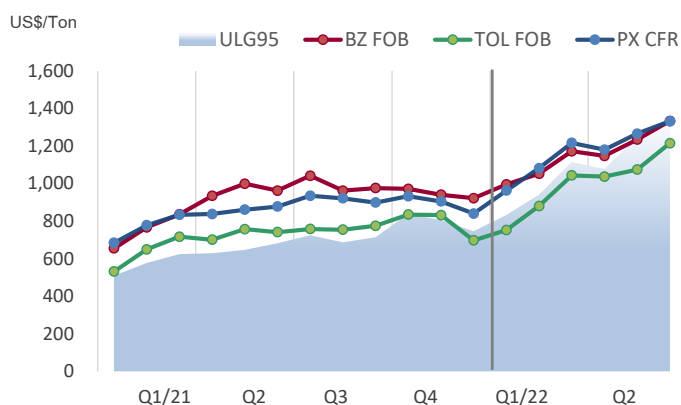
Table 5: Average Prices and Spreads of Aromatics Products

Average Prices (US\$/Ton)	Q2/22	Q1/22	+ / (-)	Q2/21	+ / (-)	6M/22	6M/21	+ / (-)
Paraxylene (PX) ⁽¹⁾	1,259	1,087	172	859	400	1,173	812	361
Benzene (BZ) ⁽²⁾	1,238	1,074	164	966	272	1,156	859	297
Toluene (TL) ⁽²⁾	1,109	892	217	734	375	1,001	683	318
Spreads over ULG95 (US\$/Ton)	Q2/22	Q1/22	+ / (-)	Q2/21	+ / (-)	6M/22	6M/21	+ / (-)
Paraxylene (PX)	44	124	(80)	206	(162)	84	200	(116)
Benzene (BZ)	23	110	(87)	313	(290)	66	247	(181)
Toluene (TL)	(107)	(71)	(36)	81	(188)	(89)	72	(161)

Remark (1) Based on CFR Taiwan price

(2) Based on FOB Korea price

Graph 2: Prices of Aromatics Products and ULG95



In Q2/22, PX price rose from Q1/22, following the spike in crude oil price due to the Russia-Ukraine conflict. However, PX spread over ULG95 weighted down from Q1/22 due to a softer demand for using PX as feedstock in downstream product from COVID-19 situation. Additionally, recovery in economic activity was somewhat limited due to high inflation rates being observed globally. This limited consumer spending power. Therefore, PX spread over ULG95 in Q2/22 and 6M/22 declined from Q2/21 and 6M/21 respectively.

BZ price in Q2/22 higher than Q1/22 due to a surge in oil prices from the Russia-Ukraine conflict. Moreover, the level of BZ inventory in China dropped to 60,000 tons in Q2/22 from 200,000 tons in Q1/22. However, BZ spread over ULG95 declined from Q1/22 because of the increase in ULG95 price following the US driving season in summer. Besides, there was a softer demand for using BZ as feedstock in downstream product which was pressured by COVID-19 and limited economic recovery. Therefore, BZ spread over ULG95 in Q2/22 and 6M/22 declined from Q2/21 and 6M/21 respectively.

TL price in Q2/22 picked up from Q1/22 following higher oil prices due to Russia-Ukraine conflict and tighter supply from maintenance shutdowns of plants in China and South Korea. However, TL spread over ULG95 dropped from Q1/22 due to a softened demand for TL as feedstock for PX and BZ production following the US driving season. Consequently, TL spread over ULG95 in Q2/22 and 6M/22 declined from Q2/21 and 6M/21 respectively.

Table 6: Financial Result of TPX

	Q2/22	Q1/22	+ / (-)	Q2/21	+ / (-)	6M/22	6M/21	+ / (-)
Aromatics Production Rate ⁽¹⁾ (%)	77%	73%	4%	89%	(13%)	75%	85%	(10%)
Aromatics Production (kTon)	160	151	9	186	(26)	311	351	(40)
Product-to-feed Margin ⁽²⁾ (US\$/Ton)	(27)	27	(54)	112	(139)	(2)	110	(111)

Remark (1) Based on a nameplate capacity of 838,000 Tons/year (527,000 tons of paraxylene per year, 259,000 tons of benzene per year and 52,000 tons of mixed xylene per year)

(2) Calculated from gross margin divided by feedstock volume (Ton)

In Q2/22, TPX had lower product-to-feed margin due to decreased aromatics spreads. As a result, TPX had a drop in performance from the previous quarter.

For 6M/22, TPX had lower product-to-feed margin from decreased aromatics spreads due to the conflict between Russia and Ukraine among uncertainty in the global economy.

Therefore, it had led to a drop in TPX performance.

In Q2/22, compared with Q1/22, Thai Paraxylene Co., Ltd. (TPX) had an aromatics production rate of 77%, TPX had sales revenue of Baht 18,306 million, increased by Baht 4,647 million due to increases in total sales volume and average selling prices. However, aromatics spreads over ULG95 declined due to the conflict between Russia and Ukraine among uncertainty in the global economy, resulted in a lower product-to-feed of 54 US\$/ton. However, TPX had a net realized gain on financial instruments of Baht 41 million, increased by Baht 18 million from previous quarter. Thus, TPX recorded an EBITDA loss of Baht 943 million, higher EBITDA loss by Baht 834 million. Besides, in this quarter, net gain on fair value measurement of financial instruments was recorded of Baht 23 million compared with loss on fair value measurement of financial instruments of Baht 12 million. In addition, TPX had a net foreign exchange gain of Baht 52 million, compared with a net foreign exchange loss of Baht 3 million in previous quarter. Offsetting with depreciation, finance costs and income tax expense, In Q2/22, TPX posted net loss of Baht 875 million, higher net loss by Baht 573 million from previous quarter.

Compared with Q2/21, TPX aromatics production rate decreased by 13%. However, TPX had an increased sales revenue by Baht 7,107 million due to increases in average selling prices. Moreover, TPX reported a decrease in product-to-feed margin by 139 US\$/ton due to lower aromatics spread over ULG95. Combining with net realized gain on financial instruments, TPX had an EBITDA loss of Baht 943 million, compared with an EBITDA of Baht 1,163 million in Q2/21. Besides, TPX had gain on fair value measurement of financial instruments of Baht 23 million, compared with net loss on fair value measurement of financial instruments of Baht 7 million, while TPX had an increased net foreign exchange gain by Baht 5 million. Therefore, TPX posted a net loss of Baht 875 million, compared with a net profit of Baht 719 million in the same period last year.

Compared 6M/22 with 6M/21, TPX had sales revenue of Baht 31,965 million, increase by Baht 12,589 million due to increases in total sales volume and average selling prices, Moreover, reported a decrease in product-to-feed margin of 111 US\$/ton from lower in aromatics spreads over ULG95 due to the conflict between Russia and Ukraine among uncertainty in the global economy. Combining with net realized gain on financial instruments of Baht 64 million, TPX posted EBITDA loss of Baht 1,053 million, compared with an EBITDA of Baht 2,158 million in 6M/21. However, TPX had net gain on fair value measurement of financial instruments of Baht 11 million, compared with net loss on fair value measurement of financial instruments of Baht 45 million, and had a decreased in net foreign

exchange gain by Baht 44 million. Therefore, TPX recorded net loss of Baht 1,177 million, compared with a net profit of Baht 1,299 million in the same period last year.

In Q2/22, aromatics group (TPX holds 75% shares of LABIX) had consolidated sales revenue of Baht 25,894 million, consolidated EBITDA loss of Baht 243 million and consolidated net loss of Baht 487 million. For 6M/22, aromatics group had consolidated sales revenue of Baht 45,197 million, consolidated EBITDA loss of Baht 289 million and consolidated net loss of Baht 425 million.

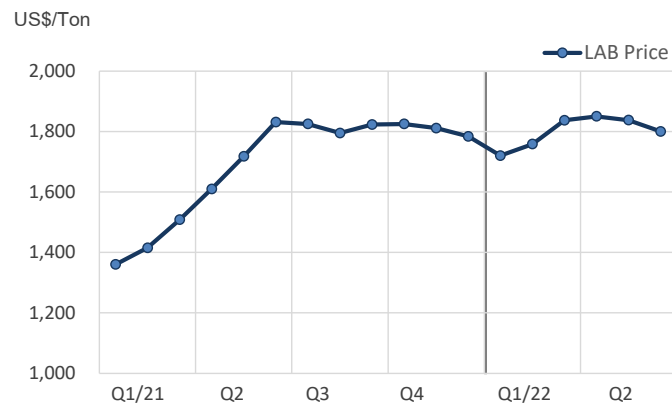
2.3 Market Condition and Financial Result of an Intermediate for the Production of Surfactants Business

Table 7: Average Price of LAB

Average Price (US\$/Ton)	Q2/22	Q1/22	+/(-)	Q2/21	+/(-)	6M/22	6M/21	+/(-)
Linear Alkylbenzene (LAB) ⁽¹⁾	1,829	1,772	57	1,720	110	1,800	1,574	227

Remark (1) Based on ICIS price

Graph 3: Price of LAB



In Q2/22, LAB price rose from that of Q1/22, Q2/21. Additionally, LAB price in 6M/22 also was higher than that of 6M/21 tracking higher feedstock cost since both crude oil price and benzene price rose up from Russia-Ukraine tension leading to various sanctions on Russian crude. Demand for cleaning agent was also rising since late Q1/22 as Asian nations were approaching summer season. Last but not least, there were a number of LAB plants in Asia having maintenance shutdown especially in South Korea, India and Saudi Arabia compared with that of Q1/22.

LAB spread over jet and/or benzene, however, declined due to a rapid increase in feedstock price following Russia-Ukraine situation. China's COVID-19 situations leading to lockdown in many cities such as Shanghai, Beijing and Zhengzhou suppressed the situation further and had impacts on LAB demand. Source : ICIS LAB Weekly Report, July 2022.

Table 8: LAB Production

	Q2/22	Q1/22	+/(-)	Q2/21	+/(-)	6M/22	6M/21	+/(-)
LAB Production Rate ⁽¹⁾ (%)	122%	122%	-	117%	5%	122%	104%	18%
LAB Production (kTon)	36	36	-	35	1	72	62	11

Remark (1) Based on nameplate capacity of 120,000 Tons/year

In Q2/22, LABIX continued full-scale production and had higher gross margin from a rise in LAB price and better demand.

In Q2/22, LABIX Co., Ltd. (LABIX) had LAB production rate at 122% and LAB sales volume was close to Q1/22. However, a rise in LAB price tracking feedstock prices resulted in LABIX had sales revenue of Baht 8,071 million, increased by Baht 2,036 million. Moreover, LABIX had a higher gross margin from better demand in Asia and tight supply from maintenance shutdowns of LAB plants. This led LABIX to reported EBITDA of Baht 701 million, increased by Baht 59 million from previous quarter. Moreover, LABIX had higher net foreign exchange gain by Baht 6 million. Offsetting with depreciation

It led LABIX had better performance.

Compared 6M/22 with 6M/21, LABIX had greater sales volume from capacity increasing and a rise LAB price, It led LABIX had better performance.

and finance costs, LABIX posted net profit of Baht 517 million, increased by Baht 32 million from the prior quarter.

Compared with Q2/21, LABIX had higher LAB production rate and sales volume by 5% and 10%, respectively. Moreover, a rise in LAB price tracking feedstock prices resulted in sales revenue increases by Baht 4,284 million. Besides, LABIX had greater gross margin and reported EBITDA of Baht 701 million, increased by Baht 247 million. In addition, LABIX had net foreign exchange gain of Baht 16 million, compared with net foreign exchange loss of Baht 13 million in Q2/21. Offsetting with depreciation and finance costs, LABIX reported net profit rose by Baht 255 million from the same period of previous year.

Compared 6M/22 with 6M/21, LABIX had sales revenue of Baht 14,105 million, increased by Baht 7,621 million following a rise in LAB price tracking feedstock prices and greater sales volume from a increase on production capacity until Q3/21, Furthermore, LABIX had a increase in gross margin, then recorded EBITDA of Baht 1,342 million, increased by Baht 586 million. Moreover, net foreign exchange gain of Baht 27 million, compared with net foreign exchange loss of Baht 28 million in 6M/21. Offsetting with depreciation and finance costs, LABIX reported net profit rose by Baht 668 million from the same period of previous year.

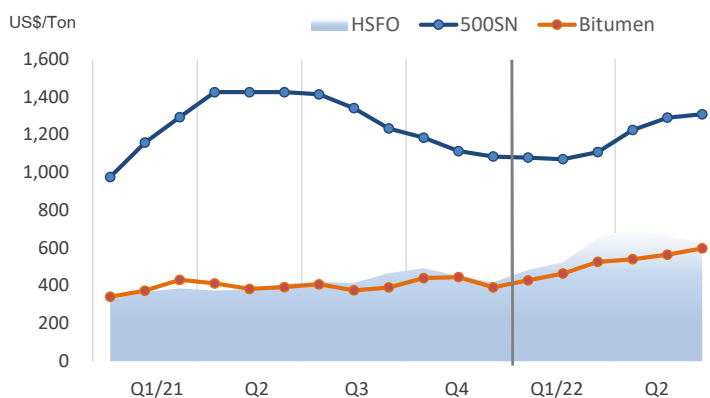
2.4 Market Condition and Financial Result of Lube Base Oil Business

Table 9: Average Prices and Spreads of Key Lube Base Oil Products

Average Prices (US\$/Ton)	Q2/22	Q1/22	+/(-)	Q2/21	+/(-)	6M/22	6M/21	+/(-)
500SN ⁽¹⁾	1,274	1,076	198	1,425	(151)	1,175	1,283	(108)
Bitumen ⁽²⁾	567	473	94	395	172	520	389	131
Spreads over HSFO (US\$/Ton)	Q2/22	Q1/22	+/(-)	Q2/21	+/(-)	6M/22	6M/21	+/(-)
500SN	608	523	85	1,037	(429)	565	910	(345)
Bitumen	(99)	(81)	(18)	7	(106)	(90)	15	(105)

Remark (1) Based on Ex-tank Singapore price
(2) Based on FOB Singapore price

Graph 4: Prices of Lube Base Oil (500SN), Bitumen and Fuel Oil



Lube base oil (500SN) price and its spread over fuel oil in Q2/22 increased from the previous quarter due to higher regional demand from 1) driving season 2) lockdown easing in various states, and 3) increase in fuel oil price leading to higher demand for inventory stocking following the Russia-Ukraine tension. However, lube base oil was still pressured from resumption of plants from shutdown maintenance. Thus, lube base price and its spread over fuel oil declined compared with Q2/21 and 6M/21 because of tightened market during the same period last year.

Bitumen price in Q2/22 increased compared with that of Q1/22 and Q2/21 as well as the comparison between 6M/22 and 6M/21 due to ongoing tight supply in the market after refinery cut-run in the region because of higher crude oil price from Russia-Ukraine situation.

Moreover, bitumen spread over fuel oil in Q2/22 also declined from that of Q1/21. Likewise for the spread comparison in 6M/22 with 6M/21, which was due to weakened regional demand from delay in road repair and infrastructure improvement project following higher bitumen price as well as slowdown in Chinese economy following new wave of COVID-19 in China.

Table 10: Financial Result of TLB

	Q2/22	Q1/22	+/(-)	Q2/21	+/(-)	6M/22	6M/21	+/(-)
Base Oil Production Rate ⁽¹⁾ (%)	90%	89%	1%	95%	(5%)	89%	94%	(5%)
Base Oil Production (kTon)	60	59	1	64	(4)	118	125	(7)
Product-to-feed Margin ⁽²⁾ (US\$/Ton)	133	97	35	231	(98)	115	202	(87)

Remark (1) Based on nameplate capacity of 267,015 Tons/year

(2) Calculated from gross margin divided by feedstock volume (Ton)

In Q2/22, TLB reported stronger P2F due to higher base oil demand following lockdown easing. Thus, TLB booked higher EBITDA and net profit.

Compared with 6M/22, TLB reported higher sales revenue but reported lower P2F from slimmer spreads as tightened supply situation was alleviated.

Hence, TLB booked lower EBITDA and net profit.

In Q2/22, Thai Lube Base Plc (TLB) reported base oil U-rate of 90% and sales revenue of Baht 8,402 million, or an increase of Baht 1,594 million from Q1/22 from higher product price of every product. This was in line with higher crude oil prices. Additionally, base oil spread over fuel oil also increased owing to higher demand. Meanwhile, bitumen spread shrank as a result of higher bitumen price. Therefore, TLB reported Product-to-feed margin of 133 US\$/tons, or an increase of 35 US\$/tons, and booked EBITDA of Baht 735 million, or an increase of Baht 280 million. Offsetting with depreciation, finance costs, and income tax expenses, TLB reported net profit of 549 million, or an increase of Baht 220 million from the previous quarter.

Compared with Q2/21, TLB recorded higher revenue of Baht 2,044 million from higher product selling price tracking crude oil price. However, base oil spread over fuel oil shrank from the fact that the market was extremely tightened last year. Thus, TLB reported lower product-to-feed margin of 98 US\$/tons and lower EBITDA of Baht 1,035 million. As such, net profit declined by Baht 837 million from the same period last year.

For 6M/22 performance compared with 6M/21, TLB reported sales revenue of Baht 15,209 million, or an increase of 3,890 million mainly due to higher bitumen price. However, with shrinking spreads of both base oils and bitumen over fuel oil, TLB booked lower product-to-feed margin by 87 US\$/tons. Thus, TLB posted EBITDA of Baht 1,190 or a decrease of Baht 1,609 million and showed net profit of Baht 878 million which was a dip of Baht 1,306 million from the same period last year.

2.5 Financial Result of Power Generation Business

Table 11: Sales Volume from Power Generation Business

TP + TOP SPP ⁽¹⁾	Q2/22	Q1/22	+/(-)	Q2/21	+/(-)	6M/22	6M/21	+/(-)
Electricity Dispatched (GWh)	402	354	48	397	5	756	852	(96)
Steam Exported (kTon)	590	561	29	572	18	1,151	1,272	(121)

Remark (1) On 1 February 2021, Thaioil Power Co., Ltd. (TP) transferred all business to Thai Oil Plc. (TOP) following a shareholding restructuring plan of power generation business. Therefore, information shown from Q2/21 onwards only represents the products of TOP SPP

In Q2//22, TOP SPP had a rise in sales revenue from increase in sales volume after completed planned maintenance leading to TOP SPP earned higher net profit.

Compared 6M/22 with 6M/21, TOP SPP sales revenue increased from increases in average selling prices leading to higher net profit.

At Thaioil's board of director's meeting held on 17 February 2022 and the Annual General Thaioil's shareholders Meeting held on 7 April 2022, the sale of ordinary shares in GPSC, of approximately 10.78% of the total issued and paid-up shares, equivalent to Baht 22,351 million (before deduction of GPSC's dividend), was approved. On June 7, 2022, the transaction was completed. As a result, Thaioil and Subsidiaries reduced GPSC's shareholding from 20.78% to 10.0%. The remaining investment in GPSC was reclassified to financial assets measured at fair value through other comprehensive income.

In Q2/22, TOP SPP Co., Ltd. (TOP SPP) had sales revenue of Baht 2,639 million, which increased by Baht 159 million due to steam sales volume increased because of completed planned maintenance for gas turbines in Q1/22 as planned. As a result, TOP SPP reported EBITDA of Baht 519 million, increased by Baht 86 million. Offsetting with depreciation, finance costs and income tax expense, TOP SPP recorded a net profit of Baht 327 million, increased by Baht 91 million. Besides, Thaioil and Subsidiaries recognized, without non-controlling interests, a share of profit from the investment in GPSC of Baht 81 million, increased by 29 million from the prior quarter.

Compared with Q2/21, TOP SPP sales revenue increased by Baht 979 million because of increases in sale volume and average selling prices following higher natural gas price. This led to a rise in EBITDA of Baht 90 million. Offsetting with depreciation, finance costs and income tax expense, TOP SPP net profit increased by Baht 97 million from the same period of last year. Besides, Thaioil and Subsidiaries recognized a decrease in share of profit from the investment in GPSC of Baht 397 million compared with the same period of last year.

For 6M/22 compared with 6M/21, TOP SPP booked sales revenue of Baht 5,119 million, or an increase of Baht 1,932 million mainly due to higher selling prices following higher natural gas price. This caused TOP SPP to post higher EBITDA of Baht 108 million, totaling to Baht 952 million. Offsetting with depreciation, finance costs and tax expenses, TOP SPP reported net profit of Baht 563 million, or an increase of Baht 124 million from the same period last year. During the period, Thaioil and Subsidiaries booked share of profit from GPSC of Baht 133 million, a decrease of Baht 729 million.

2.6 Financial Result of Solvent Manufacturing and Distribution Business

Table 12: Financial Result of Thaioil Solvent

	Q2/22	Q1/22	+ / (-)	Q2/21	+ / (-)	6M/22	6M/21	+ / (-)
Solvent Utilization Rate ⁽¹⁾ (%)	126%	136%	(10%)	129%	(3%)	131%	134%	(3%)
Solvent Production ⁽¹⁾ (kTon)	44	48	(4)	45	(1)	92	95	(3)
Solvent Sales Volume (kTon)	143	118	25	115	28	261	230	31

Remark (1) Produced solvent by Sak Chaisidhi Co., Ltd. (TOP Solvent Co., Ltd. holds 80.52% shares)

In Q2/22, Thaioil Solvent reported a rise in sales revenue from increases in solvent selling prices and higher gross profit margin owing to demand recovery. Thus, Thaioil Solvent reported both increases in EBITDA and net profit from last quarter.

For 6M/22, compared with 6M/21, Thaioil Solvent reported higher sales revenue due to increase in solvent sales volume and average solvent selling price per unit. Thaioil Solvent had higher gross profit margin and net profit than the same period of the previous year.

In Q2/22, Thaioil Solvent (Solvent Manufacturing and Distribution Business) had a 126% solvent utilization rate, decreased by 10% from Q1/22 while solvent sales volume increased. This was due to the overall economic recovery from the easing of the COVID-19 epidemic, with Thaioil Solvent having an increase in solvent sales volume of about 25,000 tons. This led Thaioil Solvent to record sales revenue of Baht 6,039 million, increased by Baht 1,793 million. Therefore, Thaioil Solvent reported EBITDA of Baht 379 million, higher by Baht 28 million because the gross profit margin rose. In this quarter, Thaioil Solvent recorded net foreign exchange gain of Baht 46 million, increased by Baht 34 million from Q1/22. Offsetting with depreciation of Baht 63 million, finance costs of Baht 26 million, income tax expense of Baht 62 million, and non-controlling interests of Baht 12 million. In Q2/22, Thaioil Solvent posted net profit of Baht 253 million, increased by Baht 27 million from the prior quarter.

Compared with Q2/21, Thaioil Solvent's utilization rate dropped by 3% from the same period of prior year, while sales volume increased by approximately 28,000 tons. The average solvent selling price per unit increased tracking crude oil price causing Thaioil Solvent to record an increase in sales revenue of Baht 2,757 million and to have higher gross profit margin. Then, Thaioil Solvent posted an increase in EBITDA of Baht 142 million. Besides, Thaioil Solvent posted higher net foreign exchange gain by Baht 10 million from Q2/21. Offsetting with depreciation, finance costs, income tax expense, and non-controlling interests. Thaioil Solvent, in Q2/22, then recorded an increase in net profit of Baht 106 million from the same period of last year.

For 6M/22, compared with 6M/21, Thaioil Solvent had a 131% solvent utilization rate and had an increase in solvent sales volume of approximately 31,000 tons. Additionally, higher average solvent selling price per unit tracking crude oil price from the same period of prior year, led Thaioil Solvent to record sales revenue of Baht 10,285 million, increased by Baht 4,099 million. In 6M/22, Thaioil solvent had higher gross profit margin because an increase in demand from the overall economic recovery from the COVID-19 outbreak. Therefore, Thaioil Solvent posted EBITDA of Baht 730 million, roused by Baht 134 million. Anyway, in 6M/22, Thaioil Solvent had net foreign exchange gain of Baht 58 million, which was lower than 6M/21 by Baht 2 million. Offsetting with depreciation, finance costs, income tax expense, and non-controlling interests. Thaioil Solvent posted net profit of Baht 479 million, increased by Baht 86 million from the same period of the previous year.

2.7 Financial Result of Olefin Business

Table 13: Spread of Olefin Products

	Q2/22	Q1/22	+/(-)	Q2/21	+/(-)	6M/22	6M/21	+/(-)
HDPE – Naphtha MOPJ ⁽¹⁾	468	453	15	-	-	460	-	-
LLDPE – Naphtha MOPJ ⁽¹⁾	510	468	42	-	-	489	-	-
PP – Naphtha MOPJ ⁽¹⁾	445	479	(34)	-	-	462	-	-

Remark: (1) Based on ICIS price

In Q2/22 olefin market was continually under pressure had resulted in most olefin plants reducing their production due to economic reasons. TII realized net loss of Baht 195 million

Although Polyethylene spread over naphtha improved compared with Q1/22 as supply was tightened from widespread production cuts and maintenance shutdown especially in Asia in May. Meanwhile, olefin market was pressured by softened demand from China's lockdown that applied Zero-COVID policy to prevent and control the spread of coronavirus amid the concern of recession and higher inflation. Owing to the spread continually under pressure and economic reasons, most olefin plants reduced their production. As a result, in Q2/22, TII booked share of loss from investment in CAP. Together with administrative expenses, TII recorded a net loss of Baht 195 million, compared with a net loss of Baht 66 million in the previous quarter

2.8 Financial Result of Ethanol Business

Table 14: Utilization Rate of TET

	Q2/22	Q1/22	+ / (-)	Q2/21	+ / (-)	6M/22	6M/21	+ / (-)
Ethanol Utilization Rate (%)								
- Saphthip	74%	106%	(32%)	79%	(5%)	90%	83%	7%

In Q2/22, TET booked lower sales revenue while there were significantly higher feedstock costs, TET reported lower EBITDA and consolidated net loss in this quarter.

For 6M/22, TET reported higher sales revenue from higher sale volume. However, with higher feedstock costs, TET had lower EBITDA, causing TET to have consolidated net loss in this period.

In Q2/22, Thaioil Ethanol Co., Ltd. (TET) reported consolidated sales revenue from Saphthip Co., Ltd. (TET holds 50% shares) of Baht 368 million, lower by Baht 30 million from the prior period mainly came from sales volumes of ethanol and alcohol for cleaning were declined due to planned maintenance shutdown in May for 30 days. Although the selling price of ethanol was increased, there were significantly higher feedstock costs. As a result, it had a drop in gross profit margin and reported a decline in EBITDA of Baht 60 million, down to Baht 1 million. Offsetting with selling and administrative expenses, depreciation, finance costs, and income tax expense, and non-controlling interests, TET reported consolidated net loss of Baht 17 million compared with consolidated net profit of Baht 8 million in the previous quarter.

In comparison with Q2/21, TET had a rise in consolidated sales revenue from Saphthip Co., Ltd., of Baht 13 million because the selling price of ethanol increased and higher revenue from the sale of cleaning alcohol, however due to significantly rising feedstock costs. This led TET to post a decrease in gross profit margin and lower EBITDA by Baht 41 million. Besides, Ubon Bio Ethanol Plc. (UBE) completed its initial public offering (IPO), and its shares began trading on the Stock Exchange of Thailand in September 2021. From this transaction, TET reclassified UBE investment from equity method to long-term investment. Therefore, TET had no longer booked profit sharing from investment in UBE in this quarter. In Q2/22, TET booked consolidated net loss of Baht 17 million compared with consolidated net profit of Baht 14 million in the same period of last year.

For 6M/22 compared with 6M/21, TET recorded higher consolidated sales revenue of Baht 31 million, up to Baht 766 million from the same period of last year. This was due to increased sales of ethanol and alcohol for cleaning purposes. However, due to significantly higher feedstock costs, the gross profit margin from ethanol dropped and sent TET EBITDA down by Baht 71 million to Baht 62 million. Additionally, TET reclassified UBE investment from equity method to long-term investment. Therefore, TET had no longer booked profit sharing from investment in UBE in this period. Led TET to book consolidated net loss of Baht 9 million compared with consolidated net profit of Baht 49 million in 6M/21.

3. Analysis of Consolidated Financial Statement

3.1 Statement of Financial Position

The financial position of Thaioil and Subsidiaries can be summarized as follows:

Table 15: Condensed Consolidated Statements of Financial Position

(Million Baht)	30 June 2022	31 December 2021	+/(-)	+/(-) %
Assets				
Cash, cash equivalents and short-term investments ⁽¹⁾	44,651	30,024	14,627	49%
Other current assets	126,501	71,215	55,286	78%
Non-current assets	272,126	260,905	11,221	4%
Total assets	443,278	362,144	81,134	22%
Liabilities				
Current liabilities ⁽²⁾	90,188	34,263	55,925	163%
Long-term borrowings and debentures (including current portion)	173,710	181,836	(8,126)	(4%)
Other non-current liabilities	28,767	22,951	5,816	25%
Total liabilities	292,665	239,050	53,615	22%
Equity				
Equity attributable to owners of the company	148,158	120,881	27,277	23%
Non-controlling interests	2,455	2,213	242	11%
Total equity	150,613	123,094	27,519	22%
Total liabilities and equity	443,278	362,144	81,134	22%

Remark (1) Including deposits at a financial institution used as collateral (2) Including short-term loan

Total Assets

As of 30 June 2022, Thaioil and Subsidiaries reported total assets of Baht 443,278 million, increased by Baht 84,134 million or 22% from that of 31 December 2021 mainly due to:

- Cash, cash equivalents and short-term investments increased by Baht 14,627 million from operating cash flow.
- Other current assets increased by Baht 55,286 million, primarily due to increases in inventories and trade receivable due to the higher average crude oil prices compared with that of December 2021.
- Non-current assets climbed by Baht 11,221 million, mainly due to an increase in property, plant, and equipment of Baht 11,108 million from several projects such as Clean Fuel Project (CFP).

Total Liabilities

As of 30 June 2022, Thaioil and Subsidiaries had total liabilities of Baht 292,685 million, which went up by Baht 53,615 million or 22% from 31 December 2021, mainly due to

- Current liabilities rose by Baht 55,925 million primarily due to higher trade payables from higher average crude oil prices in addition to Extended Trade Credit scheme with PTT Plc.

- Long-term borrowings and debentures (including current portions) declined by Baht 8,126 million due to partial repayment of bridging loan borrowed from PTT Plc, and other financial institutions to acquire CAP
- Other non-current liabilities rose by Baht 5,816 million mainly from an increase in lease liabilities of Baht 4,170 million

Table 16: Consolidated Borrowings

(Million Baht)	Thaioil	LABIX	TOP SPP	TS	TET	TTC	รวม
Debentures : US\$-denominated ⁽¹⁾	13,662	-	-	-	-	111,379	125,042
: Baht-denominated	14,500	-	-	-	-	-	14,500
Borrowings : Baht-denominated	22,587	3,714	7,080	221	76	-	33,678
: Other currencies-denominated ⁽¹⁾	-	-	-	491	-	-	491
As of 30 June 2022	50,749	3,714	7,080	1,202	123	111,379	173,710
As of 31 December 2021	63,966	4,464	7,277	597	94	105,438	181,836
+ / (-)	(13,217)	(750)	(197)	605	29	5,941	(8,126)

Remark (1) Including foreign exchange gain/loss from foreign-currency-denominated liabilities revaluation

Total Equity

As of 30 June 2022, Thaioil and Subsidiaries had total equity of Baht 150,613 million, increased by Baht 27,519 million or 22% from 31 December 2021. This was mainly due to net operating profit and one-time gain from partial disposal of our investment in GPSC.

3.2 Statement of Cash Flows

Statement of cash flows for Q2/22 of Thaioil and Subsidiaries are detailed as presented below:

Table 17: Condensed Statement of Cash Flows

(Million Baht)	Consolidated	Separated
Net cash flows from / (used in) operating activities	23,295	23,622
Net cash flows from / (used in) investing activities	7,708	9,265
Net cash flows from / (used in) financing activities	(20,555)	(23,802)
Net increase in cash and cash equivalents	10,449	9,085
Cash and cash equivalents at the beginning of period	29,696	24,600
Effect of exchange rate changes on cash and cash equivalents	651	672
Cash and cash equivalents at the end of period ⁽¹⁾	40,795	34,357

Remark (1) Excluding deposits at a financial institution used as collateral

During the first six months of 2022, Thaioil and Subsidiaries reported cash flows from operating activities of Baht 23,295 million. This was mainly due to 1) operating profit before tax expenses of Baht 41,963 million, 2) non-cash adjustment of Baht 6,152 million, and 3) net decreases in operating assets and liabilities of Baht 11,713 million while we had net tax payment of Baht 804 million.

We had cash flows from investing activities of Baht 7,708 million. This was mainly due to the combination of 1) cash used in purchases of property, plant and equipment of Baht 11,835 million which were mainly for CFP Project and TOP SPP Expansion and 2) cash provided from partial disposal of our stake in GPSC, net of dividend received of Baht 22,047 million.

Furthermore, we had cash used in financing activities of Baht 20,555 million. Major financing activities during the period were 1) cash from long term borrowing from financial institutions totaling to Baht 8,733 million, 2) cash from short-term borrowing from financial institutions of Baht 10,673 million, 3) cash used in payment of finance cost of Baht 3,639 million, 4) repayment of borrowing of Baht 31,883 million which was mainly the repayment for bridging loan and 5) dividend payment of Baht 4,080 million

Accordingly, we reported net increase in cash and cash equivalent of Baht 10,449 million from 31 December 2021. Nevertheless, the effect of exchange rate changes of Baht 651 million brought about the increase in cash and cash equivalent of Baht 651 million. Together with cash and cash equivalents at the beginning of period of Baht 29,696 million, Thaioil and Subsidiaries had cash and cash equivalents of Baht 40,795 million as of 30 June 2022.

3.3 Financial Ratios

Table 18: Financial Ratios (Consolidated) for Q2/22

Profitability Ratios	Q2/22	Q1/22	+/(-)	Q2/21	+/(-)
Quality of earnings ratio (%)	16%	11%	5%	9%	7%
Gross profit margin ratio (%)	15%	11%	4%	8%	7%
Net profit margin ratio (%)	15%	6%	9%	3%	12%

Liquidity Ratios	Q2/22	Q1/22	+/(-)	Q2/21	+/(-)
Current ratio (times)	1.4	1.2	0.2	2.7	(1.3)
Quick ratio (times)	0.7	0.6	0.1	1.6	(0.9)

Financial Policy Ratios	Q2/22	Q1/22	+/(-)	Q2/21	+/(-)
Total liability/ Total equity (times)	1.9	2.1	(0.1)	1.7	0.2
Net debt/ Equity (times)	1.0	1.3	(0.3)	1.0	(0.0)
Long-term loan/ Total equity (times)	1.3	1.6	(0.3)	1.3	(0.1)
Interest coverage ratio (times)	23.1	13.6	9.5	7.7	15.4
Long-term loan/ Total capitalization (%)	56%	61%	(5%)	57%	(1%)

Financial Ratios Calculation

Quality of Earnings ratio (%)	= EBITDA / Sales Revenue
Gross Profit Margin ratio (%)	= Gross Profit ⁽¹⁾ / Sales Revenue
Net Profit Margin ratio (%)	= Net Profit for the period / Total Revenue
Current ratio (times)	= Current Assets / Current Liabilities
Quick ratio (times)	= (Cash and Cash equivalent + Short-term investments + Accounts Receivable) / Current Liabilities
Total Liabilities / Total Equity (times)	= Total Liabilities / Total Equity
Net Debt/ Equity (times)	= Net Debt / Total Equity
Long term loan/ Total Equity (times)	= Long Term Loan / Total Equity
Long term loan	= Long-term borrowings from financial institutions + Debentures (includes current portion) + Lease liabilities (includes current portion)
Interest Coverage ratio (times)	= EBITDA / Interest Expenses (Finance costs)
Long term loan/ Total Capitalization (%)	= Long Term Loan / Total Capitalization
Total Capitalization	= Long Term Loan + Total Equity
Net Debt	= Interest bearing debt + Lease liabilities - Cash and cash equivalent – Short-term investments

Remark (1) Excluding depreciation and amortization.

4. Industry Outlook for the Second Half of 2022

Crude oil and refinery market outlook

In Q3/22, crude oil prices are likely to be lower than Q2/22 due to the declining global oil demand from the concern on the economic slowdown following the surge inflation as a result central banks around the world raised interest rate to control the impact of rising inflation. In addition, oil demand in the short term is likely to be pressured by widespread of COVID-19 Omicron cases especially in China where the number of daily infections increased and hit the record high since May'22, as a result, China government accelerated testing and resumed lockdown measures in many areas. However, oil demand will be supported by crude supply tightness as limited spare capacity from OPEC+ and the uncertainties of the production of Libya and Nigeria as a result of the conflict in the country.

In Q4/22 crude oil prices are expected to be pressured by the slowdown in global economic growth impacting to oil demand as many central banks around the world are expected to continue tightening monetary policy to mitigate the effects of inflation. Meanwhile crude oil supply is likely to remain tight as Russia's crude oil supply is expected to decline partially due to Europe and the U.S. sanctions policies, and crude supply from Iran might be not return to the market as the nuclear deal ended with no progress.

Gross Refinery Margin (GRM) in Q3/22 is likely to decline compared to Q2/22 as market concerned about a decline in oil demand from global recession while the situation of the COVID-19 in China is still uncertainty. In addition, market is also under pressure as refineries around the world have increased production since Q2/22 and Jul'22 after resumption from the maintenance shutdowns coupled with additional supply from a new refinery in China with a total refining capacity of 320,000 barrels per day as well as the other in Malaysia that has returned from a temporary shutdown. which has a refining capacity of 300,000 barrels per day. Moreover, gasoline market has also been pressured by lower demand after summer driving season in the U.S. has ended. Meanwhile, kerosene/jet demand is likely to be boosted by rising aviation activity after many countries ease travel restrictions and open countries for tourists. Meanwhile, diesel market is likely to be pressured by softening demand during monsoons in Asia despite tight supply due to the U.S. and Europe sanctions against Russia. Very low sulfur fuel oil (VLSFO) market is likely to be softer as additional supply from a new refinery in Kuwait with a capacity of 210,000 barrels per day coupled with the increase Chinese export volume after they announced more export quotas in 2022. While high sulfur fuel oil (HSFO) market is expected to improve due to higher demand in the Middle East during summer.

In Q4/22, Gross Refinery Margin (GRM) is likely to be driven by global oil demand during winter and festive season. Although the market is still concerned about the global economic slowdown that may affect demand for gasoline. Meanwhile, jet fuel market is expected to continue to be driven by increasing air travel both domestic and international flights especially the end of the year. In addition, kerosene and diesel demand for heating oil in North Asia and Europe is also expected to increase during winter. As for very low sulfur fuel oil (VLSFO) market is expected to remain stable supported by healthy bunker sector. While high sulfur fuel oil (HSFO) market is likely to improve due to higher demand for power plants during the winter especially in South Asia such as Pakistan, Bangladesh, and Sri Lanka, coupled with the rising of natural gas prices in the winter causing consumers turned to use more HSFO instead of natural gas. In addition, refinery business is expected to supportive due to the maintenance in Asia and Europe at the beginning of the quarter

Aromatics market outlook

In Q3/22, paraxylene (PX) market is expected to be stable and slightly softer compared to Q2/22 as market continues to be pressured by high feedstock cost following higher crude oil prices. In addition, the rising inflation rate will pressure on consumer's purchasing power. However, easing lockdown worldwide will support demand of downstream products i.e. textile industry and water bottle packaging. (Source: WMChemical Report, Jul'22)

In Q4/22, PX market is expected to be stable due to additional demand from China. While, recovering demand in industrial and tourism sectors coupled with the expected lower feedstock costs will support PX market to be stable. (Source: WMChemical Report, Jul'22)

Benzene (BZ) market in Q3/22 is likely to improve due to higher demand in the U.S. and the shutdown plants in Thailand and Japan in Jul'22 resulted in higher BZ prices. (IHS Markit Report, Spring Edition 2022)

In Q4/22, BZ market is expected to be slightly softer as additional supply in the region and demand for downstream products is expected to decline due to concerns on economic slowdown. (Source: IHS Markit Report, Spring Edition 2022)

Toluene (TL) market in Q3/22 is likely to be stable due to healthy demand for gasoline blending during summer driving season in the U.S.. However, market is pressured by supply resumption from maintenance. (Source: IHS Markit Report, Spring Edition 2022)

In Q4/22, TL market is expected to be stable as higher supply while recovering demand from economic recovery. (Source: IHS Markit Report, Spring Edition 2022)

LAB Market Outlook

In Q3/22, LAB market is expected to be stable compared to Q2/22 as feedstock costs i.e. kerosene and benzene prices are expected to decline following the easing of tight supply situation. However, demand for washing products remain pressured during monsoon season in India and Southeast Asia coupled with lower maintenance shutdowns of LAB plants in the region compared to the previous quarter. (Source: ICIS LAB Weekly report, Jul'22)

In Q4/22, LAB market is expected to improve compared to Q3/22 as higher demand after end of monsoon season in the region and maintenance shutdowns of LAB plants in South Korea and Taiwan. However, LAB price is still under pressure from additional supply after refinery resumption and increasing production capacity of a LAB plant in India from 140,000 tons per year to 162,000 tons per year. (Source: ICIS LAB Weekly report, Jul'22)

Lube Base Oil market outlook

In Q3/22, lube base oil market is expected to improve compared to Q2/22 driven by tight supply from the unplanned shutdown of base oil production plants in the region at the beginning of the quarter as well as lower feedstock cost tracking with fuel oil price at the beginning of Q3/22. However, market will be pressured by lower demand during rainy season.

In Q4/22, lube base oil market is expected to be under pressure as fuel oil price continue to rise. Although market will be driven by tight supply from shutdown of Group 1 lubricant plant in Japan and scheduled annual maintenance of Thai lubricant plant and improving demand after end of rainy season.

Bitumen market outlook

In Q3/22, bitumen market is expected to recover compared with Q2/22 as lubricant/asphalt production plants in the region cut their production capacity especially in Singapore. However, demand is likely to be pressured by rainy season causing road paving slow down and the situation of COVID-19 in China worsens.

In Q4/22, bitumen market is expected to be pressured by the rising fuel oil price. However, bitumen market is expected to be supported by the annual budget disbursement for road construction and repairment at the end of the year while supply is expected to be tighter from domestic lubricant/asphalt plants with scheduled annual maintenance.

5. Appendix

5.1 Summary of Approved Investment Plan

From 2022 to 2025, Thaioil and Subsidiaries have outstanding approved capital expenditure of US\$ 1,956 million, mainly consisting of CFP project (Clean Fuel Project) of US\$ 1,422 million and an investment in PT Chandra Asri Petrochemical Tbk ("CAP") of US\$ 270 million. An estimated budget for the investment during 2022-2025 is summarized in a table below;

TOP Group Strategic Investment Plan

CAPEX Plan (Unit US\$ million)

Updated as of July 2022

Project	Estimated Budgeting for Investment Plan 2022 - 2025
CFP project *	1,422
Total Ongoing CAPEX	167
Reliability, Efficiency and Flexibility Improvement	53
Infrastructure Improvement (i.e. New Bangphra Raw Water Line, Jetty 7&8, Site office preparation for fire water & fire water improvement)	18
Other Investments (i.e. Corporate Venture Capital - CVC , Digital Transformation)	96
TOP SPP Expansion	97
Olefins Investment	270
Total CAPEX	1,956

* CAPEX of CFP Project including the disposal of asset to transfer ownership in the Energy Recovery Unit (ERU) which is a part of the CFP Project
Notes: Excluding approximately 40 M\$/year for annual maintenance



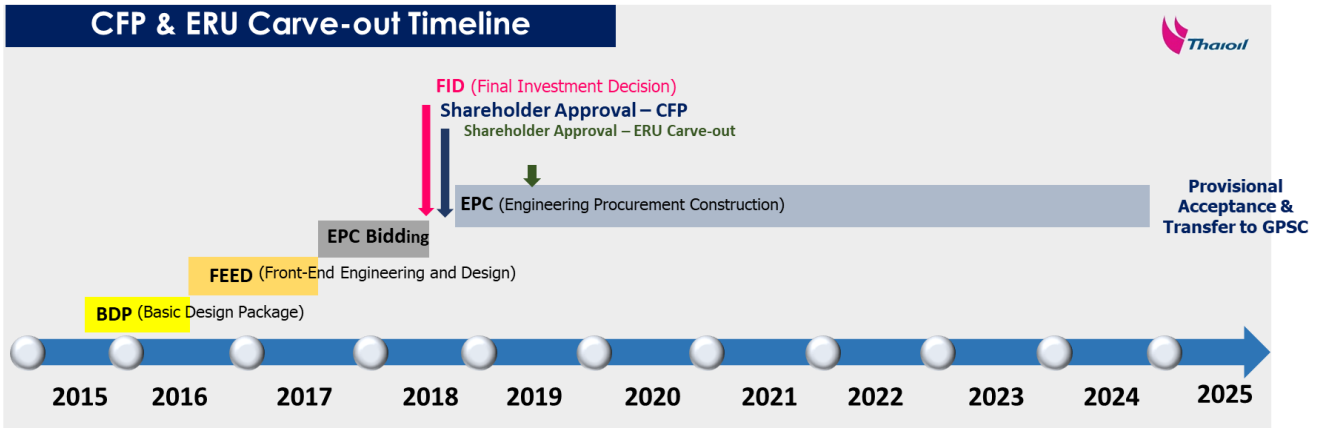
5.2 Summary of Key Project Investment: Clean Fuel Project (CFP)

The objective of CFP project is to enhance the competitiveness and efficiency and increase oil refining capacity to 1) upgrade low value product to higher value and more environmentally friendly products and 2) allow the refinery to handle more types and greater quantity of crude oils, which create economies of scale and a reduce raw material costs. Moreover, the project enhances the country's long-term energy stability and economic development, with the investment project value of approximately US\$ 4,825 million. CFP was approved by the Company's Extraordinary General Meeting of Shareholders on 27 August 2018. The CFP timeline is shown as summarized below:

Clean Fuel Project (CFP)

Main objectives of CFP

- Enhance **competitive advantage** of the refinery and **maintain 1st quartile performer**
- Enhance capability to **upgrade lower value product** into higher value product and ability to **process heavier (cheaper) crude oil**



On 10 April 2019, the 2019 Annual General Meeting of Shareholders resolved to approve the disposal of assets to transfer ownership in the Energy Recovery Unit (ERU), which is a part of CFP, to and the execution of the Relevant Agreements including the asset sale and purchase agreement, fuel and utilities supply agreement, power purchase agreement, operation and maintenance services agreement and land sub-lease agreement as well as the novation agreement with Global Power Synergy Public Company Limited (GPSC) or wholly owned subsidiary of GPSC (ERU Project). The ERU Project aims to reduce total investment cost of CFP, enhance liquidity and support future investment. Furthermore, the transaction will boost the return on investment of CFP while the Company can continue to manage and oversee the implementation of CFP and ERU during the construction and operation phase while maintaining safety, reliability and plant optimization of the project as originally planned.

As of June 2022, the progress of the CFP was more than 85.5% complete and we had significant progress on the installation of material equipment and modules. However, the COVID-19 pandemic during the past two years affected most of the construction projects, including our CFP. As a result, the CFP has been delayed from its original schedules. Therefore, we have negotiated with the contractors to adjust the operation plan (New Project Execution Plan) and we have carried out CFP in accordance with various measures to accelerate the progress, which is expected to result in an increase of the total expenditure of the project. In addition, we have jointly implemented additional operating measures with the CFP’s contractors to minimize the risks on future delay of CFP, for instance, adjustment of working structure to increase operating efficiency, adjustment of construction plan to accelerate the progress, increase of sub-contractors to support the work scopes and the adjusted timeframe, among others., and such measures have been conducted under strict COVID-19 control measure. We expect CFP to gradually start its commercial operation in 2024

5.3 Plan of Scheduled Turnaround Maintenance in 2022

Production Unit	Reason	Period
Lube Base Oil Unit*	Major Turnaround	1 October – 31 October (Approximately 31 days)

Remark *nameplate lube base oil capacity approximately 267,015 tons per annum