Management's Discussion and Analysis (MD&A)

Thai Oil Public Company Limited

For The First Quarter of 2022

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Management's Discussion and Analysis (MD&A)

Thai Oil Public Company Limited and Subsidiaries

For the First Quarter of 2022

1. Company and its Subsidiaries' Operating Results

Table 1: Summary of Consolidated Financial

(Million Baht)	Q1/22	Q4/21	+/(-)	Q1/21	+/(-)
Integrated Intake (kbd)	303	303	-	277	26
Gross Integrated Margin (GIM)(1) (US$/bbl)					
: excluding Stock Gain/(Loss)	7.6	7.0	0.6	4.1	3.5
: including Stock Gain/(Loss)	23.6	9.9	13.7	10.2	13.4

(Million Baht)	Q1/22	Q4/21	+/(-)	Q1/21	+/(-)
Sales Revenue	114,506	104,298	10,208	73,449	41,057
Net Realized Loss on Financial Instruments	(5,727)	(1,807)	(3,920)	(119)	(5,608)
EBITDA	**13,034**	**6,082**	**6,952**	**8,272**	**4,762**
Net Gain/(Loss) on Fair Value Measurement of Financial Instruments	(1,625)	2,311	(3,936)	217	(1,842)
Net Foreign Exchange Gain/(Loss) (2)	311	522	(211)	(2,604)	2,915
Finance Costs	(961)	(958)	(3)	(796)	(165)
Reversal of Income Tax (Expense)	(1,672)	(1,075)	(597)	(388)	(1,284)
Net Profit/(Loss)	**7,183**	**5,033**	**2,150**	**3,360**	**3,823**
Basic Earnings/(Loss) per Share (Baht)	**3.52**	**2.47**	**1.05**	**1.65**	**1.87**
Stock Gain/(Loss)	14,472	2,709	11,763	4,656	9,816
Reversal/ (Write-Down) on Crude and Petroleum Product Inventory(3)	(2,609)	574	(3,183)	109	(2,718)

Exchange Rate (Baht: 1 US$)	Q1/22	Q4/21	+/(-)	Q1/21	+/(-)
Average FX	33.23	33.54	(0.31)	30.46	2.77
Ending FX	33.46	33.59	(0.13)	31.51	1.95

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 Q1/22, Q4/21, Q1/21 of Baht 167 million, Baht 257 million, Baht (2,078) 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 with Q4/21, Thaioil and Subsidiaries reported similar levels of integrated intake in Q1/22 due to improving demand following the resumption of economic activities and lock-down easing in various countries. Sales revenue had recorded of Baht 114,506 million, an increase of Baht10,208 million due to higher product selling prices, which were supported by higher economic activity levels and geopolitical tension between Russia and Ukraine. In addition, GIM excluding stock gain / (loss) of 7.6 US$/bbl was recorded during the period, an increase of 0.6 US$/bbl thanks to improving crack spreads as product prices rose from higher demand which were attributable to lock-down easing and higher cross-border traveling activities. For aromatics market, BZ spread over ULG95 was pressured by higher ULG95 price while BZ inventory level in China remained at a high level. Lube base oil spreads over fuel oil were pressured by higher supply in the region. Meanwhile, bitumen spread over fuel oil declined due to lower regional demand from Chinese New Year season. Additionally, gross margin from surfactant business (LAB) dropped slightly as feedstock costs rose. Average crude oil price in Q1/22 rose from Q4/21 because of limited supply from OPEC+ group since a number of the members could not expand their production activities due to domestic insurgence, and geopolitical issue between Russia and Ukraine. Therefore, Thaioil and Subsidiaries recorded stock gain of Baht 14,472 million, an increase of Baht 11,763 million from the previous quarter, and had GIM including stock gain / (loss) of 23.6 US$/bbl, an increase of 13.7 US$/bbl. However, there was a write down on crude and petroleum product inventory of Baht 2,609 million compared with the reversal on crude and petroleum product inventory of Baht 574 million in Q4/21. Altogether with net realized loss on financial instruments of Baht 5,727 million, Thaioil and Subsidiaries reported EBITDA of Baht 13,034 million, an increase of Baht 6,952 million from previous quarter. However, Thaioil and Subsidiaries had net loss on fair value measurement on financial instruments of Baht 1,625 while net gain on fair value measurement on financial instruments of Baht 2,311 million was recorded in Q4/21. With net foreign exchange gain of Baht 311 million, a decline of Baht 211 million from previous quarter (which included net foreign exchange loss on foreign currency assets and liabilities of Baht 167 million) due to Thai Baht appreciation, offsetting with depreciation, finance costs and income tax expense, Thaioil and Subsidiaries reported net profit of Baht 7,183 million or 3.52 Baht per share, an increase of Baht 2,150 million from previous quarter.

Compared Q1/22 with Q1/21, Thaioil and Subsidiaries reported higher integrated intake following resumption in economic activities and traveling restriction being lifted. As such, sales revenue increased by Baht 41,057 million tracking a higher average selling price, which was in line with the higher crude oil price. In addition, Thaioil and Subsidiaries booked higher GIM excluding stock gain / (loss) of 3.5 US$/bbl mainly due to a significant improvement in gasoline, jet/kero and gas oil spreads as border restrictions were eased, and cross border traveling activities increased. Furthermore, surfactant business, LAB, reported higher gross profit following higher demand. Meanwhile, lube base oil spread over fuel oil declined due to higher regional supply as refineries in the region began to increase their production levels. Additionally, PX spread and BZ spread over ULG95 also decreased since crude oil prices increased. With the increase in crude oil prices, Thaioil and Subsidiaries reported a higher stock gain of Baht 9,816 million than in Q1/21. However, a write down of crude and petroleum product inventory of Baht 2,609 million was booked during the period, while there was a reversal of crude and petroleum product inventory of Baht 109 million in Q1/21. Altogether with a net realized loss of fair value measurement of financial instruments of Baht 5,608 million, Thaioil and Subsidiaries reported a higher EBITDA of Baht 4,762 million. In Q1/22, Thaioil and Subsidiaries booked a net loss on fair value measurement of financial instruments of Baht 1,625 million, while a net gain of Baht 217 million was reported in Q1/21. With a net foreign exchange gain of Baht 311 million, compared with a net foreign exchange loss of Baht 2,604 million in Q1/21. Offsetting with depreciation, finance costs, and tax expenses, net profit rose by Baht 3,823 million from the same period last year.

2. Summary of Financial Result by Business

Table 2: Financial Result by Business (Million Baht)

Sales Revenue	Q1/22	Q4/21	+/(-)	Q1/21	+/(-)
Consolidated	**114,506**	**104,298**	**10,208**	**73,449**	**41,057**
Refinery	122,928	110,821	12,107	74,580	48,348
Aromatics and LAB(1)	19,304	19,123	181	10,696	8,608
Lube Base Oil	6,808	6,093	715	4,962	1,846
Power Generation(2)	2,480	2,155	325	1,852	628
Solvent(3)	4,246	3,711	535	2,904	1,342
Marine Transportation(4)	-	-	-	155	(155)
Ethanol(5)	398	444	(46)	379	19
Others(6)	1,579	1,831	(252)	1,452	127

EBITDA	Q1/22	Q4/21	+/(-)	Q1/21	+/(-)
Consolidated	**13,034**	**6,082**	**6,952**	**8,272**	**4,762**
Refinery	11,313	4,066	7,247	5,050	6,263
Aromatics and LAB	532	695	(163)	1,297	(765)
Lube Base Oil	455	619	(164)	1,030	(575)
Power Generation	433	487	(54)	478	(45)
Solvent	351	241	110	360	(9)
Olefins	(2)	8	(10)	-	(2)
Marine Transportation	-	3	(3)	27	(27)
Ethanol	61	33	28	91	(30)
Others	50	55	(5)	31	19

Net Profit / (Loss)	Q1/22	Q4/21	+/(-)	Q1/21	+/(-)
Consolidated	**7,183**	**5,033**	**2,150**	**3,360**	**3,823**
Refinery	6,326	3,890	2,436	898	5,428
Aromatics and LAB	62	35	27	634	(572)
Lube Base Oil	329	457	(128)	797	(468)
Power Generation (7)	288	525	(237)	594	(310)
Solvent	226	127	99	246	(20)
Olefins (8)	(66)	(67)	1	-	(66)
Marine Transportation	-	3	(3)	16	(16)
Ethanol	8	(5)	13	35	(27)
Others (9)	128	121	7	52	44

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 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) Including Thaioil and Subsidiaries' share of profits from the investments in Global Power Synergy Plc. (GPSC).

(8) PT TOP Investment Indonesia holds 15% shares in PT Chandra Asri Petrochemical Tbk, which is the largest 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

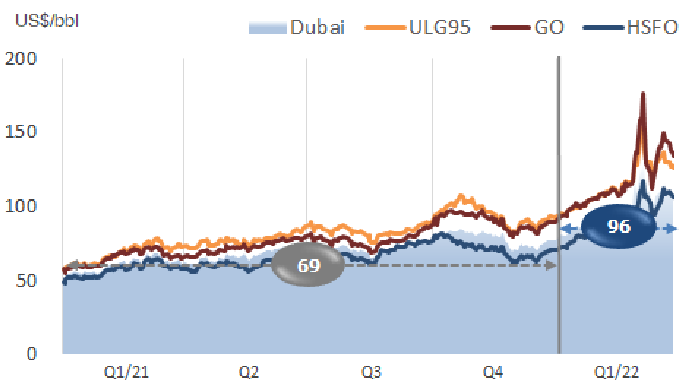
Average Prices (US$/bbl)	Q1/22	Q4/21	+/(-)	Q1/21	+/(-)
Dubai Crude Oil (1)	95.6	78.3	17.3	60.0	35.6
Unleaded Gasoline (ULG95)	113.3	93.8	19.5	67.1	46.2
Jet/Kero	111.8	88.6	23.2	63.3	48.5
Gasoil (GO)	115.1	89.8	25.3	64.8	50.3
Fuel Oil (HSFO)	87.2	71.5	15.7	56.6	30.6
Crude Premiums (US$/bbl)	**Q1/22**	**Q4/21**	**+/(-)**	**Q1/21**	**+/(-)**
Murban(2)	4.0	2.7	1.3	0.7	3.3
Arab Light(3)	2.8	2.0	0.8	0.8	2.0
Spreads over Dubai (US$/bbl)	**Q1/22**	**Q4/21**	**+/(-)**	**Q1/21**	**+/(-)**
Unleaded Gasoline (ULG95)	17.8	15.5	2.3	7.1	10.7
Jet/Kero	16.2	10.2	6.0	3.3	12.9
Gasoil (GO)	19.5	11.4	8.1	4.7	14.8
Fuel Oil (HSFO)	(8.3)	(6.9)	(1.4)	(3.5)	(4.8)
Very Low Sulfur Fuel Oil (VLSFO)	11.8	7.0	4.8	7.6	4.2

Remark 1) Closing Dubai crude oil price at the end of Q1/22, Q4/21, and Q1/21 were calculated from average Dubai price of March 2022, December 2021, and March 2021, respectively. The prices were 110.9 US$/bbl, 73.2 US$/bbl, and 64.4 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 Q1/22 increased from Q4/21 and Q1/21 due to 1) lockdown easing in various countries resulting in business resumptions, 2) limited additional supply from OPEC+ since many members were unable to boost their outputs as agreed owing to the unrest in countries, and 3) a delay in shutdown for maintenance due to COVID-19, which limited crude oil supply. Moreover, the Russia-Ukraine war fueled a surge in crude oil prices to hit a 7-year high after Russia was commercial and financial sanctioned and the U.S. banned Russian oil. Additionally, the UK and EU planned to phase out Russian oil by 2022 and 2027, respectively. This led to concerns over a drop in Russian crude oil exports, which have a proportion of around 5-6% of global crude oil supply. However, crude oil prices slightly declined around the end of March 2022 after the U.S. and IEA released crude oil from the U.S. Strategic Petroleum Reserve (SPR) of approximately 60 million barrels during March – April 2022 and were expected to release more around 240 million barrels from May 2022 onwards in order to pull down crude oil prices and to fill missing Russian oil supply.

Murban crude premium over Dubai and Arab Light crude premium over average Dubai and Oman in Q1/22 rose from Q4/21 and Q1/21. This was because refineries boosted their production in response to oil demand recovery in several countries after lockdown easing.

Gasoline spread over Dubai in Q1/22 improved from Q4/21 and Q1/21 thanks to a recovery in driving activities after travel restriction easing, especially in Asia. Gasoil spread over Dubai in Q1/22 also increased compared with Q4/21 and Q1/21, which was supported by better demand tracking economic recovery after the COVID-19 situation in Asia was better. Furthermore, gasoil supply became tight owing to Russian oil sanctions, including Russian gasoil. Additionally, global gasoil inventories were lower than the 5-year-average level, which helped support gasoil price. Moreover, jet/kero spread in Q1/22 picked up from Q4/21 and Q1/21 thanks to winter demand and increases in flights, particularly in Europe and the U.S., because many countries declared COVID-19 as endemic and cancelled travel restrictions. Nevertheless, the demand was suppressed from travel activities in China following China's Zero-Covid during Q1/22. High sulfur fuel oil over Dubai in Q1/22, on the other hand, reduced from Q4/21 and Q1/21. This was due to a rise in supply after refineries boosted their production in response to petroleum demand recovery, and higher crude oil prices pressured the demand. For low sulfur fuel oil, its spread over Dubai in Q1/22 was higher than Q4/21 and Q1/21 as transportation fuels demand increased during the holidays, and electricity demand in North Asia rose in winter.

Table 4: Financial Result of Refinery Business

	Q1/22	Q4/21	+/(-)	Q1/21	+/(-)
Throughput[(1)] (%)	109%	109%	-	100%	9%
Intake (kbd)	299	300	(1)	274	25
Gross Refining Margin (GRM) (US$/bbl)					
: excluding Stock Gain/(Loss)	6.4	5.4	1.0	0.7	5.7
: including Stock Gain/(Loss)	22.6	8.3	14.3	6.9	15.7

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

In Q1/22, Thaioil refinery reported better EBITDA than the previous quarter thanks to increases in petroleum product spreads and stock gain. This resulted in higher net profit than Q4/21.

In Q1/22, Thaioil refinery reported throughput of 109%, which stayed at the same level as last quarter, and had a slightly lower sales volume than the previous quarter. Sales volume was consisted of 86% domestic sales, 13% Indochina sales, and 1% export sales. Sales revenue of Baht 122,928 million, or an increase of Baht 12,107 million was booked during the period from higher product prices tracking economic recovery as well as concerns over Russia-Ukraine war. Thaioil refinery recorded GRM excluding stock gain/(loss) of 6.4 US$/bbl, or an increase of 1.0 US$/bbl from the previous quarter. This mainly came from rebounds in petroleum product spreads following better demand caused by the easing of lockdowns and travel restrictions in various countries amid higher crude premiums. Furthermore, a rise in crude oil price resulted in stock gain of 16.2 US$/bbl or Baht 14,472 million, increased from the previous quarter by Baht 11,763 million. However, Thaioil refinery booked a write-down on crude and petroleum product inventory of Baht 2,609 million compared with a reversal on crude and petroleum product inventory of Baht 574 million in Q4/21. Combining with the net realized loss on financial instruments of Baht 5,749 million, EBITDA of Baht 11,313 million was recorded in Q1/22, a rise of Baht 7,247 million from the previous quarter. Besides, the refinery had a net loss on fair value measurement of financial instruments of Baht 1,640 million, compared with a net gain on fair

Compared with Q1/21, the refinery recorded considerably higher GRM <u>including</u> stock gain/(loss) tracking higher petroleum product spreads and crude oil price. This led the refinery to post a rise in net profit from Q1/21.

value measurement of financial instruments of Baht 2,440 million in Q4/21, which was mainly from mark-to-market commodity hedging. However, The refinery also recognized net foreign exchange gain of Baht 283 million (including a net foreign exchange gain on foreign currency assets and liabilities of Baht 189 million). Offsetting with depreciation, finance costs, and income tax expense, the refinery recorded a net profit of Baht 6,326 million, increased by 2,436 million from the prior quarter (including dividend income, it had a net profit of Baht 7,598 million).

Compared with Q1/21, Thaioil refinery reported increases in throughput and sales volume of 9% and 9%, respectively, tracking the economic rebound and easing of travel restrictions. It booked higher sales revenue by Baht 48,348 million from higher product prices tracking economic recovery and concerns over the Russia-Ukraine war. Thaioil refinery recorded significantly higher GRM <u>excluding</u> stock gain/(loss) by 5.7 US$/bbl than the same period last year thanks to significant improvement in gasoline, jet/kero, and gasoil spreads resulting from easing of lockdowns and travel restrictions. Additionally, higher crude oil prices gave rise to a higher stock gain of Baht 9,816 million than in Q1/21. However, the refinery recorded a write-down on crude and petroleum product inventory of Baht 2,609 million compared with a reversal on crude and petroleum product inventory of Baht 109 million in Q1/21. Together with an increase in net realized loss on financial instruments of Baht 5,643 million, the refinery booked higher EBITDA by Baht 6,263 million than in the same period of the previous year. However, in Q1/22, the refinery reported a net loss on fair value measurement of financial instruments of Baht 1,640 million, compared with a net gain on fair value measurement of financial instruments of Baht 275 million in Q1/21. On the other hand, it recorded a net foreign exchange gain of Baht 283 million from a slight appreciation in Thai Baht, compared with a net foreign exchange loss of Baht 2,663 million in the same period last year. Offsetting with depreciation, finance costs, and income tax expense, a higher net profit of Baht 5,428 million than in Q1/21 was booked.

2.2 Market Condition and Financial Result of Aromatics Business

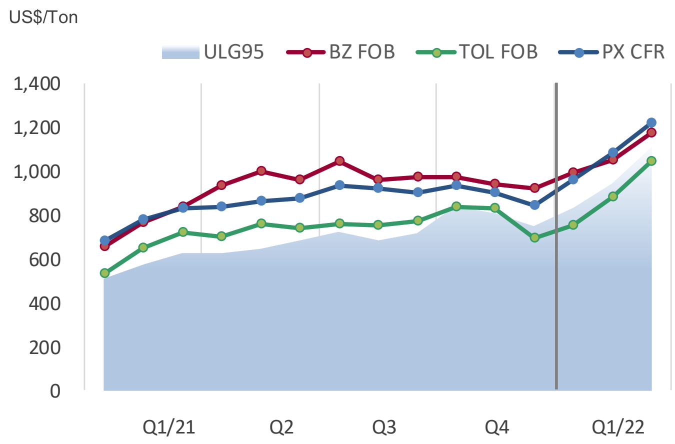
Table 5: Average Prices and Spreads of Aromatics Products

Average Prices (US$/Ton)	Q1/22	Q4/21	+/(-)	Q1/21	+/(-)
Paraxylene (PX)(1)	1,087	893	194	766	321
Benzene (BZ)(2)	1,074	945	129	753	321
Toluene (TL)(2)	892	788	104	633	259
Spreads over ULG95 (US$/Ton)	**Q1/22**	**Q4/21**	**+/(-)**	**Q1/21**	**+/(-)**
Paraxylene (PX)	124	96	28	195	(71)
Benzene (BZ)	110	148	(38)	182	(72)
Toluene (TL)	(71)	(9)	(62)	63	(134)

<u>Remark</u> (1) Based on CFR Taiwan price

(2) Based on FOB Korea price

Graph 2: Prices of Aromatics Products and ULG95



PX price and its spread over ULG95 in Q1/22 rose from Q4/21, boosted by the spike in oil prices due to the Russia-Ukraine conflict. In Asia, supply was tightened from the shutting/turning down of many low-profit aromatics plants in China and South Korea and intensified by the increasing demand after the New Year and Chinese New Year season. However, PX spread over ULG95 during Q1'22 weighted down from Q1/21 due to the skyrocketed ULG95 price caused by the global energy crisis. Moreover, PX supply in China was pressured by another COVID-19 lockdown measure to cope with the outbreak.

BZ price in Q1/22 gained higher from Q4/21 and Q1/21 due to the surge in oil prices during the Russia-Ukraine conflict. However, BZ spread over ULG95 in Q1/22 declined from Q4/21 and Q1/21 as a result of the spike in ULG95 price. In addition, with the high level of BZ inventory at around 200,000 tons in China, together with global uncertainties from the Russia-Ukraine conflict and COVID-19 cases, BZ consumption was slowed down.

TL price in Q1/22 picked up from Q4/21 and Q1/21 as a result of the increase in oil prices during the Russia-Ukraine conflict. However, TL spread over ULG95 in Q1/22 was narrowed from Q4/21 and Q1/21 as the aromatics market was pressured by the higher cost of production, leading to the production cuts in Asia and resulting in softer demand for using TL as feedstock. However, TL supply became tighter during the end of Q1/22 due to the earthquake in Japan, which caused a temporary shutdown.

Table 6: Financial Result of TPX

	Q1/22	Q4/21	+/(-)	Q1/21	+/(-)
Aromatics Production Rate (1) (%)	73%	81%	(8%)	80%	(7%)
Aromatics Production (kTon)	151	171	(20)	165	(14)
Product-to-feed Margin(2) (US$/Ton)	27	19	8	106	(79)

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 Q1/22, TPX had increases in product-to-feed margin due to higher aromatics spreads. As a result, TPX had a decrease in net loss from previous quarter.

In Q1/22, compared with Q4/21, Thai Paraxylene Co., Ltd. (TPX) had an aromatics production rate of 73%, decreased by 8% from economic optimization in response to softer market and had sales revenue of Baht 13,659 million, decreased by Baht 117 million due to decreases in total sales volume. Besides, TPX reported product-to-feed margin of 27 US$/ton, an increase of 8 US$/ton as supply was tightened from the shutting/turning down of many low-profit aromatics plants in China and South Korea and intensified by the increasing Asian demand after the New Year and Chinese New Year season. However, TPX had a net realized gain on financial instruments of Baht 23 million, decreased by Baht 325 million from previous quarter. Thus, TPX recorded an EBITDA loss of Baht 109 million, compared with an EBITDA of Baht 69 million in Q4/21. Besides, in this quarter, net loss on fair value measurement of financial instruments was recorded at Baht 12 million, lower loss by Baht 171 million. In addition, TPX had a net foreign exchange loss of Baht 3 million, compared with a net foreign

Compared with Q1/21, TPX had lower product-to-feed margin due to aromatics spreads decreased. Therefore, it had let to a drop in TPX performance.

exchange gain of Baht 14 million in the prior quarter. Offsetting with depreciation, finance costs and income tax expense, in Q1/22, TPX posted net loss of Baht 302 million, lower loss by Baht 14 million from Q4/21.

Compared with Q1/21, TPX had a lower aromatics production rate by 7%. However, TPX had higher sales revenue by Baht 5,482 million due to increases in average selling prices. However, TPX reported a decrease in product-to-feed margin of 79 US$/ton due to weaker aromatics spread over ULG95. Combining with net realized gain on financial instruments, TPX had an EBITDA loss of Baht 109 million, compared with an EBITDA of Baht 995 million in Q1/21. Besides, TPX had a decrease in net loss on fair value measurement of financial instruments of Baht 26 million, while TPX had a net foreign exchange loss of Baht 3 million, compared with a net foreign exchange gain of Baht 47 million in Q1/21. Therefore, TPX posted a net loss of Baht 302 million, compared with a net profit of Baht 579 million in the same period last year.

In Q1/22, aromatics group (TPX holds 75% of the shares of LABIX) had consolidated sales revenue of Baht 19,304 million, consolidated EBITDA of Baht 532 million, and consolidated net profit of Baht 62 million.

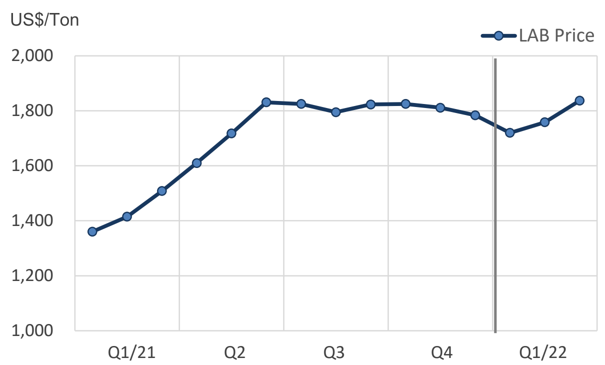
2.3 Market Condition and Financial Result of an Intermediate for the Production of Surfactants Business

Table 7: Average Price of LAB

Average Price (US$/Ton)	Q1/22	Q4/21	+/(-)	Q1/21	+/(-)
Linear Alkylbenzene (LAB)(1)	1,772	1,807	(35)	1,428	344

Remark (1) Based on ICIS price

Graph 3: Price of LAB



LAB price and its spread over jet and BZ in Q1/22 decreased compared with Q4/21 because of higher regional supply since LAB plants in North Asia resumed their operation after shutdowns for maintenance in previous quarter. However, LAB demand in Asia was supported after the New Year and Chinese New Year season together with better weather conditions in summer in many countries in Asia. Meanwhile, LAB price in Q1/22 increased compared with Q1/21 due to the rise in crude prices after many countries had eased their lockdowns and economic activities were restored. Moreover, crude supply from OPEC+ alliance was lower than expected. In addition, LAB demand continued to grow following population growth in Asia and better quality of life in developing countries as well as hygienics concern during COVID-19 pandemic.

Table 8: LAB Production

	Q1/22	Q4/21	+/(-)	Q1/21	+/(-)
LAB Production Rate(1) (%)	122%	120%	2%	91%	31%
LAB Production (kTon)	36	36	-	27	9

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

In Q1/22, LABIX resumed full production capacity and had higher net profit than previous quarter from higher sales volume.

Compared with Q1/21, LABIX had better performance thanks to higher gross margin following healthy LAB demand.

In Q1/22, LABIX Co., Ltd. (LABIX) had a LAB production rate of 122% and LAB sales volume increased by 3% resulting in sales revenue of Baht 6,035 million, increased by Baht 300 million. However, gross margin was slightly reduced following the higher cost of feedstock compared with the previous quarter. LABIX then reported EBITDA of Baht 641 million, increased by Baht 15 million from Q4/21. In this quarter, LABIX had a net foreign exchange gain of Baht 10 million, compared with a net foreign exchange loss of Baht 30 million in Q4/21. Offsetting with depreciation and finance costs, LABIX posted a net profit of Baht 485 million, which rose by Baht 17 million from the previous quarter.

Compared with Q1/21, LABIX had a higher LAB production rate and sales volume by 31% and 27% respectively. Furthermore, an increase in LAB price resulted in a rise in sales revenue of Baht 3,338 million. Moreover, LABIX had a higher gross margin from better demand. This led LABIX to report higher EBITDA by Baht 339 million. In addition, LABIX had a net foreign exchange gain of Baht 10 million compared with a net foreign exchange loss of Baht 15 million in Q1/21. Offsetting with depreciation and finance costs, LABIX then reported net profit rose by Baht 412 million from the same period of the previous year.

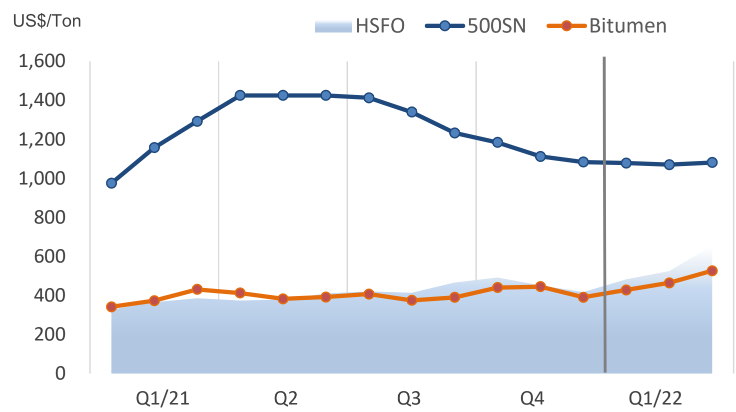
2.4 Market Condition and Financial Result of Lube Base Oil Business

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

Average Prices (US$/Ton)	Q1/22	Q4/21	+/(-)	Q1/21	+/(-)
500SN[1]	1,076	1,127	(51)	1,142	(66)
Bitumen[2]	473	425	48	382	91
Spreads over HSFO (US$/Ton)	**Q1/22**	**Q4/21**	**+/(-)**	**Q1/21**	**+/(-)**
500SN	523	673	(150)	783	(260)
Bitumen	(81)	(27)	(54)	23	(104)

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



In Q1/22, lube base oil price (500SN) and its spread over fuel oil declined compared with Q4/21 due to increases in production level of refineries in the region. Additionally, geopolitical tension between Russia and Ukraine further suppressed regional demand for lube base oil usage. Similarly, comparing with Q1/21, both lube base oil price and its spread declined due to 1) an increase in base oil supply in this quarter, and 2) an increase in fuel oil price.

In Q1/22, bitumen price rose compared with both Q4/21 and Q1/21 due to an increase in crude oil prices from 1) a recovery in economic activities and 2) geopolitical tension. Nevertheless, bitumen spread over fuel oil in Q1/22 shrank compared with Q4/21 and Q1/21 as it was pressured by high crude oil prices and softened demand in the region following the lunar new year festival and limited fiscal spending due to the COVID-19 situation.

Table 10: Financial Result of TLB

	Q1/22	Q4/21	+/(-)	Q1/21	+/(-)
Base Oil Production Rate[1] (%)	89%	88%	1%	93%	(4%)
Base Oil Production (kTon)	59	59	-	61	(2)
Product-to-feed Margin[2] (US$/Ton)	96	118	(22)	170	(74)

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

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

In Q1/22, TLB booked lower P2F compared with Q4/21 and Q1/21 due to lower product spreads over fuel oil as a result of increase in supply in the market. Therefore, TLB reported lower net profit.

In Q1/22, Thai Lube Base Plc. (TLB) reported a base oil production rate of 89% and booked sales revenues of Baht 6,808 million, which rose by Baht 715 million from the previous quarter due to the higher bitumen price. However, base oil spreads over fuel oil declined due to higher regional supply. Bitumen spread over fuel oil also decreased due to softened bitumen demand. Thus, TLB reported a lower Product-to-feed margin of 96 US$/Ton, dropped by 22 US$/Ton. TLB reported EBITDA of Baht 455 million, or Baht 164 million lower. Offsetting with depreciation, finance costs, and income tax expense, TLB posted net profit of Baht 329 million, declined by Baht 128 million from the previous quarter.

Compared with Q1/21, TLB reported higher sales revenue of Baht 1,846 million due to higher selling prices tracking crude oil prices. However, base oil spreads over fuel oil were softened. This pressured Product-to-feed Margin down by 74 US$/ton and EBITDA down by Baht 575 million. As a result, TLB reported a lower net profit by Baht 468 million compared to the same period of last year.

2.5 Financial Result of Power Generation Business

Table 11: Sales Volume from Power Generation Business

TP + TOP SPP [1]	Q1/22	Q4/21	+/(-)	Q1/21	+/(-)
Electricity Dispatched (GWh)	354	395	(41)	455	(101)
Steam Exported (kTon)	561	591	(30)	700	(139)

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, the electricity dispatched and steam exported in Q2/21 presented the information of TOP SPP Co., Ltd.

In Q1/22, TOP SPP had a rise in sales revenue from higher average selling prices following higher natural gas price while a dip in sales volume from planned maintenance leading to TOP SPP earned lower net profit.

Compared Q1/22 with Q4/21, TOP SPP Co., Ltd. (TOP SPP) had sales revenue of Baht 2,480 million, which increased by Baht 325 million due to an increase in average selling prices following higher natural gas price while the volume of electricity and steam exported decreased because of planned maintenance for gas turbines and had higher costs from planned maintenance. As a result, TOP SPP reported EBITDA of Baht 433 million, decreased by Baht 54 million. Offsetting with depreciation, finance costs and income tax expense, TOP SPP recorded a net profit of Baht 236 million, decreased by Baht 46 million. Besides, Thaioil and Subsidiaries recognized, without non-controlling interests, a share of profit from the investment in GPSC of Baht 52 million, decreased by 191 million from the prior quarter.

Compared Q1/22 with Q1/21, TOP SPP sales revenue increased by Baht 952 million because of increases in average selling prices following higher natural gas price and a rise in steam sales volume

Compared with Q1/21, TOP SPP sales revenue increased from increases in average selling prices and steam sales volume leading to higher net profit.

following customers' demand, while the volume of electricity dispatched exported decreased because of planned maintenance for gas turbines. This led to a rise in EBITDA of Baht 18 million. Offsetting with depreciation, finance costs and income tax expense, TOP SPP net profit increased by Baht 27 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 331 million compared with the same period of last year.

2.6 Financial Result of Solvent Manufacturing and Distribution Business

Table 12: Financial Result of Thaioil Solvent

	Q1/22	Q4/21	+/(-)	Q1/21	+/(-)
Solvent Utilization Rate [1] (%)	136%	109%[2]	27%	140%	(4%)
Solvent Production[1] (kTon)	48	39[2]	9	49	(1)
Solvent Sales Volume (kTon)	118	109	9	115	3

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

(2) Retrospective adjustment

In Q1/22, Thaioil Solvent had an increase in sales revenue. Moreover, higher sales volume and better gross profit margin due to a recovery of demand resulted in higher net profit from the previous quarter.

Compared with Q1/21, Thaioil Solvent reported rises in sales revenue and gross profit margin. However, from increases in selling and administrative expenses, as well as a decrease in net foreign exchange gain, Thaioil Solvent posted lower net profit than the same period of the previous year.

In Q1/22, compared with Q4/21, Thaioil Solvent (Solvent Manufacturing and Distribution Business) had a 136% solvent utilization rate, which increased by 27% mainly due mainly to a rise in solvent demand thanks to the economic recovery after COVID-19 epidemic situation was likely to be better. Thaioil Solvent had an increase in sales volume by approximately 9,000 tons and reported sales revenue of Baht 4,246 million, surged by Baht 535 million. This resulted from higher average solvent selling price per unit tracking average crude oil price and led Thaioil Solvent to record EBITDA of Baht 351 million, increased by Baht 110 million in line with improving gross margin. Additionally, Thaioil Solvent had net foreign exchange gain of Baht 12 million compared with net foreign exchange loss of Baht 9 million in Q4/21. Offsetting with depreciation of Baht 61 million, finance costs of Baht 18 million, income tax expense of Baht 43 million, and non-controlling interests, Thaioil Solvent posted net profit of Baht 226 million in Q1/22, improved by Baht 99 million from the prior quarter.

Compared Q1/22 with Q1/21, Thaioil Solvent had solvent utilization rate decreased by 4% and solvent production volume had a slight decrease. However, the average solvent price per unit increased significantly tracking average crude oil prices. As a result, Thaioil Solvent had sales revenue increased by Baht 1,342 million. Also, gross profit margin in Q1/22 developed from Q1/21 because of increased demand from the overall economic recovery from the COVID-19 outbreak. However, from higher selling and administrative expenses, Thaioil Solvent reported a decrease in EBITDA of Baht 9 million. Besides, there was a record of a lower net foreign exchange gain of Baht 12 million from Q1/21. Offsetting with depreciation, finance costs, income tax expense and non-controlling interests, Thaioil Solvent posted a drop in net profit of Baht 20 million from the same period of the previous year.

2.7 Financial Result of Olefin Business

Table 13: Spread of Olefin Products

US$/Ton	Q1/22	Q4/21	+/(-)	Q1/21	+/(-)
HDPE – Naphtha MOPJ[1]	453	507	(54)	-	-
LLDPE – Naphtha MOPJ[1]	468	540	(72)	-	-
PP – Naphtha MOPJ[1]	479	563	(84)	-	-

Remark: (1) Based on ICIS price

In Q1/22, Uptick in naphtha price and olefin market continuously under pressure from China's lockdown and new supply. TII realized net loss.

As naphtha price rose tracking crude oil prices from the conflict between Russia and Ukraine caused Dubai price surged to the highest level in seven years. Meanwhile, Polyethylene (PE) and Polypropylene (PP) markets were pressured by China's lockdowns to contain the spread of Omicron variant and new additional capacity from Northeast Asia, especially from China and Philippine. Furthermore, in Q1/22, TII booked a share of the loss from the investment in CAP. Besides, TII itself had administrative expenses as well. Therefore, TII recorded a net loss of Baht 66 million, compared with a net loss of Baht 67 million in the previous quarter.

2.8 Financial Result of Ethanol Business

Table 14: Utilization Rate of TET

	Q1/22	Q4/21	+/(-)	Q1/21	+/(-)
Ethanol Utilization Rate (%)					
- Sapthip	106%	109%	(3%)	86%	20%

In Q1/22, TET booked higher sales revenue following higher ethanol price. This led TET to report higher EBITDA and net profit than Q4/21.

Comparing with Q1/21, TET reported an increase in sales revenue. However, significant higher cost of sales, TET's gross margin, EBITDA, and net profit decreased from the same period of last year.

In Q1/22, Thaioil Ethanol Co., Ltd. (TET) reported higher ethanol utilization rates following an increase in sales volume as the COVID-19 situation improved. It reported consolidated sales revenue from Sapthip Co., Ltd. (TET holds 50% shares) of Baht 398 million which decreased by Baht 46 million from Q4/21. Although ethanol sales volume declined from the previous quarter, the selling price of ethanol increased from rises in production costs tracking with cassava prices. This led, Q1/22, TET to have EBITDA of Baht 61 million, an increase of Baht 28 million. In this quarter, TET reported net a consolidated profit of Baht 8 million, compared with a net consolidated loss of Baht 5 million from the previous quarter.

In comparison with Q1/21, TET had an increase in consolidated sales revenue from Sapthip Co., Ltd. of Baht 19 million because in Q1/22, ethanol sales volume of fuel grade rose by 840,000 liters, and sales of cleaning alcohol increased by 260,000 liters, although the selling price in Q1/22 decreased by 3.72 Baht/liter, coupled with higher production costs. As a result, TET's gross profit margin decreased by Baht 34 million, resulting in a drop in EBITDA of Baht 30 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 Q1/22, TET booked a decrease in net consolidated profit of Baht 27 million compared with the same period of last year.

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)	31 March 2022	31 December 2021	+/(-)	+/(-) %
Assets				
Cash, cash equivalents and short-term investments[1]	33,255	30,024	3,231	11%
Other current assets	98,952	71,215	27,737	39%
Non-current assets	266,377	260,905	5,472	2%
Total assets	**398,583**	**362,144**	**36,439**	**10%**
Liabilities				
Current liabilities	58,168	34,263	23,905	70%
Long-term borrowings and debentures (including current portion)	186,161	181,836	4,325	2%
Other non-current liabilities	24,684	22,951	1,733	8%
Total liabilities	**269,013**	**239,050**	**29,963**	**13%**
Equity				
Equity attributable to owners of the company	127,208	120,881	6,327	5%
Non-controlling interests	2,362	2,213	149	7%
Total equity	**129,571**	**123,094**	**6,477**	**5%**
Total liabilities and equity	**398,583**	**362,144**	**36,439**	**10%**

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

Total Assets

As of 31 March 2022, Thaioil and Subsidiaries had total assets of Baht 398,583 million, increased by Baht 36,439 million or 10% from 31 December 2021 due to the following main reasons:

- Cash, cash equivalents and short-term investments increased by Baht 3,231 million from operating cash flow.
- Other current assets increased by Baht 27,737 million, primarily due to increases in inventories due to the higher average crude oil prices in March 2022 compared with December 2021. Additionally, trade receivables increased due to the same reason.
- Non-current assets climbed by Baht 5,472 million, mainly due to an increase in property, plant, and equipment of Baht 5,672 million from several projects such as CFP. Furthermore, deferred tax assets increased due to gain from derivative instruments such as cross currency swaps and forward contracts.

Total Liabilities

As of 31 March 2022, Thaioil and Subsidiaries had total liabilities of Baht 269,013 million, which went up by Baht 29,963 million or 13% from 31 December 2021, mainly due to

- Current liabilities rose by Baht 23,905 million primarily due to higher trade payables from higher average crude oil prices
- Long-term borrowings and debentures (including current portions) rose by Baht 4,325 million mainly from a long-term borrowing drawdown in Q1/22
- Other non-current liabilities rose by Baht 1,733 million mainly from an increase in derivatives liabilities of Baht 724 million.

Table 16: Consolidated Long-term Borrowings

(Million Baht)	Thaioil	LABIX	TOP SPP	TS	TET	TTC	Total
Debentures : US$-denominated[1]	12,879	-	-	-	-	105,060	117,939
: Baht-denominated	17,500	-	-	-	-	-	17,500
Borrowings : Baht-denominated	38,544	4,013	7,279	322	94	-	50,251
: Other currencies-denominated[1]	-	-	-	471	-	-	471
As of 31 March 2022	**68,922**	**4,013**	**7,279**	**793**	**94**	**105,060**	**186,161**
As of 31 December 2021	63,966	4,464	7,277	597	94	105,438	181,836
+ / (-)	**4,956**	**(451)**	**2**	**196**	**-**	**(378)**	**4,325**

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

Total Equity

As of 31 March 2022, Thaioil and Subsidiaries had total equity of Baht 129,571 million, increased by Baht 6,477 million or 5% from 31 December 2021. This was mainly due to net profit during the quarter.

3.2 Statement of Cash Flows

Statement of cash flows for Q1/22 of Thaioil and Subsidiaries are detailed as presented below:

Table 17: Condensed Statement of Cash Flows

(Million Baht)	Consolidated	Separated
Net cash provided by operating activities	6,260	5,444
Net cash used in investing activities	(7,156)	(6,595)
Net cash provided by financing activities	4,097	3,524
Net decrease in cash and cash equivalents	**3,201**	**2,373**
Cash and cash equivalents at the beginning of period	29,696	24,600
Effect of exchange rate changes on cash and cash equivalents	19	19
Cash and cash equivalents at the end of period [(1)]	**32,915**	**26,992**
Cash, cash equivalents, deposits at a financial institution used as collateral, and short-term investments	**33,255**	**26,992**

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

In Q1/22, Thaioil and Subsidiaries had cash flows provided by operating activities of Baht 6,260 million. This was mainly due to 1) operating profit before tax expenses of Baht 9,004 million, 2) non-cash adjustment of Baht 3,763 million, and 3) net increases in operating assets and liabilities of Baht 6,526 million altogether with net tax receipt of Baht 19 million. Thaioil and Subsidiaries had cash used in investing activities of Baht 7,156 million mainly due to purchases of property, plant and equipment of Baht 7,046 million, which were mainly spent on the Clean Fuel Project and TOP SPP for expansion project.

Furthermore, cash flows provided by financing activities were Baht 4,097 million. This was mainly due to proceeds from long-term borrowings from financial institutions of Baht 5,219 million and net proceeds from short-term borrowings from financial institutions of Baht 971 million. Meanwhile, there were the payment of financing costs of Baht 1,488 million and repayment of long-term borrowings from financial institutions of Baht 473 million.

According to the mentioned cash flows activities, Thaioil and Subsidiaries reported cash and cash equivalents higher by Baht 3,201 million from 31 December 2021. Nevertheless, Thaioil and Subsidiaries recorded the effect of exchange rate changes of Baht 19 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 32,915 million as of 31 March 2022. Including deposits at a financial institution used as collateral and short-term investments, Thaioil and Subsidiaries had cash, cash equivalents, deposits at a financial institution used as collateral, and short-term investments of Baht 33,255 million.

3.3 Financial Ratios

Table 18: Financial Ratios (Consolidated) for Q1/22

Profitability Ratios	Q1/22	Q4/21	+/(-)	Q1/21	+/(-)
Quality of earnings ratio (%)	11%	6%	5%	11%	-
Gross profit margin ratio (%)	11%	5%	6%	10%	1%
Net profit margin ratio (%)	6%	5%	1%	4%	2%

Liquidity Ratios	Q1/22	Q4/21	+/(-)	Q1/21	+/(-)
Current ratio (times)	1.2	2.6	(1.4)	4.1	(2.9)
Quick ratio (times)	0.6	1.4	(0.8)	2.6	(2.0)

Financial Policy Ratios	Q1/22	Q4/21	+/(-)	Q1/21	+/(-)
Total liability/ Total equity (times)	2.1	1.9	0.2	1.6	0.5
Net debt/ Equity (times)	1.3	1.4	(0.1)	0.9	0.4
Long-term loan/ Total equity (times)	1.6	1.6	-	1.3	0.3
Interest coverage ratio (times)	13.6	6.3	7.3	10.4	3.2
Long-term loan/ Total capitalization (%)	61%	62%	(1%)	57%	4%

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 Quarter of 2022 and the Second Half of 2022

Crude oil and refinery market outlook

In Q2/22, crude oil prices are expected to be slightly lower from Mar'22 but remain at high level supported by concerns over crude supply tightness from Russia – Ukraine war after the war has been prolonged without any conclusion, resulting in an escalating international sanction against Russia as a punishment from the Ukraine invasion. United States (U.S.) and United Kingdom (U.K.) announced an embargo on Russian oil import while several leading multinational energy companies have also announced that they would cease joint ventures and stop doing business with Russia. However, U.S. and IEA members announced that they would release Strategic Petroleum Reserves (SPRs) of total 240 million barrels in six months since May'22 until Oct'22 to ease tight supply concerns and skyrocketing oil price in the short term. Meanwhile, oil demand in the short term will be pressured by widespread of COVID-19 Omicron cases in China, resulting in full lockdown and expediting detection of infected cases of all population, according to Chinese Zero-COVID policy, to control the pandemic in the country.

In the second half of 2022, crude oil prices are likely to be lower than the first half of 2022 due to increasing supply to replace potential loss of Russian crude supply from the sanctions imposed by international countries. U.S., a major crude supplier, is expected to increase their crude production in 2022 more than 60% from the previous year (according to forecast of Baker Hughes in Mar'22) while OPEC+ will also gradually increase production following their increasing production plan amid their limited spare capacity, and Iran & Venezuela are likely to resume their oil export volume into the market in the second half of the year after the sanction lift. On the other hand, crude oil prices will be supported by recovering global oil demand to pre-COVID level following high global vaccination rate and cancellation of lockdown measures in many countries around the world. According to EIA forecast, global oil demand in 2022 is expected to grow around 3.1 million barrels per day from the previous year, reaching 100.6 million barrels per day. Nonetheless, global oil demand recovery will be pressured by rising COVID-19 Omicron cases, surge in inflation rates in countries around the world and risk of global economic growth slowdown from the rising policy rates of many central banks around the world to deal with the sharply increasing inflation rate from the impact of Russia – Ukraine war, and COVID-19 economic stimulus measures from many governments. According to IMF's forecast in Mar'22, global GDP growth in 2022 is revised down to 3.6% from the previous forecast at 4.4%, compared to the GDP growth in 2021 of 6.1%.

Gross Refinery Margin (GRM) in Q2/22 is expected to be improved compared to Q1/22 supported by recovering oil demand especially gasoline demand from less restricted measures on travelling and social activities in many countries. Meanwhile, Kerosene and Jet fuel demand is expected to be supported by increasing number of flights due to easing lockdown measures and reopening for tourism in many countries despite lower heating oil demand after the end of winter. Diesel market is likely to be supportive due to supply tightness as a result of U.S. and EU sanctions against Russian crude and petroleum products. On the other hand, very low sulfur fuel oil (VLSFO) market is expected to be softer from lower demand in North Asia after the winter ended and rising supply from new capacity additions in Europe while improving VLSFO demand in transportation sector will cap the downside risk. Moreover, high sulfur fuel oil (HSFO) market is expected to be improved due to supply tightness from the U.S. and EU sanction on Russian oil.

In the second half of 2022, Gross Refinery Margin (GRM) is likely to be supported by recovering oil demand especially gasoline and diesel demand from better COVID-19 situation and higher global vaccination rate resulting in improving economic activities in both transportation and industrial sector. Meanwhile, Kerosene and Jet fuel demand is expected to be supported by recovering domestic and international flights as well as heating oil demand during winter in North Asia. For very low sulfur fuel oil (VLSFO) market, it is likely to be stable supported by healthy bunker demand while high sulfur fuel oil (HSFO) market is expected to be stronger supported by power demand in Middle East during summer season. However, GRM will be capped by increasing supply from new refinery addition in China with total refining capacity of 400,000 barrels per day and the resumption of refineries in Asia and Europe from maintenance shutdown. (Source: Baker Hughes (Mar'22), Reuter (Mar'22), Energy Information Administration - EIA (Mar'22), IMF (Apr'22), FGE Mar'22)

Aromatics market outlook

In Q2/22, paraxylene (PX) market is expected to be stable compared to Q1/22 driven by supportive PX demand for downstream businesses of PET bottles in Asia during summer amid high feedstock cost following high crude price and gasoline price.

In the second half of 2022, PX market is expected to improve compared to the first half of 2022 as Asian PX demand is likely to increase following recovering fiber and textile industry after improving COVID-19 pandemic situation as well as feedstock cost, which is expected to decrease following crude price. (Source: WMChemical Report, Mar'22)

Benzene (BZ) market in Q2/22 is likely to be softer than Q1/22 due to high feedstock cost following crude and gasoline prices as well as pressuring BZ demand of downstream products in automobiles and electronics industry from ongoing tension between Russia and Ukraine resulting in downside risk of overall global economic condition. However, decreasing BZ supply from planned maintenance of BZ plants in Asia will help limit the downside risk of BZ market.

In the second half of 2022, BZ market is expected to be better than the first half of 2022 due to lower feedstock cost following lower crude price trend and rising BZ demand in Asia from better COVID-19 situation. BZ demand in 2022 is expected to grow approximately 1.1 million tons per annum. (Source: IHS Markit Report, Spring Edition 2022)

Toluene (TL) market in Q2/22 is likely to be higher than Q1/22 due to strong TL demand for gasoline blending during summer season as well as additional TL demand for gasoline blending during high gasoline price. However, TL demand for PX and BZ production is likely to be limited tracking with sluggish PX and BZ market condition.

In the second half of 2022, TL market is expected to improve from the first half of 2022 due to increasing TL demand for aromatics production and gasoline blending following the better BZ and gasoline market after improving COVID-19 situation. (Source: IHS Markit Report, Spring Edition 2021)

LAB Market Outlook

In Q2/22, LAB market is expected to be pressured compared to Q1/22 driven by high feedstock cost following high crude prices from the impact of ongoing tension between Russian and Ukraine. However, recovering demand for washing products during summer season in Asia as well as limited LAB supply as a result of lower LAB's feedstock from lower utilization rate of regional refinery will help support LAB market.

In the second half of 2022, LAB market is expected to be weaker than the first half of 2022 due to softer demand for washing products during monsoon season (June-September) and rising LAB supply in the region from increasing regional refinery utilization rate following relief of COVID-19 pandemic situation. (Source: ICIS LAB Weekly report, (Apr'22), CAHA (Apr'22))

Lube Base Oil market outlook

In Q2/22, lube base oil market is expected to improve compared to Q1/22 driven by better regional lube base oil demand during summer season from agricultural and transportation activities. However, rising lube base oil supply from higher lube base oil feedstock, following increasing refinery utilization rate in Asia including new refineries addition in China and India, will cap the upside of lube base oil market.

In the second half of 2022, lube base oil market is expected to be under pressure from the first half of the year due to rising lube base oil supply following higher refinery utilization rate to pre-COVID level from recovering COVID-19 pandemic situation despite regional plant closure and increasing lube base oil demand tracking with better economic situation. (Source: FGE (Mar'22), Argus (Apr'22), ICIS (Apr'22))

Bitumen market outlook

In Q2/22, bitumen market is expected to recover compared with Q1/22 supported by better regional bitumen demand from budget disbursement of road construction in summer during April as well as lower feedstock cost tracking with fuel oil product price.

In the second half of 2022, bitumen market is expected to be under pressure from rising bitumen supply following higher refinery utilization rate in the region after better COVID-19 pandemic situation. Moreover, bitumen demand is expected to be softer during rainy season which is difficult for road construction and repair activities. However, lower domestic bitumen supply from planned maintenance and recovering bitumen demand from increasing road construction and repair activities following better economic condition help limit downside risk of bitumen market. (Source: Argus (Apr'22), Department of Highways (Oct'21)

5. Appendix

5.1 Summary of Approved Investment Plan

From 2022 to 2025, Thaioil and Subsidiaries have outstanding approved capital expenditure of US$ 1,636 million, mainly consisting of CFP project (Clean Fuel Project) of US$ 1,102 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 April 2022

Project	Estimated Budgeting for Investment Plan 2022 - 2025
CFP project *	**1,102**
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	**1,636**

* 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

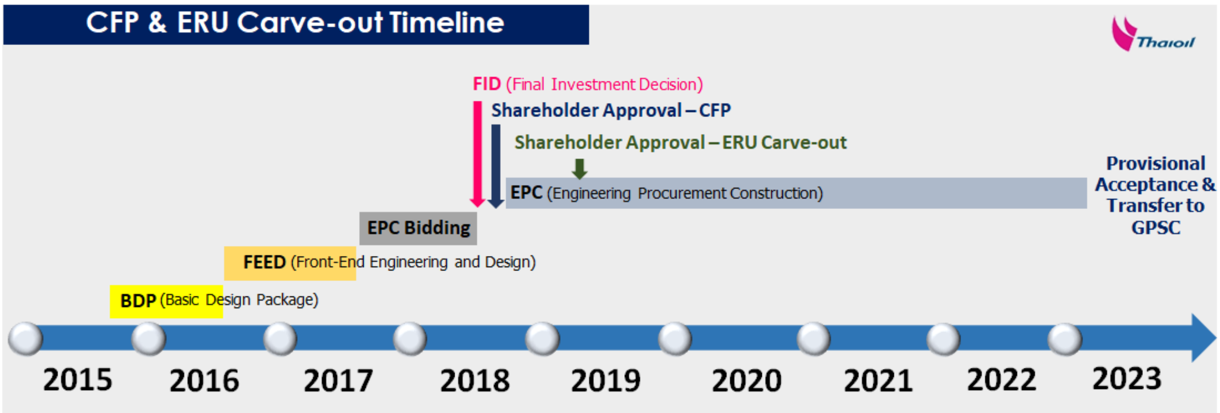
5.2 Summary of Key Project Investment: Clean Fuel Project (CFP)

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.