Management's Discussion and Analysis (MD&A)

Thai Oil Public Company Limited

For The Second Quarter and

The First Half of 2021

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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 2021

1. Company and its Subsidiaries' Operating Results

Table 1: Summary of Consolidated Financial

(Million Baht)	Q2/21	Q1/21	+/(-)	Q2/20	+/(-)	6M/21	6M/20	+/(-)
Integrated Intake (kbd)	273	277	(4)	271	2	275	290	(15)
Gross Integrated Margin (GIM)[1] (US$/bbl)								
: excluding Stock Gain/(Loss)	5.2	4.1	1.1	2.9	2.3	4.7	2.5	2.2
: including Stock Gain/(Loss)	10.0	10.2	(0.2)	1.1	9.0	10.1	(4.8)	14.9

(Million Baht)	Q2/21	Q1/21	+/(-)	Q2/20[2] Re-presented	+/(-)	6M/21	6M/20[2] Re-presented	+/(-)
Sales Revenue	78,120	73,449	4,671	49,246	28,874	151,570	125,815	25,755
Net Realized Loss on Financial Instruments	(56)	(119)	63	(45)	(11)	(175)	(64)	(111)
EBITDA	**7,003**	**8,272**	**(1,269)**	**2,881**	**4,122**	**15,275**	**(9,367)**	**24,642**
Net Gain/(Loss) on Fair Value Measurement of Financial Instruments	(1,043)	217	(1,260)	389	(1,432)	(827)	12	(839)
Net Foreign Exchange Gain/(Loss) [3]	(1,286)	(2,604)	1,318	2,049	(3,335)	(3,889)	(294)	(3,595)
Finance Costs	(907)	(796)	(111)	(1,049)	142	(1,703)	(2,134)	431
Reversal of Income Tax (Expense)	(358)	(388)	30	(494)	136	(746)	3,063	(3,809)
Net Profit/(Loss)	**2,123**	**3,360**	**(1,237)**	**2,480**	**(357)**	**5,483**	**(11,274)**	**16,757**
Basic Earnings/(Loss) per Share (Baht)	**1.04**	**1.65**	**(0.61)**	**1.22**	**(0.18)**	**2.69**	**(5.53)**	**8.21**
Stock Gain/(Loss)	3,783	4,656	(873)	(1,404)	5,187	8,439	(12,176)	20,615
Reversal/ (Write-Down) on Crude and Petroleum Product Inventory[4]	(71)	109	(180)	2,469	(2,540)	38	(1,011)	1,049

Exchange Rate (Baht: 1 US$)	Q2/21	Q1/21	+/(-)	Q2/20	+/(-)	6M/21	6M/20	+/(-)
Average FX	31.53	30.46	1.07	32.11	(0.58)	30.98	31.77	(0.80)
Ending FX	32.22	31.51	0.72	31.07	1.16	32.22	31.07	1.16

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) Re-presented the impact on the financial statements in accordance with TFRS 5 - Non-Current Assets Held for Sale and Discontinued Operations.

(3) Including net foreign exchange gain / (loss) on foreign currency assets and liabilities in Q2/21, Q1/21, Q2/20, 6M/21 and 6M/20 of Baht (1,444) million, Baht (2,078) million, Baht 1,538 million, Baht (3,522) million and Baht (234) million, respectively.

(4) 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 Q2/21 with Q1/21, Thaioil and Subsidiaries had a slight decrease in integrated intake but had an increase in sales revenue of Baht 4,671 million to Baht 78,120 million due to higher product selling price following a recovery of COVID-19 situation. In addition, GIM excluding stock gain / (loss) of 5.2 US$/bbl was recorded during the period, an increase of 1.1 US$/bbl thanks to an improvement in base oil market following continuously tight supply after regional refineries had cut their production and had shutdowns for maintenance resulted in a significant increase in base oil spread over fuel oil. Aromatics market was also supported by a considerably surge in BZ spread over ULG95 due to tight BZ supply after U.S. and Chinese manufacturing plants faced production problems. LAB market, additionally, was supported by healthy demand and lower supply from maintenance shutdowns of LAB plants in China and India. Moreover, LABIX returned its full capacity operation after the completion of maintenance shutdown last quarter. However, rises in crude premiums despite of increases in gasoline, jet/kero and gas oil spreads resulted in the refinery business to report a decrease in GRM excluding stock gain / (loss) from the previous quarter. On the other hand, a rise in crude oil price in Q2/21 was driven by demand recovery after 20-25% of world population had been vaccinated and many countries had eased the lockdowns. Meanwhile, crude oil supply remained stable since OPEC+ maintained their production cut causing market to relieve concern over excess supply. As a result, Thaioil and Subsidiaries booked stock gain of 4.9 US$/bbl or Baht 3,783 million, a decrease of Baht 873 million from Q1/21, and had GIM including stock gain / (loss) of Baht 10.0 US$/bbl, a decrease of 0.2 US$/bbl. Moreover, there was a write-down on crude and petroleum product inventory of Baht 71 million, compared with a reversal on crude and petroleum product inventory of Baht 109 million in the prior quarter. Altogether with net realized loss on financial instruments of Baht 56 million, Thaioil and Subsidiaries reported EBITDA of Baht 7,003 million, decreased by Baht 1,269 million. In addition, Thaioil and Subsidiaries booked net loss on fair value measurements of financial instruments of Baht 1,043 million, which was mainly from mark-to-market commodity hedge, and had net foreign exchange loss of Baht 1,286 million (including net foreign exchange loss on foreign currency assets and liabilities of Baht 1,444 million) which was due to Thai Baht depreciation from end of the previous quarter. Furthermore, Thaioil and Subsidiaries completed the restructuring of the marine transport business on 30 April 2021, according to Thai Oil Plc. (the Company) Board of Directors' Meeting No. 11/2020 on 25 November 2020. Thus, Thaioil Marine Co., Ltd. was terminated being a subsidiary of the Company, and realized gain from the transaction of Baht 41 million was recorded. Offsetting with depreciation, finance costs and income tax expense, Thaioil and Subsidiaries reported net profit of Baht 2,123 million or 1.04 Baht per share, decreased by Baht 1,237 million from the previous quarter.

Compared Q2/21 with Q2/20, Thaioil and Subsidiaries had a slight increase in integrated intake and had higher sales volume and product selling prices. Therefore, a rise in sales revenue of Baht 28,874 million was recorded. Thaioil and Subsidiaries reported greater GIM excluding stock gain/ (loss) by 2.3 US$/bbl thanks to improved gross margin of base oil and aromatics business from considerable increases in lube base oil spread over fuel oil and BZ spread over ULG95. In addition, gross margin of LAB business increased due to healthy LAB demand and tight supply. Although, Thaioil refinery recorded lower GRM excluding stock gain / (loss) than Q2/20 by 1.0 US$/bbl due to significant increases in crude premiums. However, a rise in crude oil price resulted in stock gain of Baht 3,783 million, compared with stock loss of Baht 1,404 million in the same period of the previous year. Besides, in Q2/21, there was the write-down on crude and petroleum product inventory of Baht 71 million, compared with the reversal on crude and petroleum product inventory of Baht 2,469 million in Q2/20. Thus, an increase in EBITDA of Baht 4,122 million was reported. In addition, Thaioil and Subsidiaries had net loss on fair value measurements of financial instruments of Baht 1,043 million, which was mainly from mark-to-market commodity hedge, compared with net gain on fair value measurements of financial instruments of Baht 389 million, and had net foreign exchange loss of Baht 1,286 million, compared with net foreign exchange gain of Baht 2,048 million in the same period of the previous year. Offsetting with decreased finance costs of Baht 142 million from the capaitalization of borrowing costs as part of assets, depreciation, and income tax expense, Thaioil and Subsidiaries reported lower net profit by Baht 357 million from the same period of the prior year.

Compared 6M/21 with 6M/20, Thaioil and Subsidiaries had sales revenue of Baht 151,570 million, increased by Baht 25,755 million thanks to rising in product selling prices. Moreover, due to considerable increases in base oil spread over fuel oil, BZ spread over ULG95 as well as an increase in gross margin of LAB, Thaioil and Subsidiaries reported greater GIM excluding stock gain/ (loss) by 2.2 US$/bbl to 4.7 US$/bbl. In addition, in 6M/21, stock gain of Baht 8,439 million was recorded, compared with stock loss of Baht 12,176 million in 6M/20. Besides, there was the reversal on crude and petroleum product inventory of Baht 38 million in 6M/21, compared with the write-down on crude and petroleum product inventory of Baht 1,011 million in the same period of the previous year. Combining with net realized loss on financial instruments of Baht 175 million, Thaioil and Subsidiaries reported an increase in EBITDA of Baht 15,275 million, compared with loss on EBITDA of Baht 9,367 million. However, Thaioil and Subsidiaries had net loss on fair value measurements of financial instruments of Baht 827 million, and net foreign exchange loss of Baht 3,889 million due to Thai Baht depreciation. Offsetting with finance costs of Baht 1,703 million, decreased by Baht 431 million from the capaitalization of borrowing costs as part of assets, depreciation, and income tax expense, Thaioil and Subsidiaries reported net profit of Baht 5,483 million in 6M/21, compared with net loss of Baht 11,274 million from the same period of the previous year.

On 21 May 2021 and 23 July 2021, the Board of Director's Extra Meeting No. 2/2021 and the Board of Director’s Extra Meeting No. 4/2021, respectively, approved the investment in PT Chandra Asri Petrochemical Tbk (CAP), which is the premier petrochemical producer with an integrated plant incorporating world class in the Republic of Indonesia, through a newly established subsidiary company, up to 15.38% of CAP's total shares. The Share Acquisition Transaction will not exceed USD 1,183 million or approximately Baht 39,116 million. In this regard, the Board of Directors' meeting approved for the Newly Established Subsidiary Company to enter into agreements with the Existing Major Shareholders and CAP (the Agreements) to set out the binding agreements among the parties in relation to the Share Acquisition Transaction. The Agreements were entered into by all parties on 29 July 2021. The Share Acquisition Transaction provides a timely opportunity for the Company to expand its business into petrochemical industry by extending its existing downstream value chain of hydrocarbon to petrochemical business. The expansion to the petrochemical industry is a significant step towards the Company’s portfolio diversification into the growing petrochemical market, which is in line with the Company’s strategy. In addition, the Board of Directors approved the Company to enter into the Facilities Agreement with PTT Plc., which is a parent company for bridge loans in order to fund the Share Acquisition Transaction. The loan amount wil not exceed USD 670 million or Baht 22,154 million with duration not exceeding 18 months and the interest rate not exceeding 2.5% p.a., which is comparable to market interest rate. Morevover, the Board of Directors approved the recapitalization plan by selling Global Power Synergy Plc. (GPSC), which will not exceed 10.8% of shares issued and paid-up of GPSC, and raising capital of approximately Baht 10,000 million. The Company now considers the optimal capital structure which delivers the most benefit to the Company and the shareholders. If there is any progress of the transactions, the Company will announce and propose to the shareholders meeting for approval accordingly. The objective of the recapitalization plan is for the long-term benefit of the shareholders.

2. Summary of Financial Result by Business

Table 2: Financial Result by Business (Million Baht)

Sales Revenue	Q2/21	Q1/21	+/(-)	Q2/20[1] Re-presented	+/(-)	6M/21	6M/20[1] Re-presented	+/(-)
Consolidated	**78,120**	**73,449**	**4,671**	**49,246**	**28,874**	**151,570**	**125,815**	**25,755**
Refinery	80,543	74,580	5,963	48,805[2]	31,738	155,123	129,578[2]	25,545
Aromatics and LAB[3]	14,649	10,696	3,953	7,894	6,755	25,345	20,370	4,975
Lube Base Oil	6,358	4,962	1,396	2,869	3,489	11,320	6,748	4,572
Power Generation[4]	1,660	1,852	(192)	2,880	(1,220)	3,512	5,756	(2,244)
Solvent[5]	3,282	2,904	378	1,761	1,521	6,186	3,902	2,284
Marine Transportation[6]	56	155	(99)	187	(131)	211	330	(119)
Ethanol[7]	355	379	(24)	364	(9)	735	750	(15)
Others[8]	1,485	1,452	33	1,299	186	2,937	2,607	330

EBITDA	Q2/21	Q1/21	+/(-)	Q2/20	+/(-)	6M/21	6M/20	+/(-)
Consolidated	**7,003**	**8,272**	**(1,269)**	**2,881**	**4,122**	**15,275**	**(9,367)**	**24,642**
Refinery	2,941	5,050	(2,109)	1,338[2]	1,603	7,991	(12,954)[2]	20,945
Aromatics and LAB	1,617	1,297	320	1,018	599	2,914	2,116	798
Lube Base Oil	1,770	1,030	740	(120)	1,890	2,799	259	2,540
Power Generation	429	478	(49)	653	(224)	907	1,296	(389)
Solvent	237	360	(123)	105	132	596	208	388
Marine Transportation	6	27	(21)	81	(75)	33	92	(59)
Ethanol	42	91	(49)	44	(2)	133	108	25
Others	55	31	24	50	5	86	174	(88)

Net Profit / (Loss)	Q2/21	Q1/21	+/(-)	Q2/20	+/(-)	6M/21	6M/20	+/(-)
Consolidated	**2,123**	**3,360**	**(1,237)**	**2,480**	**(357)**	**5,483**	**(11,274)**	**16,757**
Refinery	(1,014)	898	(1,912)	1,655[2]	(2,669)	(117)	(13,302)[2]	13,185
Aromatics and LAB	916	634	282	514	402	1,550	973	577
Lube Base Oil	1,386	797	589	(139)	1,525	2,184	145	2,039
Power Generation [9]	709	598	111	716	(7)	1,307	1,302	5
Solvent	147	246	(99)	40	107	393	77	316
Marine Transportation	(1)	16	(17)	48	(49)	15	33	(18)
Ethanol	14	35	(21)	0	14	49	29	20
Others [10]	100	83	17	143	(43)	182	307	(125)

Remark
(1) Re-presented the impact on the financial statements in accordance with TFRS5 - Non-Current Assets Held for Sale and Discontinued Operations.
(2) Re-stated the impact on the financial statements in accordance with TFRS3 – Business Combination
(3) Thai Paraxylene Co., Ltd. invested 75% of total investment in LABIX Co., Ltd. which produces an intermediate for the production of surfactants (LAB).
(4) 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.
(5) Including Thaioil Solvent Co., Ltd., having respective interests in TOP Solvent Co., Ltd., Sak Chaisidhi Co., Ltd., TOP Solvent (Vietnam) LLC.and PT Tirta Surya Raya
(6) 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..
(7) Including Thaioil Ethanol Co., Ltd., having respective interests in Sapthip Co., Ltd., and Ubon Bio Ethanol Plc.
(8) 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.
(9) Including Thaioil and Subsidiaries' share of profits from the investments in Global Power Synergy Plc. (GPSC).
(10) 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

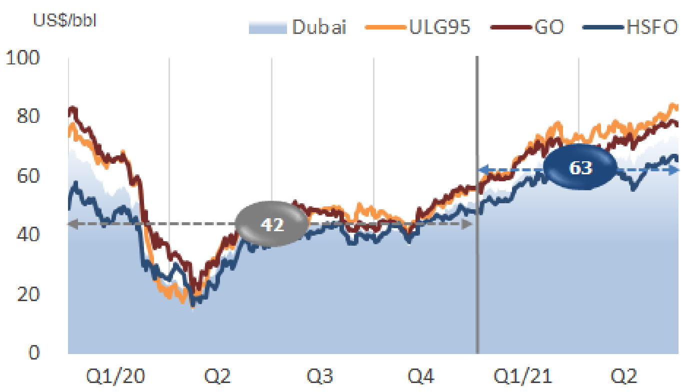
Table 3: Average Crude Oil Price, Petroleum Product Prices, Crude Premiums, and Crack Spreads

Average Prices (US$/bbl)	Q2/21	Q1/21	+/(-)	Q2/20	+/(-)	6M/21	6M/20	+/(-)
Dubai Crude Oil [(1)]	66.9	60.0	6.9	30.5	36.4	63.5	40.7	22.8
Unleaded Gasoline (ULG95)	76.8	67.1	9.7	33.1	43.7	72.0	45.4	26.6
Jet/Kero	71.4	63.3	8.1	30.4	41.0	67.4	45.0	22.4
Gas Oil (GO)	72.2	64.8	7.4	36.3	35.9	68.5	49.1	19.4
Fuel Oil (HSFO)	61.1	56.6	4.5	28.9	32.2	58.8	36.2	22.6
Crude Premiums (US$/bbl)	**Q2/21**	**Q1/21**	**+/(-)**	**Q2/20**	**+/(-)**	**6M/21**	**6M/20**	**+/(-)**
Murban[(2)]	1.3	0.7	0.6	(4.7)	6.0	1.0	(1.1)	2.1
Arab Light	1.6	0.8	0.8	(5.4)	7.0	1.2	(1.0)	2.2
Spreads over Dubai (US$/bbl)	**Q2/21**	**Q1/21**	**+/(-)**	**Q2/20**	**+/(-)**	**6M/21**	**6M/20**	**+/(-)**
Unleaded Gasoline (ULG95)	9.9	7.1	2.8	2.6	7.3	8.5	4.6	3.9
Jet/Kero	4.5	3.3	1.2	(0.1)	4.6	3.9	4.2	(0.3)
Gas Oil (GO)	5.3	4.7	0.6	5.7	(0.4)	5.0	8.4	(3.4)
Fuel Oil (HSFO)	(5.8)	(3.5)	(2.3)	(1.6)	(4.2)	(4.6)	(4.5)	(0.1)
Very Low Sulfur Fuel Oil (VLSFO)	5.0	7.6	(2.6)	5.3	(0.3)	6.3	9.7	(3.4)

Remark [(1)] Closing Dubai crude oil price at the end of Q2/21, Q1/21, and Q2/20 were calculated from average Dubai price of June 2021, March 2021, and June 2020, respectively. The prices were 71.6 US$/bbl, 64.4 US$/bbl, and 40.8 US$/bbl, respectively.

[(2)] Murban crude premium (compared with market price) for June 2021 was calculated from the difference between average Murban price for June 2021 loading and Dubai forward price for June 2021 which was announced daily in April 2021. The fomula is based on ADNOC's new pricing structure.

Graph 1: Prices of Crude Oil and Petroleum Product



Crude oil price in Q2/21 increased from Q1/21 and Q2/20 since COVID-19 pandemic was getting better after global vaccination rate reached 20 – 25%. This resulted in lockdown easing in many countries, especially high oil consumption countires e.g. the U.S., Europe, and China, leading to the resumption of business supporting improved oil demand. However, oil supply became stable as OPEC+ maintained its production cut by average of 6.6 million barrels per day in Q2/21, which included the production cut of Saudi Arabia of 0.7 million barrels per day. The oil price then increased as the market concern over ample supply relieved. Unfortunately, a COVID-19 resurgence in Asia such as Vietnam, Malaysia, Indonesia, and Australia reverted to lockdowns in order to curb the spread of the virus which suppressed regional oil demand.

Murban crude premium over Dubai and Arab light crude premium over average Dubai and Oman in Q2/21 increased from Q1/21 and Q2/20 due to a rebound in oil demand leading to resuming operations of many refineries.

In Q2/21, gasoline spread over Dubai improved from Q1/21 and Q2/20 due to continuous rises in COVID-19 vaccination rates in many countries which led to lockdown easing and higher driving activities. Moreover, the supply became tight thanks to seasonal maintenance of refineries and drops in gasoline inventories in Singapore and the U.S. which were lower than 5-year average level.

Nevertheless, the market was pressured by increases in COVID-19 cases in Asia particulary in India, which resulted in Indian gasoline demand in Q2/21 to fall from Q1/21 by 0.12 million barrels per day. Additionally, jet/kero spread over Dubai in Q2/21 was better than Q1/21 and Q2/20 thanks to higher flight operations after lockdown easing in many countries. Some countries in Europe opened their borders to fully vaccinated travelers which stimulated international flights. Gas oil spread in Q2/21 improved from Q1/21 tracking lockdown easing in Europe. A boost in economic activities supported gas oil demand and reduced supply in Asia, where could export more gas oil to Europe. Furthermore, on 12 June 2021, China imposed hefty taxes on imported light cycle oil, which was for gas oil blending, leading to decreases in gas oil production and exports in order to fulfil domestic demand. However, the gas oil spread in Q2/21 slightly declined from Q2/20 following lower Indian demand, which declined by 0.21 million barrels per day compared with Q1/21, after the COVID-19 cases reached a peak at 0.3 – 0.4 million cases during April – May 2021. Besides, gas oil stocks in Singapore were higher than 5-year average level. On the other hand, the fuel oil spread dropped from Q1/21 and Q2/20 owing to higher supply since refineries resumed their operations. VLSFO spread over Dubai in Q2/21 was lower than Q1/21 and Q2/20 tracking higher regional supply after VLSFO stocks in Singapore were higher than 5-year average level.

Table 4: Financial Result of Refinery Business

	Q2/21	Q1/21	+/(-)	Q2/20	+/(-)	6M/21	6M/20	+/(-)
Throughput[(1)] (%)	98%	100%	(2%)	98%	-	99%	105%	(6%)
Intake (kbd)	270	274	(4)	269	1	272	287	(15)
Gross Refining Margin (GRM) (US$/bbl)								
: excluding Stock Gain/(Loss)	0.4	0.7	(0.3)	1.4	(1.0)	0.6	0.7	(0.1)
: including Stock Gain/(Loss)	5.3	6.9	(1.6)	(0.4)	5.7	6.1	(6.7)	12.8

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

In Q2/21, Thaioil refinery had a decrease in EBITDA tracking a drop in stock gain. Moreover, net loss on fair value measurements of financial instruments and net foreign exchange loss led the refinery to have net loss, compared with net profit in the prior quarter.

In Q2/21, Thaioil refinery reported throughput of 98% and had a slight decrease in sales volume which divided into 84% of domestic sales, 12% of Indochina sales, and 4% of export sales. The refinery booked Baht 80,543 million of sales revenue, an increase of Baht 5,963 million tracking higher average product selling prices since COVID-19 situation was likely to be better. Nonetheless, GRM excluding stock gain/(loss) of 0.4 US$/bbl, decreased by 0.3 US$/bbl from the previous quarter owing to rises in crude oil price and crude premiums following a rebound in oil demand despite increases in gasoline, jet/kero, and gas oil spreads. However, the surge in crude oil price led to stock gain of 4.9 US$/bbl or Baht 3,783 million, declined by Baht 873 million from Q1/21. Besides, Thaioil refinery booked a write-down on crude and petroleum product inventory of Baht 71 million, compared with a reversal on crude and petroleum product inventory of Baht 109 million in the prior quarter. Combining with net realized loss on financial instruments of Baht 14 million, an EBITDA of Baht 2,941 million was reported which was lower than the prior quarter by Baht 2,109 million. Besides, the refinery had net loss on fair value measurements of financial instruments of Baht 1,029 million, which was mainly from mark-to-market commodity hedging, compared with net gain on fair value measurements of financial instruments of Baht 275 million in Q1/21. In addition, the refinery recorded net foreign exchange loss of Baht 1,373 million (including net foreign exchange loss on foreign currency assets and liabilities of Baht 1,368 million), improved by Baht 1,290 million from the prior quarter. Offsetting with depreciation, finance costs, and including a reversal of income tax expense, *For 6M/21, the refinery had considerably better EBITDA and performance than 6M/20 since stock gain was recorded, compared with stock loss in 6M/20.*

Thaioil refinery reported net loss of Baht 1,014 million, compared with net profit of Baht 898 million in Q1/21 (including dividend income, it had net profit of Baht 1,405 million).

Comparing with Q2/20, Thaioil refinery had stable throughput and had a slight drop in sales volume. The refinery recorded an increase in sales revenue of Baht 31,738 million tracking higher average selling prices following a pickup in crude oil price after COVID-19 situation was getting better. However, GRM excluding stock gain/(loss) fell by 1.0 US$/bbl from Q2/20 owing to surges in the crude oil price and crude premiums following oil demand after lockdown easing in many countries amid significant rises in gasoline and jet/kero spreads. Nonetheless, the increase in crude oil price resulted in stock gain of Baht 3,783 million, compared with stock loss of Baht 1,404 million in the same period of last year. The write-down on crude and petroleum product inventory of Baht 71 million was also recorded, compared with the reversal on crude and petroleum product inventory of Baht 2,469 million in Q2/20. Altogether with lower net realized loss on financial instruments of Baht 29 million, the refinery recognized an increase in EBITDA of Baht 1,603 million. However, in Q2/21, the refinery reported net loss on fair value measurements of financial instruments of Baht 1,029 million, compared with net gain on fair value measurements of financial instruments of Baht 222 million in Q2/20, and reported net foreign exchange loss of Baht 1,373 million, compared with net foreign exchange gain of Baht 2,058 million in Q2/20. Offsetting with depreciation, finance costs, and including a reversal of income tax expense, Thaioil refinery posted net loss of Baht 1,014 million, compared with net profit of Baht 1,655 million in the same period of the previous year.

Comparing 6M/21 with 6M/20, Thaioil refinery had a reduction in throughput by 6% due to economic optimization of the refinery following COVID-19 pandemic causing travel restrictions which suppressing jet/kero demand and reported lower sales volume by 7% because of COVID-19 pandemic. Sales revenue was recorded at Baht 155,123 million, went up by Baht 25,545 million following higher average selling prices. The refinery reported GRM excluding stock gain/(loss) of 0.6 US$/bbl, a minimal drop of 0.1 US$/bbl. However, the refinery had stock gain of Baht 8,439 million, compared with stock loss of Baht 12,176 milllion in 6M/20. Moreover, there was the reversal on crude and petroleum product inventory of Baht 38 million while there was the write-down on crude and petroleum product inventory of Baht 1,011 million in 6M/20. Altogether with net realized loss on financial instruments of Baht 120 million, Thaioil refinery, therefore, earned EBITDA of Baht 7,991 million, compared with loss on EBITDA of Baht 12,954 million. Besides, the refinery had net loss on fair value measurements of financial instruments of Baht 754 million, greater than 6M/20 by Baht 624 million, and had net foreign exchange loss of Baht 4,036 million, larger than 6M/20 by Baht 3,683 million. On the other hand, the finance costs reduced by Baht 517 million due to asset capitalization. Offsetting with depreciation, and income tax expense, Thaioil refinery reported net loss of Baht 117 million, which improved from 6M/20 by Baht 13,185 million (including dividend income in 6M/21, it had net profit of Baht 18,364 million which was mainly from dividend received from entire business transfer transactions with TP).

2.2 Market Condition and Financial Result of Aromatics Business

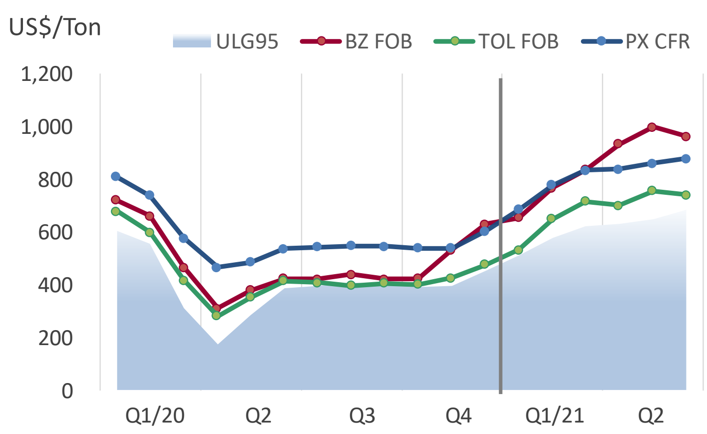
Table 5: Average Prices and Spreads of Aromatics Products

Average Prices (US$/Ton)	Q2/21	Q1/21	+/(-)	Q2/20	+/(-)	6M/21	6M/20	+/(-)
Paraxylene (PX)(1)	859	766	93	495	364	812	602	210
Benzene (BZ)(2)	966	753	213	371	595	859	493	366
Toluene (TL)(2)	734	633	101	350	384	683	457	226
Spreads over ULG95 (US$/Ton)	**Q2/21**	**Q1/21**	**+/(-)**	**Q2/20**	**+/(-)**	**6M/21**	**6M/20**	**+/(-)**
Paraxylene (PX)	206	195	11	214	(8)	201	216	(15)
Benzene (BZ)	313	182	131	90	223	247	108	139
Toluene (TL)	81	63	18	68	13	72	72	-

Remark (1) Based on CFR Taiwan price

(2) Based on FOB Korea price

Graph 2: Prices of Aromatics Products and ULG95



In Q2/21, PX price and its spread over ULG95 improved from Q1/21 following higher crude oil price due to a recovery of economic activities. Additionally, the PX market was supported by better market sentiment after COVID-19 vaccine was developed and vaccinated in many countries. Moreover, Asian demand rose since the end of the previous quarter before entering summer when PX would be used for downstream industries i.e. polyester producing for clothing and PET. However, PX demand was pressured by the Delta variant spreading in India and other regions. In addition, rising supply from Chinese manufacturers whose production resumed after the completion of maintenance shutdowns at the beginning of Q2/21. Therefore, PX spread over ULG95 plummeted from Q2/20.

BZ price and its spread over ULG95 in Q2/21 significantly increased from Q1/21 and Q2/20 following higher crude oil price due to the recovery of economic activities. In addition, BZ demand increased after a startup of styrene monomer plant with total capacity of around 1.2 million tons in China. Besides, BZ supply was limited after producers with total capacity of around 1.9 million tons in the U.S. temporarily halted their production during a snowstorm in Texas during February-June. Furthermore, there was an urgent shutdown of BZ plant with total capacity of around 0.65 million tons in China due to technical problems during the end of June, resulting in a drop in Chinese inventories to approximately 60,000 tons in late Q2/21.

TL price and its spread over ULG95 in Q2/21 rose from Q1/21 and Q2/20 following the crude oil price due to the recovery of economic activities. Moreover, the demand of TL for gasoline blending improved after the COVID-19 situation was better because there were the COVID-19 vaccination in many countries as well as higher driving activities during summer. In addition, TL demand for PX and BZ producing improved.

Table 6: Financial Result of TPX

	Q2/21	Q1/21	+/(-)	Q2/20	+/(-)	6M/21	6M/20	+/(-)
Aromatics Production Rate [(1)] (%)	89%	80%	9%	75%	14%	85%	78%	7%
Aromatics Production (kTon)	186	165	21	156	30	351	324	26
Product-to-feed Margin[(2)] (US$/Ton)	112	106	6	77	35	110	81	29

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 Q2/21, TPX had increases in aromatics production and product-to-feed margin due to greater aromatics spreads, especially BZ spread. This resulted in better performance than the previous quarter.

For 6M/21, TPX had higher product-to-feed margin thanks to strong BZ spread over ULG95 from tight supply. Therefore, TPX had better net profit.

In Q2/21, compared with Q1/21, Thai Paraxylene Co., Ltd. (TPX) had higher aromatics production to 89% from economic optimization following better aromatics demand and had sales revenue of Baht 11,199 million, increased by Baht 3,022 million due to increases in total sales volume and average selling prices. Besides, rises in aromatics spreads over ULG95, especially BZ spread over ULG95 which significantly increased thanks to tight supply and healthy demand, resulted in product-to-feed margin of 112 US$/ton, rose by 6 US$/ton. However, TPX had net realized loss on financial instruments of Baht 46 million, compared with net realized loss on financial instruments of Baht 14 million in the previous quarter. Thus, TPX recorded EBITDA of Baht 1,163 million, increased by Baht 168 million. Besides, in this quarter, net loss on fair value measurement of financial instruments was recorded at Baht 7 million, lower loss by Baht 30 million. However, TPX had net foreign exchange gain of Baht 47 million, closed to the prior quarter. Offsetting with depreciation, finance costs and income tax expense, in Q2/21, TPX posted net profit of Baht 719 million, increased by Baht 140 million from Q1/21.

Compared with Q2/20, TPX had higher aromatics production rate by 14% and had higher sales revenue by Baht 5,266 million due to increases in total sales volume and average selling prices. Furthermore, TPX reported an increase in product-to-feed margin of 35 US$/ton thanks to significantly stronger BZ spread over ULG95. Combining with net realized loss on financial instruments, TPX had an increase in EBITDA of Baht 393 million. However, TPX had net loss on fair value measurement of financial instruments of Baht 7 million, compared with net gain on fair value measurement of financial instruments of Baht 122 million, and had net foreign exchange gain of Baht 47 million, compared with net foreign exchange loss of Baht 19 million. Therefore, TPX posted a rise in net profit of Baht 280 million from the same period of the previous year.

Compared 6M/21 with 6M/20, TPX had sales revenue of Baht 14,572 million, increase by Baht 4,805 million due to increases in total sales volume and average selling prices, Moreover, TPX reported product-to-feed margin of 110 US$/ton, rose by 29 US$/ton thanks to considerably better BZ spread over ULG95 owing to tight supply. Combining with net realized loss on financial instruments of Baht 30 million, compared with realized loss on financial instruments of Baht 60 million. Thus, TPX posted EBITDA of Baht 2,158 million, increased by Baht 492 million. However, TPX had net loss on fair value measurement of financial instruments of Baht 45 million, compared with net gain on fair value measurement of financial instruments of Baht 141 million, and had net foreign exchange gain of Baht

94 million. Therefore, TPX recorded net profit of Baht 1,299 million, increase by Baht 334 million from 6M/20.

In Q2/21, aromatics group (TPX holds 75% shares of LABIX) had consolidated sales revenue of Baht 14,649 million, consolidated EBITDA of Baht 1,617 million and consolidated net profit of Baht 916 million. For 6M/21, aromatics group had consolidated sales revenue of Baht 25,345 million, consolidated EBITDA of Baht 2,914 million and consolidated net profit of Baht 1,550 million.

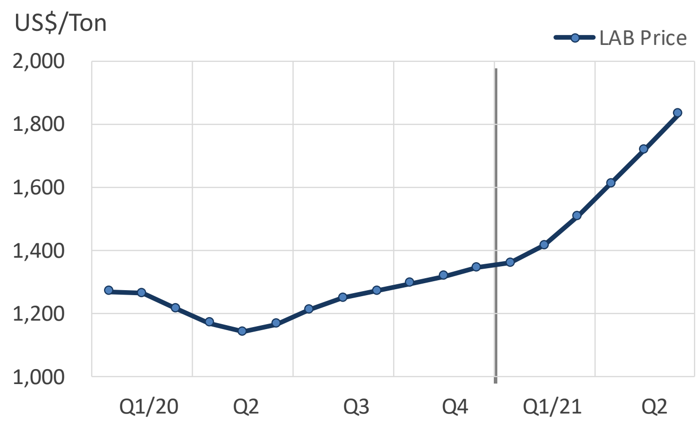
2.3 Market Condition and Financial Result of an Intermediate for the Production of Surfactants Business

Table 7: Average Price of LAB

Average Price (US$/Ton)	Q2/21	Q1/21	+/(-)	Q2/20	+/(-)	6M/21	6M/20	+/(-)
Linear Alkylbenzene (LAB)[1]	1,720	1,428	292	1,158	562	1,574	1,204	370

Remark (1) Based on ICIS price

Graph 3: Price of LAB



LAB price in Q2/21 increased from Q1/21 and Q2/20 thanks to 1) rises in feedstock prices tracking crude oil price and BZ price due to a recovery of economic activities, and 2) the increase in market confidence after COVID-19 vaccine was developed and vaccinated in many countries. Moreover, Asian regional demand increased since late Q1/21 before entering summer of many countries in Asia. Furthermore, higher shutdowns for maintenance of LAB plants in the region, especially in China and India, limited the supply. In addition, the lockdown policy in several countries led to a limitation of jet/kero which is one of the LAB's feedstock.

Table 8: LAB Production

	Q2/21	Q1/21	+/(-)	Q2/20	+/(-)	6M/21	6M/20	+/(-)
LAB Production Rate[1] (%)	117%	91%	25%	113%	3%	104%	113%	(9%)
LAB Production (kTon)	35	27	8	34	1	62	68	(6)

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

In Q2/21, LABIX resumed full-scale production and had better performance thanks to higher LAB sales volume and gross margin from healthy LAB demand and tight supply.

In Q2/21, LABIX Co., Ltd. (LABIX) resumed full-scale production after the maintenance shutdown in the previous quarter. LAB production rate increased by 25% to 117% and LAB sales volume increased by 16%. Moreover, a rise in LAB price resulted in sales revenue of Baht 3,787 million, increased by Baht 1,090 million. Additionally, gross profit margin was supported by healthy Asian LAB demand and tight supply from shutdowns for maintenance of LAB plants in China and India. LABIX then reported EBITDA of Baht 454 million, increased by Baht 152 million. In this quarter, LABIX had net foreign exchange loss of Baht 13 million, compared with net foreign exchange loss of Baht 6 million in the prior quarter. Offsetting with depreciation and finance costs, LABIX posted net profit of Baht 262 million, rose by Baht 189 million from the prior quarter.

In 6M/21, LABIX had larger gross profit margin from improving LAB demand. This resulted in better performance from 6M/20.

Compared with Q2/20, LABIX had higher LAB production rate by 3% and sales volume by 4%. Furthermore, an increase in LAB price resulted in an increase in sales revenue of Baht 1,691 million. Moreover, LABIX had greater gross profit margin thanks to healthy LAB demand. Combining with net gain from financial instruments of Baht 4 million, compared with net loss from financial instruments of Baht 31 million, LABIX reported higher EBITDA by Baht 206 million. However, LABIX had net foreign exchange loss of Baht 13 million, compared with net foreign exchange gain of Baht 9 million. LABIX then reported higher net profit than Q2/20 by Baht 162 million.

Compared 6M/21 with 6M/20, LABIX had sales revenue of Baht 6,484 million, increased by Baht 306 million following a rise in LAB price tracking feedstock prices. In addition, greater LAB gross profit margin and net gain from financial instruments of Baht 5 million, compared with net loss from financial instruments of Baht 60 million, resulted in LABIX to record an increase in EBITDA of Baht 306 million. With net foreign exchange loss of Baht 19 million, greater by Baht 3 million from 6M/20, LABIX therefore reported net profit of Baht 335 million, rose by Baht 323 million from 6M/20.

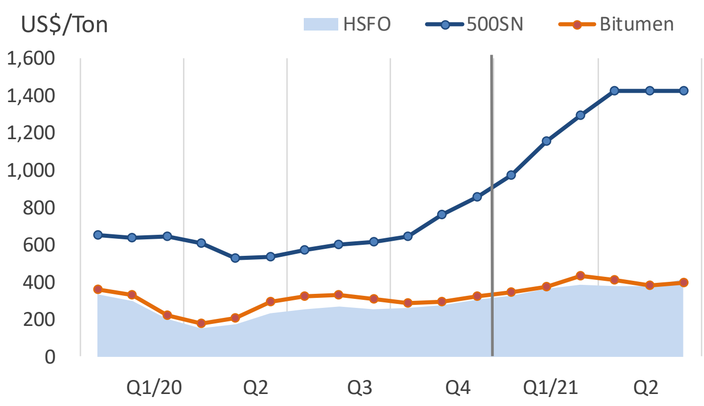
2.4 Market Condition and Financial Result of Lube Base Oil Business

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

Average Prices (US$/Ton)	Q2/21	Q1/21	+/(-)	Q2/20	+/(-)	6M/21	6M/20	+/(-)
500SN(1)	1,425	1,142	283	556	869	1,283	601	682
Bitumen(2)	395	382	13	226	169	389	264	125
Spreads over HSFO (US$/Ton)	**Q2/21**	**Q1/21**	**+/(-)**	**Q2/20**	**+/(-)**	**6M/21**	**6M/20**	**+/(-)**
500SN	1,037	783	254	372	665	910	371	539
Bitumen	7	23	(16)	42	(35)	15	34	(19)

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 Q2/21, Lube base oil price (500SN) and its spread over fuel oil significantly increased from Q1/21 and Q2/20 thanks to continuously tight supply in the region as regional refineries cut their production in response to COVID-19 pandemic. Moreover, there were higher annual maintenance shutdowns of regional refineries than Q1/21 leading to limited feedstock volume and lube base oil supply.

Bitumen price in Q2/21 boosted from Q1/21 and Q2/20 tracking crude oil price. However, its spread over fuel oil in Q2/21 was narrower comparing with Q1/21 and Q2/20 owing to weak regional demand as a result of city lockdowns and the limited government budget for road repairment and construction, which were impacted by COVID-19 outbreak.

Table 10: Financial Result of TLB

	Q2/21	Q1/21	+/(-)	Q2/20	+/(-)	6M/21	6M/20	+/(-)
Base Oil Production Rate(1) (%)	95%	93%	2%	89%	6%	94%	85%	9%
Base Oil Production (kTon)	64	61	3	59	5	125	113	12
Product-to-feed Margin(2) (US$/Ton)	231	170	61	24	207	202	54	148

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

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

In Q2/21, TLB had increases in sales revenue and product-to-feed margin from higher lube base oil spread over fuel oil. Therefore, TLB reported higher net profit than last quarter.

Compared 6M/21 with 6M/20, TLB had better performance thanks to 1) higher total product sales volume and average selling prices, and 2) greater lube base oil spread over fuel oil.

In Q2/21, Thai Lube Base Plc. (TLB) had base oil production rate of 95% and sales revenue of Baht 6,358 million, increased by Baht 1,396 million from last quarter mainly thanks to higher average selling prices following crude oil price. In addition, lube base oil spread over fuel oil boosted thanks to continuously tight supply as regional refineries cut their production as well as higher annual maintenance shutdowns of regional refineries than the prior quarter. As a result, TLB reported product-to-feed margin of 231 US$/Ton, improved by 61 US$/Ton, and recorded EBITDA of Baht 1,770 million, boosted by Baht 740 million. Offsetting with depreciation, finance costs, and income tax expense, TLB posted net profit of Baht 1,386 million, improved by Baht 589 million from last quarter.

Compared with Q2/20, TLB had higher base oil production rate by 6% from a production plan optimization in response to better market condition and reported the increase in sales revenue of Baht 3,489 million thanks to the increases in both total product sales volume and average selling prices. Furthermore, considerably better lube base oil spread over fuel oil led product-to-feed margin to improve by 207 US$/Ton. TLB therefore posted EBITDA and net profit of Baht 1,770 million and Baht 1,386 million, respectively, comparing with loss on EBITDA and net loss of Baht 120 million and Baht 139 million, respectively, in the same period of the previous year.

Compared 6M/21 with 6M/20, TLB had sales revenue of Baht 11,320 million, increased by Baht 4,572 million thanks to the increases in total product sales volume and average selling prices. Moreover, TLB had product-to-feed margin of 202 US$/Ton, rose by 148 US$/Ton mainly because the lube base oil spread significantly boosted resulting from tight supply. Therefore, TLB had EBITDA of Baht 2,799 million, improved by Baht 2,540 million. Offsetting with depreciation and income tax expense, TLB posted net profit of Baht 2,184 million, increased by Baht 2,039 million from the same period of last year.

2.5 Financial Result of Power Generation Business

Table 11: Sales Volume from Power Generation Business

TOP SPP + TP	Q2/21[1]	Q1/21	+/(-)	Q2/20	+/(-)	6M/21	6M/20	+/(-)
Electricity Dispatched (GWh)	397	455	(58)	622	(225)	852	1,234	(382)
Steam Exported (kTon)	572	700	(128)	1,049	(477)	1,272	2,107	(835)

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. (TOP SPP)

In Q2/21, as a result of higher average selling prices and larger sales volume, TOP SPP earned higher sales revenue and net profit.

Compared 6M/21 with 6M/20, TOP SPP had a decline in sales revenue from drops in average selling prices. Moreover, a rise in water cost led to lower net profit.

Compared Q2/21 with Q1/21, TOP SPP Co., Ltd. (TOP SPP) had sales revenue of Baht 1,660 million, increased by Baht 132 million due to increases in average selling prices following higher natural gas price and rises in electricity and steam exported following customers' demand. As a result, TOP SPP reported EBITDA of Baht 429 million, increased by Baht 14 million. Offsetting with depreciation, finance costs and income tax expense, TOP SPP recorded net profit of Baht 230 million, increased by Baht 21 million. Besides, Thaioil and subsidiaries recognized share of profit from the investment in GPSC of Baht 478 million, increased by Baht 95 million from the prior quarter thanks to higher contribution from Xayaburi Power Co., Ltd. (XPCL).

Compared Q2/21 with Q2/20, TOP SPP sales revenue decreased by Baht 137 million because of declines in average selling prices following lower natural gas price. Moreover, a considerable rise in water cost – main production cost – following fuel oil price led to a dip in EBITDA of Baht 30 million. Offsetting with depreciation, finance costs and income tax expense, TOP SPP net profit decreased by Baht 16 million from the same period of last year. Besides, Thaioil and subsidiaries recognized the increase in share of profit from the investment in GPSC of Baht 17 million from the same period of last year.

Compared 6M/21 with 6M/20, TOP SPP had sales revenue of Baht 3,187 million, decreased by Baht 382 million due to declines in average selling prices following lower natural gas price. Moreover, the significant rise in water cost – main production cost – following fuel oil price resulted in TOP SPP to report EBITDA of Baht 844 million, decreased by Baht 53 million. Offsetting with depreciation, finance costs and income tax expense, TOP SPP recorded net profit of Baht 439 million, decreased by Baht 28 million from 6M/20. Besides, Thaioil and subsidiaries recognized the rise in share of profit from the investment in GPSC increased by 18 million from the same period of last year.

2.6 Financial Result of Solvent Manufacturing and Distribution Business

Table 12: Financial Result of Thaioil Solvent

	Q2/21	Q1/21	+/(-)	Q2/20	+/(-)	6M/21	6M/20	+/(-)
Solvent Utilization Rate [(1)] (%)	129%	140%	(11%)	128%	1%	134%	114%	20%
Solvent Production[(1)] (kTon)	45	49	(4)	45	-	95	80	15
Solvent Sales Volume (kTon)	115	115	-	94	21	230	181	49

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

In Q2/21, Thaioil Solvent reported a rise in sales revenue from increases in solvent selling prices tracking crude oil price. However, Thaioil solvent had lower gross profit margin owing to oversupply of some products in domestic market and a decline in demand. Thus, Thaioil Solvent reported both drops in EBITDA and net profit from last quarter.

For 6M/21, Thaioil Solvent reported higher sales revenue due to a hike in average solvent selling price per unit. Besides, Thaioil Solvent had better gross profit margin and had net foreign exchange gain, resulting in greater net profit than the same period of the previous year.

In Q2/21, compared with Q1/21, Thaioil Solvent (Solvent Manufacturing and Distribution Business) had a 129% solvent utilization rate, decreased by 11% while solvent sales volume levelled off. However, average solvent selling price per unit rose considerably tracking crude oil price. This led Thaioil Solvent to record sales revenue of Baht 3,282 million, increased by Baht 378 million. However, Thaioil Solvent reported EBITDA of Baht 237 million, reduced by Baht 123 million because the gross profit margin was squeezed by 1) oversupply of some products in domestic market, and 2) incremental cost outpacing selling price. Moreover, lockdowns in many countries during a COVID-19 resurgence threatened the demand suppressing gross profit margin. In this quarter, Thaioil Solvent recorded net foreign exchange gain of Baht 36 million, increased by Baht 12 million. Offsetting with depreciation, finance costs, and income tax expense, Thaioil Solvent posted net profit of Baht 147 million in Q2/21, decreased by Baht 99 million from the prior quarter.

Compared Q2/21 with Q2/20, Thaioil Solvent's utilization rate maintained while sales volume increased by approximately 21,000 tons. The average solvent selling price per unit hiked tracking crude oil price causing Thaioil Solvent to record an increase in sales revenue of Baht 1,521 million and to have better gross profit margin. Then, Thaioil Solvent posted an increase in EBITDA of Baht 132 million. Besides, Thaioil Solvent posted higher net foreign exchange gain by Baht 28 million from Q2/20. Offsetting with depreciation, finance costs, and income tax expense, Thaioil Solvent, in Q2/21, then recorded an increase in net profit of Baht 107 million from the same period of last year.

For 6M/21, compared with 6M/20, Thaioil Solvent had a 134% solvent utilization rate and had an increase in solvent sales volume of approximately 49,000 tons. Additionally, higher average solvent selling price per unit tracking crude oil price led Thaioil Solvent to record sales revenue of Baht 6,186 million, increased by Baht 2,284 million. In 6M/21, Thaoil solvent had better gross profit margin from increases in sales volume of both high-value products and supply-shortage products. Therefore, Thaioil Solvent posted EBITDA of Baht 596 million, rosed by Baht 388 million. Moreover, in 6M/21, Thaioil Solvent had net foreign exchange gain of Baht 60 million, which was higher than 6M/20 by Baht 47 million. Offsetting with depreciation, finance costs and income tax expense, Thaioil Solvent posted net profit of Baht 393 million, increased by Baht 316 million from the same period of the previous year.

2.7 Financial Result of Crude, Petroleum and Petrochemical Marine Transportation and Storage, Ship Management Service and Crew & Utility Boat Service Business

Table 13: Utilization Rate of TM

Utilization Rate (%)	Q2/21[(1)]	Q1/21	+/(-)	Q2/20	+/(-)	6M/21[(1)]	6M/20	+/(-)
Petroleum & Petrochemical Product Vessel : TM	100%	96%	4%	100%	-	97%	83%	14%
Crew and Utility Boat: TMS	72%	56%	16%	82%	(10%)	60%	82%	(22%)

Remark (1) On 30 April 2021, Thai Oil Plc. disposed and transferred all ordinary shares held in marine transport business unit.

In Q2/21, the Company recognized TM performance until 30 April 2021 due to the restructuring of marine transport business unit.

According to the Board of Directors Meeting No. 11/2020 of Thai Oil Plc. (the Company) held on 25 November 2020, which approved the restructuring of the Company's marine transport business unit. The Company acquired all ordinary shares in Thaioil Marine International Pte Ltd. (TOMI) from Thaioil Marine Co., Ltd. (TM) at the total share purchase price of Baht 277.18 million, and on 30 April 2021, the Company disposed and transferred all ordinary shares held by the Company in TM to the Buyer at the total share purchase price of Baht 858.60 million. This led to the termination of TM as a subsidiary of the Company. Therefore, in Q2/21, TM reported services revenue, including revenues from TMS (TM holds 100% shares), of Baht 56 million because of an increase in utilization rate of TMS fleets, and reported EBITDA of Baht 6 million. Offsetting with finance costs and income tax expense, TM posted consolidated net loss of Baht 1 million.

2.8 Financial Result of Ethanol Business

Table 14: Utilization Rate of TET

	Q2/21	Q1/21	+/(-)	Q2/20	+/(-)	6M/21	6M/20	+/(-)
Ethanol Utilization Rate (%)								
- Sapthip	79%	86%	(7%)	83%	(4%)	83%	94%	(11%)
- Ubon Bio Ethanol	97%	96%	1%	66%	(31%)	97%	83%	(14%)

In Q2/21, TET booked lower sales revenue due to lower ethanol selling prices. With higher feedstock cost, TET reported lower EBITDA and net profit.

For 6M/21, TET reported lower sales due to lower alcohol sales. However, with stronger ethanol market, TET reported higher EBITDA and net profit.

In Q2/21, Thaioil Ethanol Co., Ltd. (TET) reported lower ethanol utilization rates at both plants following lower sales volume from weakened demand due to COVID-19 pandemic. This led to lower consolidated sales revenue from Sapthip Co., Ltd. (TET holds 50% shares) of Baht 24 million from Q1/21, totaling to Baht 355 million due to lower ethanol selling prices. During the period, Sapthip Co., Ltd. reported higher feedstock cost, and it had planned maintenance shutdown. As a result, it had a drop in gross profit margin and reported a decline in EBITDA of Baht 91 million, down to Baht 42 million. In this quarter, TET had share of profit of Baht 15 million from the investment in Ubon Bio Ethanol Plc., an increase of Baht 5 million from the previous quarter as Ubon Bio Ethanol Plc. could capture higher ethanol sales volume during the period despite a decline in gross profit margin from lower demand in the market. Therefore, TET reported consolidated net profit of Baht 14 million, a decrease of Baht 21 million from the previous quarter.

In comparison with Q2/20, TET had a slight decline in consolidated sales revenue from Sapthip Co., Ltd., due to extra non-recurring revenues from alcohol selling for cleaning purposes booked in Q2/20. This led TET to post lower EBITDA by Baht 2 million. Meanwhile, TET had higher share of profit of Baht 17 million from the investment in Ubon Bio Ethanol Plc., which had higher ethanol sales volume and higher contribution from starch/flour business due to subsiding container shortage problem. TET then booked the increase in consolidated net profit of Baht 14 million compared with the same period of last year.

For 6M/21, TET recorded lower consolidated sales revenue due to non-recuring revenues from alcohol sales booked last year. Nevertheless, the gross profit margin from ethanol rose and sent TET EBITDA up by Baht 25 million to Baht 133 million. Additionally, TET recognized share of profit of Baht 25 million, an increase of Baht 10 million from the investment in Ubon Bio Ethanol Plc. due to stronger ethanol market and higher starch/flour sales volume. As such, TET booked consolidated net profit of Baht 49 million, an increase of Baht 20 million from the same period last year.

3. Analysis of Consolidated Financial Statement

3.1 Statement of Financial Position

The financial position of Thaioil and Subsidiaries as of 30 June 2021 compared with 31 December 2020 was summarized as follows:

Table 15: Condensed Consolidated Statements of Financial Position

(Million Baht)	30 June 2021	31 December 2020	+/(-)	+/(-) %
Assets				
Cash, cash equivalents and short-term investments(1)	39,897	71,681	(31,784)	(44.3%)
Other current assets	64,953	42,548	22,405	52.7%
Non-current assets	215,466	191,958	23,508	12.2%
Total assets	**320,316**	**306,188**	**14,128**	**4.6%**
Liabilities				
Current liabilities	34,608	20,668	13,940	67.4%
Long-term borrowings and debentures (including current portion)	143,932	144,189	(257)	(0.2%)
Other non-current liabilities	23,213	21,212	2,001	9.4%
Total liabilities	**201,753**	**186,069**	**15,684**	**8.4%**
Equity				
Equity attributable to owners of the company	115,797	116,229	(432)	(0.4%)
Non-controlling interests	2,767	3,889	(1,122)	(28.9%)
Total equity	118,564	**120,118**	**(1,554)**	**(1.3%)**
Total liabilities and equity	**320,316**	**306,188**	**14,128**	**4.6%**

Remark (1) Including deposits at a financial institution used as collateral as of 30 June 2021 and 31 December 2020 of Baht 327 million.

Total Assets

As of 30 June 2021, Thaioil and Subsidiaries had total assets of Baht 320,316 million, increased by Baht 14,128 million or 4.6% from 31 December 2020 due to the following main reasons:

- Cash, cash equivalents and short-term investments dipped by Baht 31,784 million mainly because of investments in several projects as planned of Baht 19,086 million, dividends paid to non-controlling interests of Baht 5,972 million, dividends paid to the shareholders of the parent of Baht 1,428 million, payments for long-term loans from related parties of Baht 3,999 million, and payments for debentures of Baht 3,000 million.
- Other current assets increased by Baht 22,405 million primarily due to increases in both inventories of Baht 15,337 million and trade accounts receivable of Baht 7,626 million following higher average crude oil price in June 2021 than December 2020. Moreover, receivables from oil fuel fund, and value added tax receivables increased by Baht 119 million and Baht 1,639 million, respectively, while assets held for sale dropped by Baht 2,763 million.
- Non-current assets climbed by Baht 23,508 million mainly because property, plant, and equipment had a net increase of Baht 19,686 million from several project investments according to the business plan. Furthermore, right-of-use assets had a net increase of Baht 3,185 million mostly from VLCC rental agreement.

Total Liabilities

As of 30 June 2021, Thaioil and Subsidiaries had total liabilities of Baht 201,753 million, went up by Baht 15,684 million or 8.4% from 31 December 2020 due to major reasons as follows:

- Current liabilities rose by Baht 13,940 million primarily due to an increase in trade accounts payable of Baht 12,412 million as a result of higher average crude oil price in June 2021 than December 2020.
- Long-term borrowings and debentures (including current portions) reduced by Baht 257 million mainly because TP repaid long-term loans from related parties of Baht 3,999 million and the refinery repaid the debentures of Baht 3,000 million. However, debentures of the refinery and TTC increased by Baht 4,164 million due to Baht depreciation against US dollar, comparing with the end of year 2020.
- Other non-current liabilities rose by Baht 2,001 million since lease liabilities had a net increase of Baht 3,277 million mostly from VLCC rental agreement while derivatives liabilities was lower by Baht 1,426 million.

Table 16: Consolidated Long-term Borrowings

(Million Baht)	Thaioil	LABIX	TP	TOP SPP	TS	TET	TTC	Total
Debentures : US$-denominated[1]	12,392	-	-	-	-	-	101,109	113,501
: Baht-denominated	17,500	-	-	-	-	-	-	17,500
Borrowings : Baht-denominated	-	4,667	-	7,452	421	110	-	12,650
: Other currencies-denominated[1]	-	-	-	-	282	-	-	282
As of 30 June 2021	**29,892**	**4,667**	**-**	**7,452**	**703**	**110**	**101,109**	**143,932**
As of 31 December 2020[2]	32,104	4,870	3,999	7,609	769	105	94,733	144,189
+ / (-)	**(2,212)**	**(203)**	**(3,999)**	**(157)**	**(66)**	**5**	**6,376**	**(257)**

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

(2) Excluding long-term loans from financial institutions of Thaioil Marine Co., Ltd. of Baht 1,295 million as of 31 December 2020 as a result of reclassifying as liabilities related to assets held for sale

Total Equity

As of 30 June 2021, Thaioil and Subsidiaries had total equity of Baht 118,564 million, decreased by Baht 1,554 million or 1.3% from 31 December 2020. This resulted from total comprehensive income for 6M/21 of Baht 5,839 million offsetting with dividends paid of Baht 7,400 million which paid to non-controlling interests and the shareholders of the parent.

3.2 Statement of Cash Flows

As of 30 June 2021, Thaioil and Subsidiaries had cash and cash equivalents of Baht 25,489 million while Thaioil refinery had cash and cash equivalents of Baht 16,661 million. In addition, Thaioil and Subsidiaries and Thaioil refinery both had short-term investments of Baht 14,081 million. Cash flows are detailed as presented below:

Table 17: Condensed Statement of Cash Flows

(Million Baht)	Consolidated	Separated
Net cash generated from (used in) operating activities	1,059	(2,664)
Net cash used in investing activities	(11,745)	(7,742)
Net cash used in financing activities	(17,890)	(21,578)
Net decrease in cash and cash equivalents	**(28,576)**	**(31,984)**
Cash and cash equivalents at the beginning of period	53,244	47,643
Effect of exchange rate changes on cash and cash equivalents	820	1,002
Cash and cash equivalents at the end of period	**25,489** (1)	**16,661**
Cash, cash equivalents, deposits at a financial institution used as collateral, and short-term investments	**39,897**	**30,742**

Remark (1) Excluding deposits at a financial institution used as collateral as of 30 June 2021 of Baht 327 million.

In 6M/21, Thaioil and Subsidiaries had cash flows generated from operating activities of Baht 1,059 million mainly from net profit for 6M/21 from continuing operations of Baht 5,731 million, adjustments to reconcile profit (loss) to cash of Baht 9,533 million but there was more cash used in operating assets and liabilities of Baht 13,643 million, income tax paid of Baht 502 million, and cash used in operating activities of discontinued operations of Baht 59 million. However, Thaioil and Subsidiaries had cash flows used in investing activities of Baht 11,745 million as a consequence of purchases of property, plant and equipment of Baht 19,086 million, which were mainly spent by Thaioil refinery of Baht 18,558 million in main projects such as the Clean Fuel Project as well as by TOP SPP of Baht 309 million mainly in the expansion project. However, there were net proceeds from short-term investments of Baht 5,252 million and proceeds from Restructuring of business of Baht 1,560 million.

Furthermore, cash flows used in financing activities were Baht 17,890 million. These were mainly attributable to finance costs paid of Baht 3,303 million, dividends paid to non-controlling interests of Baht 5,972 million, dividends paid to the shareholders of the parent of Baht 1,428 million, payments for long-term loans from related parties of Baht 3,999 million, net payments for long-term borrowings of Baht 448 million, and payments for debentures of Baht 3,000 million. However, there were net proceeds from short-term borrowings of Baht 814 million.

According to the mentioned cash flows activities, Thaioil and Subsidiaries reported cash and cash equivalents decreased by Baht 28,576 million from 31 December 2020. Nevertheless, Thaioil and Subsidiaries recorded gain on effect of exchange rate changes of Baht 820 million. Hence, including cash and cash equivalents at the beginning of period of Baht 53,244 million, Thaioil and Subsidiaries had cash and cash equivalents of Baht 25,489 million as of 30 June 2021. Including deposits at a financial institution used as collateral and short-term investments of Baht 327 million and Baht 14,081 million, respectively, Thaioil and Subsidiaries had cash, cash equivalents, deposits at a financial institution used as collateral, and short-term investments of Baht 39,897 million.

3.3 Financial Ratios

Table 18: Financial Ratios (Consolidated) for Q2/21

Profitability Ratios	Q2/21	Q1/21	+/(-)	Q2/20(1) Re-presented	+/(-)
Quality of earnings ratio (%)	9%	11%	(2%)	6%	3%
Gross profit margin ratio (%)	8%	10%	(2%)	5%	3%
Net profit margin ratio (%)	3%	4%	(1%)	5%	(2%)

Liquidity Ratios	Q2/21	Q1/21	+/(-)	Q2/20(1) Re-presented	+/(-)
Current ratio (times)	2.7	4.1	(1.4)	4.8	(2.1)
Quick ratio (times)	1.6	2.6	(1.0)	3.8	(2.2)

Financial Policy Ratios	Q2/21	Q1/21	+/(-)	Q2/20(1) Re-presented	+/(-)
Total liability/ Total equity (times)	1.7	1.6	0.1	1.7	-
Net debt/ Equity (times)	1.0	0.9	0.1	0.7	0.3
Long-term loan/ Total equity (times)	1.3	1.3	-	1.4	(0.1)
Interest coverage ratio (times)	7.7	10.4	(2.7)	2.8	4.9
Long-term loan/ Total capitalization (%)	57%	57%	-	59%	(2%)

Financial Ratios Calculation

Quality of Earnings ratio (%)	=	EBITDA / Sales Revenue
Gross Profit Margin ratio (%)	=	Gross Profit (2)/ 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) Re-presented the impact on the financial statements in accordance with TFRS 5 - Non-Current Assets Held for Sale and Discontinued Operations.

(2) Excluding depreciation and amortization.

4. Industry Outlook for the Third Quarter and the Fourth Quarter of 2021

Crude oil and refinery market outlook

In Q3/21, crude oil prices are likely to increase compared to Q2/21 from promising vaccination progress resulting in increasing market confidence over oil demand recovery. However, the upside of crude oil price will be capped by rising crude supply from OPEC+ and Non-OPEC+ producers after higher crude oil prices incentivizing producers to resume their production and pressuring crude oil demand from the rising new cases of COVID-19 in Asia resulting in announcement of lockdown policy in many countries.

In Q4/21, crude oil prices are likely to remain stable from Q3/21 due to rising crude oil demand growth in Q4/21, which is expected to grow approximately 1.2 million barrels per day compared to Q3/21 reaching 100.2 million barrels per day supported by higher oil demand from transportation sector, industrial sector and tourism sector after significantly rising vaccination rate globally. However, rising crude oil supply from OPEC+ following increasing oil demand and potentially resuming Iran oil export if their negotiation with world powers on the sanction lift can be reached by Q3/21 will cap upside of crude oil market (Source: International Energy Agency (IEA), July 2021)

Gross Refinery Margin (GRM) in Q3/21 is likely to be better than Q2/21 supported by improving petroleum product demand from promising vaccination rate globally resulting in easing lockdown measures in many countries. Rising gasoline demand is mainly supported by U.S. gasoline demand during driving season. Diesel demand is also improving driven by increasing economic activities after easing lockdown measures in some countries. Jet fuel & Kerosene demand is likely to recover especially in Europe where many countries have policies to promote tourism sector such as a travel waiver for tourists who have completed two doses of vaccination or a reduction in the number of quarantine days for vaccinated tourists. However, Diesel and Jet fuel market is likely to be pressured by concerns over rapid spread out of the mutated COVID-19. In terms of very low sulfur fuel oil (VLSFO) demand, it is expected to be supported by improving bunker demand following recovering transportation sector after easing lockdown measures in many countries resulting in higher economic activities. Meanwhile, high sulfur fuel oil (HSFO) demand is likely to be supported by increasing power demand in summer especially in the Middle East and reducing HSFO supply in September from maintenance period of some refineries. In Q4/21, Gross Refinery Margin (GRM) is expected to improve supported by continually rising petroleum product demand after rising vaccination rate globally which is forecasted to reach at 75%, the herd immunity rate, in key countries such in U.S. and Europe by the end of 2021 that will bring people back to their normal life's activities supporting Gasoline & Diesel demand including very low sulfur fuel oil (VLSFO) demand from recovering transportation and industrial sector. Jet fuel and Kerosene demand is expected to be supported by recovering tourism sector during holiday's period and rising Kerosene demand in North Asia during winter. Meanwhile, high sulfur fuel oil (HSFO) spread is likely to be under pressure driven by rising supply from higher refinery utilization rate and increasing supply in the Middle East. (Source: Bloomberg July'21, Reuters July'21, International Energy Agency (IEA) July'21, FGE-Asia Pacific Petroleum Monthly June'21)

Aromatics market outlook

In Q3/21, paraxylene (PX) market is expected to be slightly softer than Q2/21 due to softer PX demand for downstream businesses of clothes and PET bottles when the summer ends and rising PX supply from plants' resumption from unplanned shutdown in Q2/21. Moreover, new PX plants addition in China during Q3/21, with the PX capacity of approximately 2.2 million tons per year, will also cap the upside of the market (Source: WMChemical Report, June 2021)

In Q4/21, PX market is expected to be better than Q3/21 from rising demand in Asia after improving COVID-19 pandemic situation and improving downstream products demand of clothes and PET bottles during winter and New Year Eve. However, rising regional PX supply from new PX plants addition in China and Saudi Arabia with total production capacity of approximately 3 million tons per year will cap the upside of PX market. (Source: WMChemical Report, June 2021)

For benzene (BZ) market in Q3/21, it is likely to be lower than Q2/21 due to rising BZ supply from new BZ plants addition in China which is forecasted to be operated in late Q3/21 with total production capacity of 0.8 million tons per year and rising BZ supply from plants' resumption from unplanned shutdown during Q2/21. (Source: IHS Markit Report, Spring Edition 2021)

In Q4/21, BZ market is expected to be softer than Q3/21 due to rising BZ supply from new BZ plants addition with total production capacity of more than 1.0 million tons per year in China and Saudi Arabia. Meanwhile, low Chinese BZ inventory and rising BZ demand from new styrene monomer (SM); BZ downstream product, plants addition with total production capacity of 1.3 million tons per year which is expected to be operated in Q4/21 and seasonal BZ demand for gift production during Christmas and New Year Eve will limit downside risk of BZ market. (Source: IHS Markit Report, Spring Edition 2021)

For toluene (TL) market in Q3/21, it is likely to be weaker than Q2/21 as TL demand for PX and BZ production remains under pressure from rising new supply additions. Moreover, TL inventory in China is still at high level pressured by lower TL demand for gasoline blending after lockdown policy remains to be implemented in many countries. (Source: IHS Markit Report, Spring Edition 2021)

In Q4/21, TL market is likely to remain stable compared to Q3/21 despite recovering economic activities pressured by rising PX and BZ supply from new plants addition and softer TL demand for gasoline blending in early Q4/21 onwards after U.S. driving season end. (Source: IHS Markit Report, Spring Edition 2021)

LAB Market Outlook

In Q3/21, LAB market is expected to be weaker than Q2/21 due to softer demand for washing products during monsoon season especially in India and Southeast Asia as well as higher supply from lower LAB plants maintenance shutdowns. However, ongoing tight supply situation from the previous quarter due to an annual maintenance in China will limit the downside of LAB market. (Source: ICIS LAB Weekly report, July 2021)

In Q4/21, LAB market is expected to be decreasing compared to Q3/21 from rising LAB supply after many refineries resume their production to normal during post-COVID-19 resulting in higher LAB feedstock as well as resuming LAB plants in China. However, LAB market will be supported by increasing LAB demand after monsoon season ends and reducing supply from plant maintenance shutdowns in Korea and Taiwan. (Source: ICIS LAB Weekly Report, July 2021)

Lube Base Oil market outlook

In Q3/21, lube base oil market is expected to be softer than Q2/21 driven by rising lube base oil supply from increasing production rate of lube base oil plants in the region including new lube base oil group II and group III plants addition in China. Moreover, lube base oil market is also pressured by sluggish regional demand in rainy season amid weak economic situation from the spread of COVID-19. (Source: ICIS Base Oil Weekly Report, July 2021 and Argus Base Oil Weekly Report, July 2021)

In Q4/21, lube base oil market is expected to be weaker than Q3/21 due to rising lube base oil supply from continually higher production rate of lube base oil plants in the region and rising lube base oil feedstock following an increasing regional refinery utilization rate and recovering economic activities tracking with promising COVID-19 vaccination rate in many countries. However, lower trend of crude oil price will support product spread of lube base oil over HSFO. (Source: ICIS Base Oil Weekly Report, July 2021 and Argus Base Oil Weekly Report, July 2021)

Bitumen market outlook

In Q3/21, bitumen market is expected to be lower compared to Q2/21 from weak bitumen demand in rainy season which is difficult for road construction and road repair activities and rising regional bitumen supply from increasing utilization rate of Asian refineries. However, higher Indonesian bitumen import demand from increasing road construction and repair activities when Ramadan season end and approaching summer season will limit the downside of bitumen market. (Source: Argus Bitumen Weekly Report, July 2021)

In Q4/21, bitumen market is expected to slightly improve from Q3/21 due to recovering regional demand from increasing road construction and repair after monsoon season and ahead of the year-end amid recovering economy. However, slowing bitumen demand in Indonesia during rainy season will cap the upside of bitumen market. (Source: Argus Bitumen Weekly Report, July 2021)

5. Appendix

5.1 Summary of Approved Investment Plan

Thaioil and Subsidiaries have an investment plan from 2021 to 2024 with total expenditure of US$ 3,431 million which mostly consists of CFP project (Clean Fuel Project) expenditure of US$ 1,902 million and an investment in olefins business in Indonesia via company's direct investment (through right offering) in PT Chandra Asri Petrochemical Tbk ("CAP") aforementioned in the 1st part of "Company and its Subsidiaries' Operating Results", the expenditure of which, will not exceed US$ 1,183 million. An estimated budgeting for the investment plan (2021-2024) is summarized in a table below;

CAPEX Plan (Unit US$ million)

Updated as of July 2021

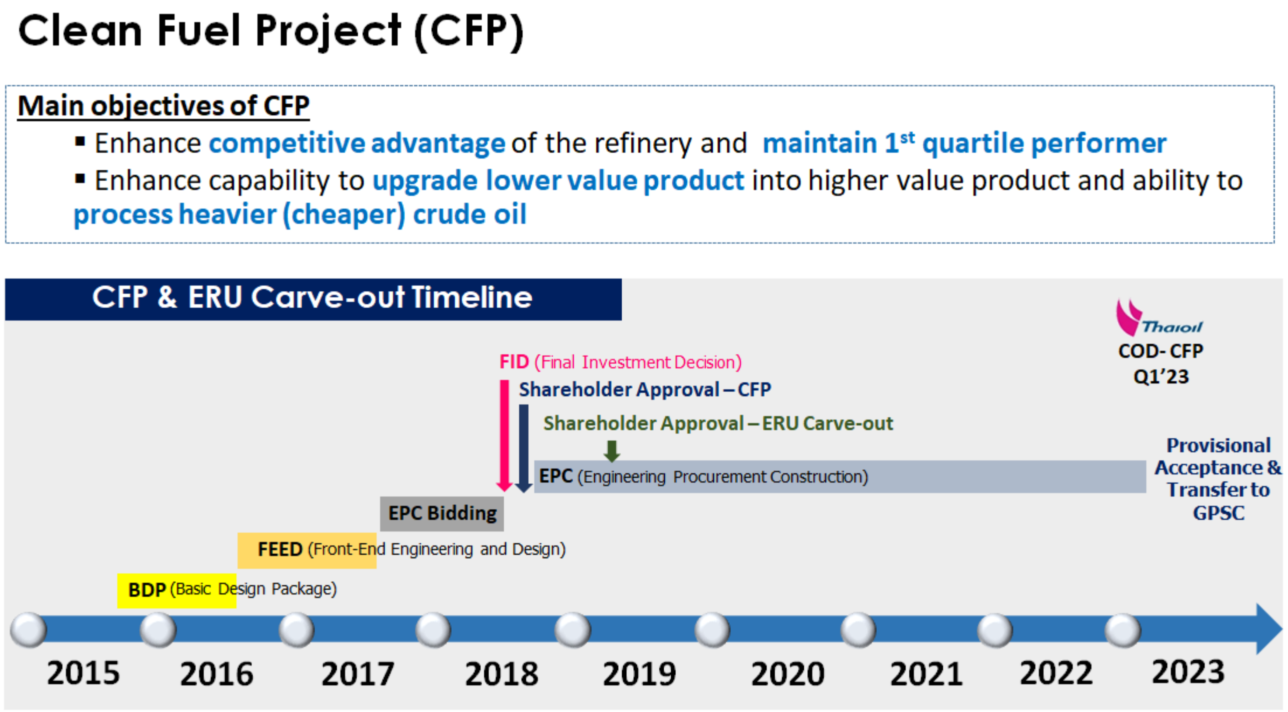
Project	Estimated Budgeting for Investment Plan 2021 - 2024
CFP project *	**1,902**
Total Ongoing CAPEX	**201**
Reliability, Efficiency and Flexibility Improvement	48
Infrastructure Improvement (i.e. Jetty 7&8, Office Relocation & New Crude Tank, Site office preparation for fire water & fire water improvement, New Bangphra Raw Water Line)	72
Other Investments (i.e. Corporate Venture Capital - CVC , Digital Transformation)	81
TOP SPP Expansion	**145**
Olefins Investment	**1,183**
Total CAPEX	**3,431**

* 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 purpose of CFP project is to enhance the competitiveness of the Company by improving its production efficiency to increase the product value by making it more environmentally-friendly, and to increase its oil refining capacity to allow the refineries to handle more types and greater quantities of crude oils, which create an economies of scale and a reduction of raw material costs. Moreover, the project also enhances the country's long-term energy stability and economic development, with the investment project value of approximately US$ 4,825 million. The CFP has been approved by the Company's Extraordinary General Meeting of Shareholders on 27 August 2018. The CFP timeline is shown as summarized below:



However, 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 the CFP 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 has significant aims to reduce investment costs of the CFP, enhance liquidity and efficiently support future investment; furthermore, the transaction will boost the return on investment of the CFP while the Company can continue to manage and oversee the implementation of the CFP and ERU during the construction phase and the operation phase in respect of the safety, reliability and plant optimization of the projects as originally planned.