

Management's Discussion and Analysis (MD&A)

Thai Oil Public Company Limited

For The Third Quarter and
The First Nine Month of 2021



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Management's Discussion and Analysis (MD&A)
Thai Oil Public Company Limited and Subsidiaries
for the Third Quarter and the First Nine Month of 2021

1. Company and its Subsidiaries' Operating Results

Table 1: Summary of Consolidated Financial

(Million Baht)	Q3/21	Q2/21	+ / (-)	Q3/20	+ / (-)	9M/21	9M/20	+ / (-)
Integrated Intake (kbd)	259	273	(14)	261	(2)	270	280	(10)
Gross Integrated Margin (GIM) ⁽¹⁾ (US\$/bbl)								
: <u>excluding</u> Stock Gain/(Loss)	5.5	5.2	0.3	1.0	4.5	4.9	2.0	2.9
: <u>including</u> Stock Gain/(Loss)	10.5	10.0	0.5	4.9	5.6	10.2	(1.8)	12.0

(Million Baht)	Q3/21	Q2/21	+ / (-)	Q3/20 ⁽²⁾ Re-presented	+ / (-)	9M/21	9M/20 ⁽²⁾ Re-presented	+ / (-)
Sales Revenue	79,960	78,120	1,840	57,117	22,843	231,530	182,932	48,598
Net Realized Gain/(Loss) on Financial Instruments	(479)	(56)	(423)	144	(623)	(654)	80	(734)
EBITDA	6,784	7,003	(219)	3,819	2,965	22,060	(5,549)	27,609
Net Gain/(Loss) on Fair Value Measurement of Financial Instruments	(1,429)	(1,043)	(386)	33	(1,462)	(2,256)	45	(2,301)
Net Foreign Exchange Gain/(Loss) ⁽³⁾	(1,228)	(1,286)	58	(458)	(770)	(5,118)	(754)	(4,364)
Finance Costs	(934)	(907)	(27)	(1,155)	221	(2,637)	(3,253)	616
Reversal of Income Tax (Expense)	(213)	(358)	145	(34)	(179)	(959)	3,031	(3,990)
Net Profit/(Loss)	2,063	2,123	(60)	715	1,348	7,545	(10,559)	18,104
Basic Earnings/(Loss) per Share (Baht)	1.01	1.04	(0.03)	0.35	0.66	3.70	(5.18)	8.88
Stock Gain/(Loss)	3,915	3,783	132	2,986	929	12,354	(9,190)	21,544
Reversal / (Write-Down) on Crude and Petroleum Product Inventory ⁽⁴⁾	(280)	(71)	(209)	378	(658)	(242)	(632)	390

Exchange Rate (Baht: 1 US\$)	Q3/21	Q2/21	+ / (-)	Q3/20	+ / (-)	9M/21	9M/20	+ / (-)
Average FX	33.10	31.53	1.57	31.49	1.61	31.71	31.68	0.03
Ending FX	34.09	32.22	1.87	31.83	2.26	34.09	31.83	2.26

- หมายเหตุ** (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 Q3/21, Q2/21, Q3/20, 9M/21 และ 9M/20 of Baht (1,320) million, Baht (1,444) million, Baht (641) million, Baht (4,841) million, and Baht (875) 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.

In Q3/21, Thaioil and Subsidiaries recorded lower integrated intake following lower oil demand from lockdown policy. However, sales increased by Baht 1,840 million, totaling to Baht 79,960 million from higher product prices tracking improving COVID-19 situation globally, especially in North America and Europe. As such, GIM excluding stock gain / (loss) of 5.5 US\$/bbl was recorded during the period, an increase of 0.3 US\$/bbl because of 1) higher refining margin from higher petroleum product prices from lockdown easing in various countries, 2) higher LAB gross margin from tight supply in the market following maintenance shutdowns of LAB plants in China and India, and 3) higher PX spread over ULG95 which were supported by resumption of economic activities and tight supply. On the other hand, BZ spread over ULG95 was under regulatory pressure on electricity usage in China after tight coal supply for power plant. Furthermore, base oil and bitumen market were softened following higher regional supply and monsoon season pressuring demand. Crude oil price in Q3/21 rose from higher oil demand after global vaccination rate increased and numerous countries have eased their lockdowns. Additionally, crude oil price was supported by Hurricane Ida in the U.S. and sharp rise on natural gas price during the period. Therefore, Thaioil and Subsidiaries recorded stock gain of Baht 3,915 million or a Baht 132 million increase from Q2/21, and had GIM including stock gain / (loss) of Baht 10.5 US\$/bbl, an increase of 0.5 US\$/bbl. However, there was a write-down on crude and petroleum product inventory of Baht 280 million, an increase of Baht 209 million from the previous quarter. Altogether with net realized loss on financial instruments of Baht 479 million, Thaioil and Subsidiaries reported EBITDA of Baht 6,784 million, decreased by Baht 219 million. In addition, Thaioil and Subsidiaries booked net loss on fair value measurements of financial instruments of Baht 1,429 million, which was an increase of Baht 386 million. This was mainly from mark-to-market commodity hedge. Moreover, Thaioil and Subsidiaries had net foreign exchange loss of Baht 1,228 million (including net foreign exchange loss on foreign currency assets and liabilities of Baht 1,320 million) which was due to Thai Baht depreciation from end of the previous quarter. From Q3/21, Thaioil and Subsidiaries elected hedge accounting under TFRS9 to manage its foreign currency exchange risk between its U.S. Dollar debenture and its sales revenue which was U.S. Dollar and linked to U.S. Dollar. This helped reduce fluctuation to bottom line.

Additionally, referring to Thai Oil Public Company Limited (TOP) Board of Director Meeting 2/2018, the Board endorsed Thaioil Ethanol Company Limited (TET) to sell no more than 5% of its share in Ubon Bio Ethanol Public Company Limited (UBE) along with the UBE's IPO transaction. UBE completed its IPO in late September, and its shares began trading on Stock Exchange of Thailand on 30 September 2021. From this transaction, Thaioil and Subsidiaries had lower shareholding in UBE from 21.3% to 12.4%, and booked gain before tax of Baht 624 million which was consisted of 1) realized gain from partial share sale and 2) gain on fair value measurement from changing in accounting method from equity method to long-term investment. Altogether with depreciation expenses, finance cost and tax expenses, in Q3/21, Thaioil and Subsidiaries recorded net profit of Baht 2,063 million or 1.01 Baht per share, or Baht 60 million lower from the previous quarter.

In Q3/21, Thaioil and Subsidiaries established PT TOP Investment Indonesia (TII) on 12 July 2021. In September, TII acquired 15% stake in PT Chandra Asri Petrochemical Tbk (CAP), which is a premier and integrated petrochemical producer in Indonesia. TII recognized CAP as its associate company and applied equity method to realized its gain/(loss) since September onwards.

Compared with Q3/20, Thaioil and Subsidiaries booked slightly lower intake and recorded higher sales revenue by Baht 22,843 million from higher product prices tracking crude oil price. A rise in GIM excluding stock gain / (loss) of 4.5 US\$/bbl was realized because of improvements in gasoline and jet/kero spreads over Dubai tracking 1) higher demand from the driving season and lockdown easing from higher vaccination rates especially in Europe and the U.S., 2) gasoline supply shortage from Hurricane Ida, and 3) higher global air traffic. Moreover, the GIM was supported by a sharp rise in lube base oil spread over fuel oil from tight supply since late 2020, a significant increase in BZ spread over ULG95 following higher demand, and higher LAB gross margin thanks to healthy demand and supply shortage. The rising crude oil price led Thaioil and Subsidiaries to book higher stock gain of Baht 929 million from Q3/20.

However, there was a write-down on crude and petroleum product inventory of Baht 280 million during the period, compared with a reversal on crude and petroleum product inventory of Baht 378 million in Q3/20. Altogether with net realized loss on financial instruments of Baht 479 million in Q3/21, compared with gain of Baht 144 million in Q3/20, increased EBITDA of Baht 2,965 million was recorded. In this quarter, Thaioil and Subsidiaries booked higher net loss on fair value measurements of financial instruments by Baht 1,462 million and recorded higher net foreign exchange loss of Baht 770 million. On the other hand, finance cost reduced by Baht 221 million, which was partly capitalized as a part of asset cost. Offsetting with depreciation expenses, and income tax expense, Thaioil and Subsidiaries reported increased net profit of Baht 1,348 million from the same period last year.

Compared 9M/21 with 9M/20, Thaioil and Subsidiaries had sales revenue of Baht 231,530 million, higher by Baht 48,598 million mainly due to higher product prices. However, integrated intake reduced following production optimization in response to lower demand from COVID-19 pandemic. Furthermore, spreads of gasoline over Dubai, lube base oil over fuel oil and BZ over ULG95, including LAB gross margin improved sharply during the period. Thus, GIM excluding stock gain / (loss) rose by 2.9 US\$/bbl, totaling to 4.9 US\$/bbl in 9M/21. Besides, stock gain of Baht 12,354 million was recognized during the period whereas stock loss of Baht 9,190 million was booked in 9M/20. However, there was a write-down on crude and petroleum product inventory of Baht 242 million during the period, which was Baht 390 million lower from 9M/20. Together with net realized loss on financial instruments of Baht 654 million, Thaioil and Subsidiaries earned EBITDA of Baht 22,060 million, compared with loss on EBITDA of Baht 5,549 million in 9M/20. Nonetheless, Thaioil and Subsidiaries recorded net loss on fair value measurements of financial instruments of Baht 2,256 million and net foreign exchange loss of Baht 5,118 million following a significant depreciation in Thai baht during the period. Offsetting with finance cost of Baht 2,637 million, which was Baht 616 million lower due to capitalizing borrowing cost as a part of asset, depreciation expenses and tax expenses, Thaioil and Subsidiaries recorded net profit of Baht 7,545 million in 9M/21 while it recorded net loss of Baht 10,559 million in 9M/20.

2. Summary of Financial Result by Business

Table 2: Financial Result by Business

(Million Baht)

Sales Revenue	Q3/21	Q2/21	+/-)	Q3/20 ⁽¹⁾ Re-presented	+/-)	9M/21	9M/20 ⁽¹⁾ Re-presented	+/-)
Consolidated	79,960	78,120	1,840	57,117	22,843	231,530	182,932	48,598
Refinery	82,777	80,543	2,234	58,372	24,405	237,900	187,950	49,950
Aromatics and LAB ⁽³⁾	16,079	14,649	1,430	7,553	8,526	41,424	27,924	13,500
Lube Base Oil	6,420	6,358	62	3,447	2,973	17,740	10,195	7,545
Power Generation ⁽⁴⁾	1,906	1,660	246	2,630	(724)	5,418	8,386	(2,968)
Solvent ⁽⁵⁾	3,417	3,282	135	1,942	1,475	9,603	5,844	3,759
Marine Transportation ⁽⁶⁾	-	56	(56)	163	(163)	211	493	(282)
Ethanol ⁽⁷⁾	410	355	55	509	(99)	1,145	1,259	(114)
Others ⁽⁸⁾	1,562	1,485	77	1,538	24	4,499	4,145	354

EBITDA	Q3/21	Q2/21	+/-)	Q3/20	+/-)	9M/21	9M/20	+/-)
Consolidated	6,784	7,003	(219)	3,819	2,965	22,060	(5,549)	27,609
Refinery	3,443	2,941	502	1,972	1,471	11,434	(10,981)	22,415
Aromatics and LAB	1,379	1,617	(238)	707	672	4,293	2,824	1,469
Lube Base Oil	1,327	1,770	(443)	513	814	4,126	772	3,354
Power Generation	468	429	39	629	(161)	1,375	1,925	(550)
Solvent	204	237	(33)	139	65	800	347	453
Olefins ⁽⁹⁾	(9)	-	(9)	-	(9)	(9)	-	(9)
Marine Transportation	-	6	(6)	42	(42)	33	134	(101)
Ethanol	23	42	(19)	61	(38)	156	169	(13)
Others	63	55	8	61	2	149	235	(86)

Net Profit / (Loss)	Q3/21	Q2/21	+/-)	Q3/20	+/-)	9M/21	9M/20	+/-)
Consolidated	2,063	2,123	(60)	715	1,348	7,545	(10,559)	18,104
Refinery	(1,312)	(1,014)	(298)	(195)	(1,117)	(1,428)	(13,496)	12,068
Aromatics and LAB	1,002	916	86	16	986	2,552	989	1,563
Lube Base Oil	1,038	1,386	(348)	375	663	3,222	520	2,702
Power Generation ⁽¹⁰⁾	656	709	(53)	833	(177)	1,963	2,135	(172)
Solvent	143	147	(4)	73	70	536	150	386
Olefins	(23)	-	(23)	-	(23)	(23)	-	(23)
Marine Transportation	-	(1)	1	2	(2)	15	34	(19)
Ethanol	535	14	521	9	526	584	38	546
Others ⁽¹¹⁾	108	100	9	130	(22)	290	436	(146)

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., PT Tirta Surya Raya, and JSKEM Private Limited

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

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

(11) 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

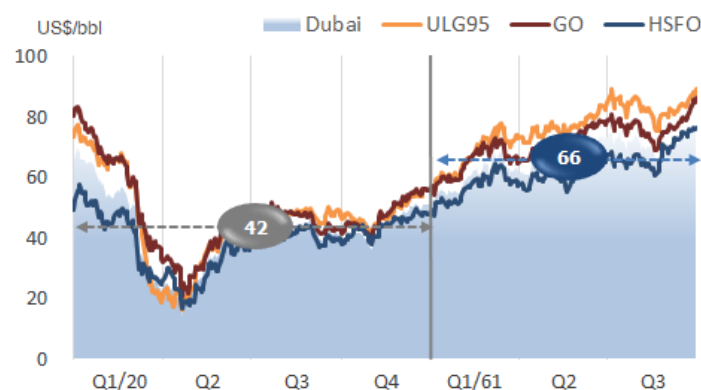
Table 3: Average Crude Oil Price, Petroleum Product Prices, Crude Premiums, and Crack Spreads

Average Prices (US\$/bbl)	Q3/21	Q2/21	+/(-)	Q3/20	+/(-)	9M/21	9M/20	+/(-)
Dubai Crude Oil ⁽¹⁾	71.7	66.9	4.8	42.9	28.8	66.2	41.5	24.7
Unleaded Gasoline (ULG95)	83.4	76.8	6.6	47.3	36.1	75.8	46.0	29.8
Jet/Kero	77.0	71.4	5.6	42.2	34.8	70.6	44.0	26.6
Gas Oil (GO)	77.1	72.2	4.9	47.1	30.0	71.3	48.5	22.8
Fuel Oil (HSFO)	68.3	61.1	7.2	40.4	27.9	62.0	37.6	24.4
Crude Premiums (US\$/bbl)	Q3/21	Q2/21	+/(-)	Q3/20	+/(-)	9M/21	9M/20	+/(-)
Murban ⁽²⁾	2.5	1.3	1.2	1.2	1.3	1.5	(0.4)	1.9
Arab Light	2.5	1.6	0.9	0.8	1.7	1.6	(0.4)	2.0
Spreads over Dubai (US\$/bbl)	Q3/21	Q2/21	+/(-)	Q3/20	+/(-)	9M/21	9M/20	+/(-)
Unleaded Gasoline (ULG95)	11.8	9.9	1.9	4.4	7.4	9.6	4.6	5.0
Jet/Kero	5.4	4.5	0.9	(0.7)	6.1	4.4	2.6	1.8
Gas Oil (GO)	5.4	5.3	0.1	4.2	1.2	5.1	7.0	(1.9)
Fuel Oil (HSFO)	(3.4)	(5.8)	2.4	(2.5)	(0.9)	(4.2)	(3.9)	(0.3)
Very Low Sulfur Fuel Oil (VLSFO)	4.9	5.0	(0.1)	3.2	1.7	5.9	7.5	(1.6)

หมายเหตุ ⁽¹⁾ Closing Dubai crude oil price at the end of Q3/21, Q2/21, and Q3/20 were calculated from average Dubai price of September 2021, June 2021, and September 2020, respectively. The prices were 72.6 US\$/bbl, 71.6 US\$/bbl, and 41.5 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.

Graph 1: Prices of Crude Oil and Petroleum Product



Dubai crude oil price in Q3/21 increased from Q2/21 and Q3/20 following the improving COVID-19 pandemic situation as global population were getting vaccinated especially in North America and Europe where vaccination rates were already above 60%. Therefore, lockdown measures were eased and economic activities were restored. This supported oil demand during the period. Furthermore, during August to September 2021, Hurricane Ida hit Gulf of Mexico which adversely impacted on U.S. crude oil production and resulted

in tight crude oil supply. Additionally, a sharp rise in natural gas in late Q3/21 caused power producers and factories to switch their fuel from natural gas to oil sent oil demand even higher.

Murban crude premium over Dubai, and Arab Light crude premium over average Dubai and Oman crude expanded during the period compared with that of Q2/21 and Q3/20 because of oil demand recovery. Therefore, many refineries resumed their operations in response to higher oil demand.

Gasoline spread over Dubai in Q3/21 improved from Q2/21 and Q3/20 because of 1) the record high demand for gasoline in several years in the U.S. for its driving season 2) tight gasoline supply during August – September 2021 from Hurricane Ida hitting Gulf of Mexico causing halt in refinery operations, and 3) lower than 5-year-average gasoline inventory in both of the U.S. and Europe. Gas oil spread over Dubai in Q3/21 also improved compared with Q2/21 and Q3/20 after Europe lockdown easing sending economic activities up which in turn boosted demand for gas oil. This made export of gas oil from Asia to Europe economically feasible and therefore reduced supply of gas oil in Asia. Chinese government also lowered refinery export quota compared with the previous year. Therefore, gas oil export from China in Q3/21 dipped for more than 60% compared with Q2/21. Additionally, gas oil inventory in Singapore and Europe were below 5-year-average level. Likewise, jet/kero spread over Dubai in Q3/21 increased compared with Q2/21 and Q3/20 following higher air traffic activities after easing of border controls in many countries from higher COVID-19 vaccination rates especially in Europe and the U.S. This supported jet/kero demand in western countries. High sulfur fuel oil over Dubai in Q3/21 also increased from Q2/21 from higher demand for fuel oil as a fuel in power plants in the Middle Eastern summer. However, the spread was softened compared with Q3/20 because of the increase in OPEC+ production causing more fuel oil production. For low sulfur fuel oil, its spread over Dubai in Q3/21 was at the same level of Q2/21 but was higher than that of Q3/20 as it was supported by more maritime shipment from lockdown easing in various countries.

Table 4: Financial Result of Refinery Business

	Q3/21	Q2/21	+/(-)	Q3/20	+/(-)	9M/21	9M/20	+/(-)
Throughput ⁽¹⁾ (%)	92%	98%	(6%)	93%	(1%)	97%	101%	(4%)
Intake (kbd)	254	270	(16)	257	(3)	266	277	(11)
Gross Refining Margin (GRM) (US\$/bbl)								
: <u>excluding</u> Stock Gain/(Loss)	1.6	0.4	1.2	(1.1)	2.7	0.9	0.1	0.8
: <u>including</u> Stock Gain/(Loss)	6.7	5.3	1.4	2.9	3.8	6.3	(3.7)	10.0

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

In Q3/21, Thaioil refinery reported better EBITDA than that of the previous quarter thanks to higher product spreads. However, it recognized net loss on fair value measurement of financial instruments and net foreign exchange loss.

In Q3/21, Thaioil refinery reported lower utilization rate of 6% totaling to 92% from Q2/21 due to economic optimization in response to COVID-19 pandemic situation, and had lower sales volume by 4%. Sales volume was consisted of 1) 75% domestic sales, this was lower from lockdown measures, 2) 13% Indochina sales, and 3) 12% export sales. Sales revenue of Baht 82,777 million, or an increase of Baht 2,234 million was booked during the period from higher product prices tracking higher crude oil price as the COVID-19 situation improved. Thaioil refinery recorded GRM excluding stock gain/(loss) of 1.6 US\$/bbl, or an increase of 1.2 US\$/bbl from the previous quarter. This mainly came from higher product spreads from a rebound in demand from improving COVID-19 pandemic situation and decent progress on COVID-19 vaccination especially in Europe and the U.S. Furthermore, a rise in crude oil price resulted in stock gain of 5.1 US\$/bbl or Baht 3,915 million, which was a slight increase from the previous quarter. However, Thaioil refinery booked a write-down on crude and petroleum product inventory of Baht 280 million, which was an increase of Baht 209 million from Q2/21. Combining with net realized loss on financial instruments of Baht 446 million, EBITDA of Baht 3,443 was recorded in Q3/21. This represented an increase of Baht 502 million from Q2/21. Besides, the refinery had net loss on fair value measurement of financial instruments of Baht 1,669 million, higher loss of Baht 670 million from the previous quarter, which was mainly from mark-to-market commodity hedging. The refinery also recognized net foreign exchange loss of Baht 1,371

For 9M/21, the refinery had considerable increases in EBITDA and performance from 9M/20. This was due to stock gain in 9M/21 compared with stock loss in 9M/20.

million (including net foreign exchange loss on foreign currency assets and liabilities of Baht 1,110 million), a slight improvement from the previous quarter. From Q3/21, hedge accounting under TFRS9 was adopted to help manage foreign exchange risk between existing US Dollar denominated debentures and sales revenue in US Dollar and Thai Baht which was a US Dollar linked. Offsetting with depreciation, finance costs and including a reversal of income tax expense, the refinery recorded net loss of Baht 1,312 million, an improvement of Baht 298 million from the previous quarter (including dividend income, it had net profit of Baht 2,168 million).

Compared with Q3/20, Thaioil refinery reported slight decreases in utilization rate and sales volume. It booked higher sales revenue by Baht 24,405 million from higher product prices tracking higher crude oil prices from the improving pandemic situation. Thaioil refinery recorded higher GRM excluding stock gain/(loss) by 2.7 US\$/bbl than the same period last year thanks to significant improvement in gasoline and jet/kero spreads from 1) more demand for gasoline in driving season in many countries after lockdown easing following higher COVID-19 vaccination rates especially that in Europe and the U.S. 2) tight oil supply from Hurricane Ida, and 3) higher global air traffic after border control easing. Additionally, higher crude oil price gave rise to higher stock gain of Baht 929 million than the same period last year. However, the refinery recorded the write-down on crude and petroleum product inventory of Baht 280 million compared with a reversal on crude and petroleum product inventory of Baht 378 million in Q3/20. Altogether with net realized loss on financial instruments of Baht 446 million, the refinery booked higher EBITDA by Baht 1,471 million than Q3/20. Meanwhile, in Q3/21, the refinery reported net loss on fair value measurement of financial instruments of Baht 1,699 million compared with net gain on fair value measurement of financial instruments of Baht 72 million in Q3/20, and booked higher net foreign exchange loss of Baht 868 million than the same period last year. Offsetting with depreciation, finance costs, and including the reversal of income tax expense, higher net loss by Baht 1,117 million than Q3/20 was booked.

Compared 9M/21 with 9M/20, Thaioil refinery reported lower utilization rate of 4% 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 6% from the pandemic. Sales revenue, on the other hand, rose by Baht 49,950 million to Baht 237,900 million from higher average selling prices. It booked GRM excluding stock gain/(loss) of 0.9 US\$/bbl, which was 0.8 US\$/bbl higher than the same period last year. It also reported stock gain of Baht 12,354 million in 9M/21 whereas stock loss of Baht 9,190 million was booked in 9M/20. There was also the write-down on crude and petroleum product inventory of Baht 242 million, or Baht 390 million lower than that of 9M/20. With net realized loss on financial instruments of Baht 566 million, Thaioil refinery reported EBITDA of Baht 11,434 million in 9M/21, compared with loss on EBITDA of Baht 10,981 million in 9M/20. However, Thaioil booked net loss on fair value measurement of financial instruments of Baht 2,453 million, or a higher loss of Baht 2,395 million compared with that of last year, which was mainly from mark-to-market commodity hedging, and booked net foreign exchange loss of Baht 5,408 million, a higher loss of Baht 4,551 million from Thai baht depreciation. Nevertheless, it reported lower finance

costs of Baht 538 million than the same period last year as a result of asset capitalization. Offsetting with depreciation, and including the reversal of income tax expense, net loss of Baht 1,428 million was reported, or an improvement of Baht 12,068 million compared with the same period last year (including dividend income in 9M/21, it had net profit of Baht 20,532 million which was mainly from dividend received from entire business transfer transactions with TP).

2.2 Market Condition and Financial Result of Aromatics Business

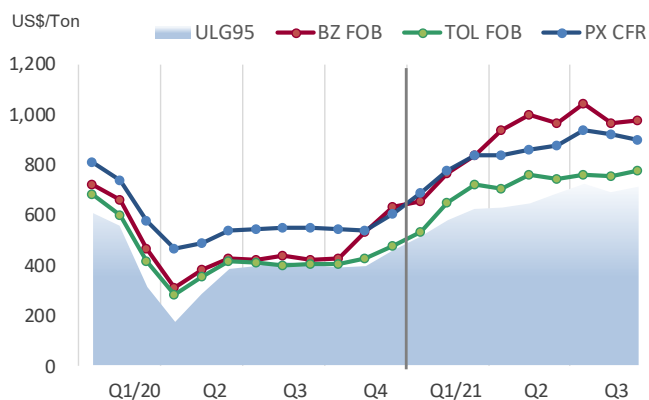
Table 5: Average Prices and Spreads of Aromatics Products

Average Prices (US\$/Ton)	Q3/21	Q2/21	+/(-)	Q3/20	+/(-)	9M/21	9M/20	+/(-)
Paraxylene (PX) ⁽¹⁾	919	859	60	546	373	848	583	265
Benzene (BZ) ⁽²⁾	993	966	27	427	566	904	471	433
Toluene (TL) ⁽²⁾	763	734	29	404	359	710	439	271
Spreads over ULG95 (US\$/Ton)	Q3/21	Q2/21	+/(-)	Q3/20	+/(-)	9M/21	9M/20	+/(-)
Paraxylene (PX)	212	206	6	143	69	204	192	12
Benzene (BZ)	287	311	(24)	25	262	260	80	180
Toluene (TL)	54	82	(28)	1	53	66	48	18

Remark (1) Based on CFR Taiwan price

(2) Based on FOB Korea price

Graph 2: Prices of Aromatics Products and ULG95



In Q3/21, PX price and its spread over ULG95 improved from Q2/21 and Q3/20 following crude oil price thanks to continuous recovery of economic activities following better COVID-19 situation in several countries. Additionally, PX supply was tighter because a Chinese producer delayed its start-up, which helped support short-term market sentiment.

BZ price in Q3/21 increased from Q2/21 and Q3/20 tracking higher crude oil price due to the recovery of economic activities. However, BZ spread over ULG95 in Q3/21 reduced from Q2/21 due to the

control over electricity usage in China to curb power crisis. Besides, the additional measures to limit carbon emission pressured demand in several areas. Nevertheless, the spread in Q3/21 improved from Q3/20 as a consequence of better demand and low BZ inventory in China.

TL price in Q3/21 rose from Q2/21 and Q3/20 following higher crude oil price and the recovery of economic activities. Moreover, TL spread over ULG95 in Q3/21 was greater than Q3/20 from higher TL demand as feedstock for other aromatics production. However, the spread in Q3/21 dropped from Q2/21 tracking lower BZ spread over ULG95, which resulted in lower demand in TL as feedstock.

Table 6: Financial Result of TPX

	Q3/21	Q2/21	+/(-)	Q3/20	+/(-)	9M/21	9M/20	+/(-)
Aromatics Production Rate ⁽¹⁾ (%)	88%	89%	(1%)	56%	32%	86%	71%	15%
Aromatics Production (kTon)	184	187	(3)	119	65	536	443	93
Product-to-feed Margin ⁽²⁾ (US\$/Ton)	90	112	(22)	68	22	103	77	26

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 Q3/21, TPX had lower product-to-feed margin due to decreased aromatics spreads, especially BZ spread. Therefore, TPX had a slight drop in performance from the previous quarter.

For 9M/21, TPX had higher product-to-feed margin thanks to stronger BZ spread over ULG95 from tight supply. This resulted in better net profit.

In Q3/21, compared with Q2/21, Thai Paraxylene Co., Ltd. (TPX) had slightly lower aromatics production to 88% but had sales revenue of Baht 11,936 million, increased by Baht 737 million due to an increase in average selling prices. However, decreases in aromatics spreads over ULG95, especially BZ spread which dropped from softened demand resulted in product-to-feed margin of 90 US\$/Ton, reduced by 22 US\$/Ton from Q2/21. Nevertheless, TPX booked net realized loss on financial instruments of Baht 33 million, less loss by Baht 13 million than the previous quarter. Thus, TPX recorded EBITDA of Baht 748 million, decreased by Baht 415 million. In Q3/21, net gain on fair value measurement of financial instruments was recorded at Baht 276 million, compared with net loss on fair value measurement of financial instruments of Baht 7 million in Q2/21. Moreover, TPX had net foreign exchange gain of Baht 87 million, rose by Baht 40 million from the prior quarter, due to Thai Baht depreciation. Offsetting with depreciation, finance costs and income tax expense, in Q3/21, TPX posted net profit of Baht 682 million, dropped by Baht 37 million from Q2/21.

Compared with Q3/20, TPX had higher aromatics production rate by 32% owing to economic optimization following better aromatics demand and had higher sales revenue by Baht 6,207 million thanks to increases in total sales volume and average selling prices. Furthermore, TPX reported an increase in product-to-feed margin of 22 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 139 million. Besides, TPX had net gain on fair value measurement of financial instruments of Baht 276 million, compared with net loss on fair value measurement of financial instruments of Baht 32 million, and had higher net foreign exchange gain by Baht 57 million. Therefore, TPX posted a rise in net profit of Baht 445 million from the same period of last year.

Compared 9M/21 with 9M/20, TPX had aromatics production at 86%, increased by 15% from economic optimization following better aromatics demand. TPX had sales revenue of Baht 31,313 million, increase by Baht 11,012 million due to the increase in average selling prices. Moreover, TPX reported product-to-feed margin of 103 US\$/Ton, rose by 26 US\$/Ton thanks to considerably better BZ spread over ULG95 from tight supply. Together with net realized loss on financial instruments of Baht 92 million in 9M/21, compared with net realized gain on financial instruments of Baht 151 million in 9M/20, TPX posted EBITDA of Baht 2,906 million which increased by Baht 630 million. Moreover, TPX had net gain on fair value measurement of financial instruments of Baht 231 million, improved by Baht 122 million, and had net foreign exchange gain of Baht 181 million, rose by Baht 84 million. Offsetting with depreciation, finance costs and income tax expense, TPX earned net profit of Baht 1,981 million, increased by Baht 780 million from 9M/20.

In Q3/21, aromatics group (TPX holds 75% shares of LABIX) had consolidated sales revenue of Baht 16,079 million, consolidated EBITDA of Baht 1,379 million and consolidated net profit of Baht 1,002 million. For 9M/21, aromatics group had consolidated sales revenue of Baht 41,424 million, consolidated EBITDA of Baht 4,293 million and consolidated net profit of Baht 2,552 million.

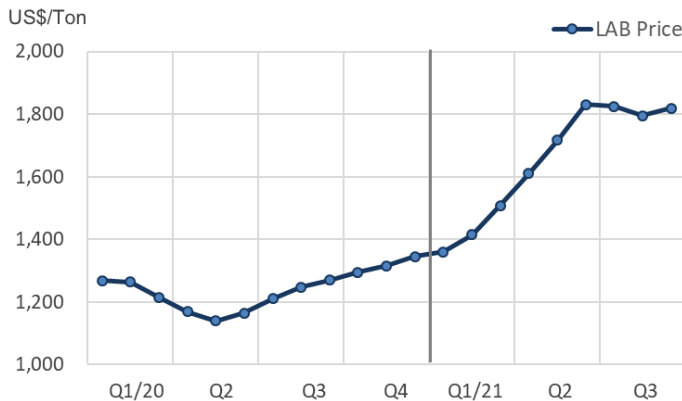
2.3 Market Condition and Financial Result of an Intermediate for the Production of Surfactants Business

Table 7: Average Price of LAB

Average Price (US\$/Ton)	Q3/21	Q2/21	+/(-)	Q3/20	+/(-)	9M/21	9M/20	+/(-)
Linear Alkylbenzene (LAB) ⁽¹⁾	1,813	1,720	94	1,243	570	1,653	1,217	437

Remark (1) Based on ICIS price

Graph 3: Price of LAB



LAB price in Q3/21 increased from Q2/21 and Q3/20 thanks to 1) rises in feedstock prices tracking crude oil price due to limited supply during monsoon season, especially in the U.S. 2) high global COVID-19 vaccination rates particularly in North America and Europe where the vaccination rates were approximately 60%, and 3) tight supply from fire incident at LAB plants in China (Jitung 125 KTA and Fushun 280 KTAK). However, the demand in rainy season became weak.

Table 8: LAB Production

	Q3/21	Q2/21	+/(-)	Q3/20	+/(-)	9M/21	9M/20	+/(-)
LAB Production Rate ⁽¹⁾ (%)	118%	117%	1%	70%	48%	109%	99%	10%
LAB Production (kTon)	36	35	1	21	15	98	89	9

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

In Q3/21, LABIX resumed full-scale production and had better performance thanks to wider gross margin from tight supply.

In 9M/21, LABIX had better performance than 9M/20 thanks to higher gross margin following healthy LAB demand.

In Q3/21, LABIX Co., Ltd. (LABIX) had LAB production rate at 118% but LAB sales volume decreased by 10% from softened demand during country lockdowns to curb COVID-19 pandemic. However, a rise in LAB price resulted in sales revenue of Baht 4,525 million, increased by Baht 738 million. Additionally, gross margin was supported by continuously tight supply since Q2/21 from shutdowns for maintenance of LAB plants in China and India. LABIX then reported EBITDA of Baht 632 million, increased by Baht 178 million from Q2/21. In this quarter, LABIX had net foreign exchange loss of Baht 19 million, greater loss by Baht 6 million than the prior quarter. Offsetting with depreciation and finance costs, LABIX posted net profit of Baht 426 million, rose by Baht 164 million from Q2/21.

Compared with Q3/20, LABIX had higher LAB production rate and sales volume by 48% and 7%, respectively. Furthermore, an increase in LAB price resulted in a rise in sales revenue of Baht 2,604 million. Moreover, LABIX had greater gross margin from better demand. This led LABIX to report higher EBITDA by Baht 534 million. However, LABIX had larger net foreign exchange loss by Baht 13 million. LABIX then reported net profit of Baht 426 million in Q3/21, compared with net loss of Baht 294 million in the same period of the previous year.

Compared 9M/21 with 9M/20, LABIX had sales revenue of Baht 11,009 million, increased by Baht 2,911 million following the rise in LAB price tracking feedstock prices and tight supply from the

shutdowns for maintenance of LAB plants in China and India. With better gross margin, LABIX then recorded EBITDA of Baht 1,388 million, boosted by Baht 840 million. Combining with net foreign exchange loss of Baht 39 million, higher loss by Baht 16 million than the same period of the previous year, LABIX therefore reported net profit of Baht 761 million in 9M/21, compared with net loss of Baht 283 million in 9M/20.

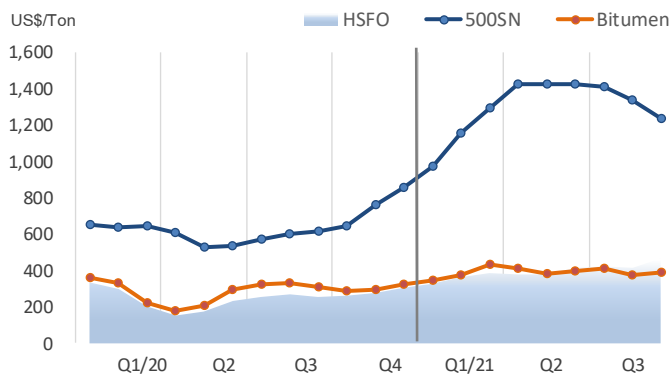
2.4 Market Condition and Financial Result of Lube Base Oil Business

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

Average Prices (US\$/Ton)	Q3/21	Q2/21	+/(-)	Q3/20	+/(-)	9M/21	9M/20	+/(-)
500SN ⁽¹⁾	1,329	1,425	(96)	596	733	1,298	599	699
Bitumen ⁽²⁾	391	395	(4)	320	71	389	282	107
Spreads over HSFO (US\$/Ton)	Q3/21	Q2/21	+/(-)	Q3/20	+/(-)	9M/21	9M/20	+/(-)
500SN	896	1,037	(141)	340	556	905	360	545
Bitumen	(43)	7	(50)	63	(106)	(4)	44	(48)

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 Q3/21, Lube base oil price (500SN) and its spread over fuel oil fell from Q2/21 owing to higher supply since regional refineries increased their production. Furthermore, there were lower annual maintenance shutdowns of regional refineries than Q2/21. However, Lube base oil price (500SN) and its spread over fuel oil significantly increased from Q3/20 thanks to a continuous tightness in regional supply as a result of production cut of regional refineries in response to COVID-19 pandemic as well as annual maintenance shutdowns of

regional refineries.

Bitumen price in Q3/21 was slightly lower than Q2/21 but higher than that in Q3/20 tracking continuously higher crude oil price as a result of global economic recovery after COVID-19 pandemic. However, its spread over fuel oil in Q3/21 was worse than Q2/21 and Q3/20 owing to higher supply since several regional refineries resumed their normal operations and limited government budget for road repairment and construction, resulting from COVID-19 outbreak.

Table 10: Financial Result of TLB

	Q3/21	Q2/21	+ / (-)	Q3/20	+ / (-)	9M/21	9M/20	+ / (-)
Base Oil Production Rate ⁽¹⁾ (%)	88%	95%	(7%)	89%	(1%)	92%	86%	6%
Base Oil Production (kTon)	59	64	(5)	60	(1)	184	173	11
Product-to-feed Margin ⁽²⁾ (US\$/Ton)	187	231	(44)	100	87	197	70	127

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

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

In Q3/21, TLB had an increase in sales revenue from higher average selling prices but lower product-to-feed margin tracking lower lube base oil spread over fuel oil. This led TLB to report lower net profit than Q2/21.

In 9M/21, TLB had much better performance thanks to the increases in both total product sales volume and average selling prices as well as much greater lube base oil spread over fuel oil.

In Q3/21, Thai Lube Base Plc. (TLB) had base oil production rate of 88%, decreased by 7% from production optimization in response to softer market condition but had sales revenue of Baht 6,420 million, a rise of Baht 62 million from last quarter due to higher average selling prices following crude oil price. Nevertheless, lube base oil spread over fuel oil declined owing to higher supply since regional refineries went up their production and there were lower annual maintenance shutdowns of regional refineries than the prior quarter. As a result, TLB reported product-to-feed margin of 187 US\$/Ton, dropped by 44 US\$/Ton and then recorded EBITDA of Baht 1,327 million, reduced by Baht 443 million. Offsetting with depreciation, finance costs, and income tax expense, TLB posted net profit of Baht 1,038 million, declined by Baht 348 million from the previous quarter.

Compared with Q3/20, TLB reported the increase in sales revenue of Baht 2,973 million thanks to the increases in both total product sales volume and average selling prices. Furthermore, the considerable rise in lube base oil spread over fuel oil thanks to continuous tight supply since late 2020 supported product-to-feed margin to improve by 87 US\$/Ton. Therefore, TLB posted EBITDA and net profit of Baht 814 million and Baht 663 million, respectively from the same period of the previous year.

Compared 9M/21 with 9M/20, TLB had base oil production rate of 92%, boosted by 6% from production optimization in response to a better market condition. TLB reported sales revenue of Baht 17,740 million, increased by Baht 7,545 million thanks to the increases in both total product sales volume and average selling prices. Moreover, TLB had product-to-feed margin of 197 US\$/Ton, a rise of 127 US\$/Ton mainly because lube base oil spread over fuel oil significantly increased from tight supply after regional refineries cut their production as well as annual maintenance shutdowns of regional refineries. Therefore, TLB had EBITDA of Baht 4,126 million, improved by Baht 3,354 million. Offsetting with depreciation and income tax expense, TLB posted net profit of Baht 3,222 million, increased by Baht 2,702 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 ⁽¹⁾	Q3/21	Q2/21	+/(-)	Q3/20	+/(-)	9M/21	9M/20	+/(-)
Electricity Dispatched (GWh)	409	397	12	620	(211)	1,261	1,854	(593)
Steam Exported (kTon)	595	572	23	1,007	(412)	1,868	3,113	(1,245)

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 Q3/21, as a result of higher average selling prices and larger sales volume, TOP SPP earned higher sales revenue and net profit.

Compared 9M/21 with 9M/20, TOP SPP had an increase in net profit from decreases in finance costs inspite of lower sales volume.

Compared Q3/21 with Q2/21, TOP SPP Co., Ltd. (TOP SPP) had sales revenue of Baht 1,906 million, increased by Baht 246 million due to increases in average selling prices following higher natural gas price and rises in electricity and steam volume following customers' demand. As a result, TOP SPP reported EBITDA of Baht 468 million, increased by Baht 39 million. Offsetting with depreciation, finance costs and income tax expense, TOP SPP recorded net profit of Baht 265 million, increased by Baht 35 million. Besides, Thaioil and Subsidiaries recognized share of profit from the investment in GPSC of Baht 390 million, decreased by Baht 88 million from the prior quarter.

Compared Q3/21 with Q3/20, TOP SPP sales revenue increased by Baht 299 million because of increases in average selling prices following higher natural gas price. This led to a rise in EBITDA of Baht 37 million. Offsetting with depreciation, finance costs and income tax expense, TOP SPP net profit increased by Baht 47 million from the same period of last year. Besides, Thaioil and Subsidiaries recognized the decrease in share of profit from the investment in GPSC of Baht 236 million from the same period of last year.

Compared 9M/21 with 9M/20, TOP SPP had sales revenue of Baht 5,093 million, decreased by Baht 82 million due to declines in average selling prices following lower natural gas price. During the period, TOP SPP had EBITDA of Baht 1,312 million, decreased by Baht 16 million. However, finance costs dropped by Baht 18 million. Offsetting with depreciation and income tax expense, TOP SPP recorded net profit of Baht 704 million, increased by Baht 18 million from 9M/20. Besides, Thaioil and subsidiaries recognized share of profit from the investment in GPSC of Baht 1,251 million, decreased by Baht 218 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

	Q3/21	Q2/21	+/(-)	Q3/20	+/(-)	9M/21	9M/20	+/(-)
Solvent Utilization Rate ⁽¹⁾ (%)	102%	129%	(27%)	104%	(2%)	124%	111%	13%
Solvent Production ⁽¹⁾ (kTon)	36	45	(9)	37	(1)	131	117	14
Solvent Sales Volume (kTon)	108	115	(7)	95	13	337	276	61

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

In Q3/21, 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 drops in EBITDA and net profit from last quarter.

For 9M/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 Q3/21, compared with Q2/21, Thaioil Solvent (Solvent Manufacturing and Distribution Business) reported 102% solvent utilization rate, decreased by 27% while solvent sales volume levelled off by approximately 7,000 tons. However, average solvent selling price per unit rose considerably tracking crude oil price. This led Thaioil Solvent to record sales revenue of Baht 3,417 million, increased by Baht 135 million. However, Thaioil Solvent reported EBITDA of Baht 204 million, reduced by Baht 33 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 the COVID-19 resurgence threatened product demand and suppressed gross profit margin. In this quarter, Thaioil Solvent recorded net foreign exchange gain of Baht 61 million, increased by Baht 25 million. Offsetting with depreciation, finance costs, and income tax expense, Thaioil Solvent posted net profit of Baht 143 million in Q3/21, decreased by Baht 4 million from the prior quarter.

Compared Q3/21 with Q3/20, Thaioil Solvent's utilization rate slightly decreased from the same period last year while sales volume increased by approximately 13,000 tons. The average solvent selling price per unit rose tracking crude oil price causing Thaioil Solvent to record an increase in sales revenue of Baht 1,475 million and to book higher gross profit margin. Hence, Thaioil Solvent posted an increase in EBITDA of Baht 65 million. Besides, Thaioil Solvent posted higher net foreign exchange gain by Baht 52 million from Q3/20. Offsetting with depreciation, finance costs, and income tax expense, Thaioil Solvent, in Q3/21, recorded an increase in net profit of Baht 70 million from the same period of last year.

For 9M/21, compared with 9M/20, Thaioil Solvent had a 124% solvent utilization rate and had an increase in solvent sales volume of approximately 61,000 tons. Additionally, higher average solvent selling price per unit tracking crude oil price led Thaioil Solvent to record sales revenue of Baht 9,603 million, increased by Baht 3,759 million. In 9M/21, Thaioil Solvent had better gross profit margin from increase in sales volumes of both high-value products and supply-shortage products. Therefore, Thaioil Solvent posted EBITDA of Baht 800 million, rose by Baht 453 million. Moreover, in 9M/21, Thaioil Solvent had net foreign exchange gain of Baht 121 million, which was higher than 9M/20 by Baht 99 million. Offsetting with depreciation, finance costs and income tax expense, Thaioil Solvent posted net profit of Baht 536 million, increased by Baht 386 million from the same period of the previous year.

2.7 Financial Result of Olefin Business

Table 13: Utilization Rate of TII

	Q3/21	Q2/21	+/(-)	Q3/20	+/(-)	9M/21	9M/20	+/(-)
Utilization Rate - CAP (%)	89%	-	-	-	-	-	-	-

TII recorded share of loss from the investment in CAP due to softened olefin product spreads, and had administrative expenses. Hence, TII realized net loss in Q3/21.

PT TOP Investment Indonesia (TII) was established on 12 July 2021. The company holds 99.00% of the shares and Thaioil Treasury Center Co., Ltd. holds 0.10% of the shares. In September 2021, TII acquired 15% of PT Chandra Asri Petrochemical Tbk's (CAP) total shares. Therefore, TII recognized the investment in CAP using equity method accounting from September 2021 onwards.

As naphtha price rose tracking crude oil price, and tightened naphtha supply from refinery maintenance shutdowns, CAP had higher production cost. Meanwhile, polyethylene (PE) and polypropylene (PP) spreads over naphtha declined from the upcoming new capacity in China and Korea. Furthermore, demand was further pressured by the resurgence of COVID-19, especially in Southeast Asia. Furthermore, CAP had maintenance turnarounds at some units. Therefore, TII recorded share of loss from the investment in CAP of Baht 15 million, and TII itself also booked administrative expenses of Baht 9 million. TII booked net loss of Baht 23 million in Q3/21.

2.8 Financial Result of Ethanol Business

Table 14: Utilization Rate of TET

	Q3/21	Q2/21	+/(-)	Q3/20	+/(-)	9M/21	9M/20	+/(-)
Ethanol Utilization Rate (%)								
- Sapthip	70%	79%	(9%)	108%	(37%)	78%	99%	(21%)
- Ubon Bio Ethanol	107%	97%	10%	80%	(27%)	98%	88%	10%

In Q3/21, TET booked lower sales revenue following a decrease in selling price and higher production cost. Therefore, TET had lower EBITDA. With one-time item, TET reported higher net profit.

In Q3/21, Thaioil Ethanol Co., Ltd. (TET) reported lower utilization rate at Sapthip Co., Ltd. (Sapthip) (TET holds 50% shares) due to a decline in sales volume from weakened demand from COVID-19 pandemic in Thailand. Therefore, TET reported consolidated sales revenue from Sapthip of Baht 410 million during the period, or a decline of Baht 55 million from Q2/21 due to lower ethanol selling price following softened demand. Altogether with higher production cost from maintenance shutdown, this led to lower contribution margin. TET EBITDA went down to Baht 23 million, decreased by Baht 42 million. In this quarter, TET had share of profit of Baht 21 million from the investment in Ubon Bio Ethanol Plc. (UBE), or an increase of Baht 6 million as UBE sold more ethanol during the period. Additionally, alcohol sales for cleaning purposes, whose profit margin was much higher than ethanol sales, rose significantly during the period. In September, UBE completed its initial public offering (IPO), and its share began trading on the Stock Exchange of Thailand on 30 September 2021. From this transaction, TET sold approximately 98 million shares it had previously owned in the IPO process. Therefore, TET stakes in UBE declined from 21.3% to 12.4% (or TET had 485 million shares left in UBE). Therefore, TET booked pre-tax profit from this transaction of Baht 624 million consisting of 1) partial sales of UBE shares, and 2) fair value measurement from changing accounting recognition as

In 9M/21, TET reported slightly lower sales revenue from lower ethanol sales volume, and the fact that there was more alcohol sales for cleaning purposes during 9M/20. With higher share of profit, and one-time item, TET reported higher net profit.

TET reclassified UBE investment from equity method to long-term investment. As a result, in Q3/21, TET reported net profit of Baht 535 million, or Baht 521 million higher than that of last quarter.

Compared with Q3/20, TET booked lower sales revenue from Sapthip following lower utilization rate. Therefore, TET EBITDA reduced from Baht 61 million to Baht 23 million. On the other hand, TET reported higher share of profit from UBE due to higher ethanol sales volume. However, during the period, UBE completed its IPO transaction. As a result, TET booked one-time gain as explained in the previous paragraph. As a result, TET net profit rose by Baht 526 million from Q3/20.

For 9M/21, TET consolidated revenue was Baht 1,145 million, which was slightly lower from 9M/20 due to 1) lower ethanol sales volume during 9M/21 compared with 9M/20, and 2) in 9M/20, Sapthip alcohol sales for cleaning purposes was significantly higher than that of this year. However, with strong contribution margin of ethanol from favorable market condition during the beginning of this year, TET reported higher EBITDA of Baht 23 million, totaling to Baht 156 million in 9M/21 compared with 9M/20. TET also booked shares of profit from UBE of Baht 46 million, or an increase of Baht 32 million from favorable ethanol market and higher starch sales volume. From aforementioned one-time item, TET booked net consolidated profit of Baht 584 million in 9M/21 while it only booked Baht 39 million of consolidated net profit in 9M/20.

3. Analysis of Consolidated Financial Statement

3.1 Statement of Financial Position

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

Table 15: Condensed Consolidated Statements of Financial Position

(Million Baht)	30 September 2021	31 December 2020	+ / (-)	+ / (-) %
Assets				
Cash, cash equivalents and short-term investments ⁽¹⁾	25,077	71,681	(46,604)	(65.0%)
Other current assets	66,036	42,548	23,488	55.2%
Non-current assets	254,736	191,958	62,778	32.7%
Total assets	345,849	306,188	39,661	13.0%
Liabilities				
Current liabilities	30,703	20,668	10,035	48.6%
Long-term borrowings and debentures (including current portion)	174,138	144,189	29,949	20.8%
Other non-current liabilities	23,402	21,212	2,190	10.3%
Total liabilities	228,243	186,069	42,174	22.7%
Equity				
Equity attributable to owners of the company	115,512	116,229	(717)	(0.6%)
Non-controlling interests	2,093	3,889	(1,796)	(46.2%)
Total equity	117,605	120,118	(2,513)	(2.1%)
Total liabilities and equity	345,849	306,188	39,661	13.0%

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

Total Assets

As of 30 September 2021, Thaioil and Subsidiaries had total assets of Baht 345,849 million, increased by Baht 39,661 million or 13.0% from 31 December 2020 due to the following main reasons:

- Cash, cash equivalents and short-term investments dipped by Baht 46,604 million mainly because of investments in associates of Baht 29,798 million, investments in several planned projects of Baht 27,389 million, dividends paid to non-controlling interests of Baht 5,972 million, dividends paid to the shareholders of the parent of Baht 2,652 million, payments for long-term loans from related parties of Baht 3,999 million, and payments for debentures of Baht 3,000 million. However, there was proceeds from short-term borrowings (bridging loan) of Baht 23,676 million.
- Other current assets increased by Baht 23,488 million primarily due to increases in both inventories of Baht 17,796 million and trade accounts receivable of Baht 6,736 million following higher average crude oil price in September 2021 than December 2020. Moreover, value added tax receivables increased by Baht 1,252 million while receivables from oil fuel fund and assets held for sale dropped by Baht 518 million and Baht 2,763 million, respectively.
- Non-current assets climbed by Baht 62,778 million mainly because of investments in associates of Baht 30,768 million mainly since the investment of PT TOP Investment Indonesia (TII) invested in PT Chandra Asri Petrochemical

Tbk (CAP) in 15% of all CAP shares. Moreover, property, plant, and equipment had a net increase of Baht 25,020 million from several project investments according to the business plan. Furthermore, right-of-use assets had a net increase of Baht 2,794 million mostly from VLCC rental agreement.

Total Liabilities

As of 30 September 2021, Thaioil and Subsidiaries had total liabilities of Baht 228,243 million, went up by Baht 42,174 million or 22.7% from 31 December 2020 due to major reasons as follows:

- Current liabilities rose by Baht 10,035 million primarily due to an increase in trade accounts payable of Baht 9,406 million as a result of higher average crude oil price in September 2021 than December 2020.
- Long-term borrowings and debentures (including current portions) rose by Baht 29,949 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, the refinery entered into short-term loan agreement (bridging loan) with PTT Public Company Limited, which is the major shareholders of the company, and with financial institutions. Such loan agreement was the main cause for the increases in long-term loans from related parties and from financial institutions with the total amount of Baht 23,004 million.
- Other non-current liabilities rose by Baht 2,190 million since lease liabilities had a net increase of Baht 3,284 million mostly from VLCC rental agreement while derivatives liabilities was lower by Baht 1,468 million.

Table 16: Consolidated Long-term Borrowings

(Million Baht)	Thaioil	LABIX	TP	TOP SPP	TS	TET	TTC	Total
Debentures : US\$-denominated ⁽¹⁾	13,121	-	-	-	-	-	107,013	120,135
: Baht-denominated	17,500	-	-	-	-	-	-	17,500
Borrowings : Baht-denominated	23,566	4,668	-	7,453	421	114	-	36,223
: Other currencies-denominated ⁽¹⁾	-	-	-	-	280	-	-	280
As of 30 September 2021	54,187	4,668	-	7,453	701	114	107,013	174,138
As of 31 December 2020 ⁽²⁾	32,104	4,870	3,999	7,609	769	105	94,733	144,189
+ / (-)	22,083	(202)	(3,999)	(156)	(68)	9	12,280	29,949

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 September 2021, Thaioil and Subsidiaries had total equity of Baht 117,605 million, decreased by Baht 2,513 million or 2.1% from 31 December 2020. This resulted from total comprehensive income for 9M/21 of Baht 6,901 million offsetting with dividends paid of Baht 8,624 million which paid to non-controlling interests and the shareholders of the parent, and a subsidiary liquidation of Baht 806 million.

3.2 Statement of Cash Flows

As of 30 September 2021, Thaioil and Subsidiaries had cash and cash equivalents of Baht 24,749 million while Thaioil refinery had cash and cash equivalents of Baht 17,131 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	4,234	(2,175)
Net cash used in investing activities	(35,415)	(29,056)
Net cash from (used in) financing activities	1,425	(555)
Net decrease in cash and cash equivalents	(29,757)	(31,786)
Cash and cash equivalents at the beginning of period	53,244	47,643
Effect of exchange rate changes on cash and cash equivalents	1,262	1,274
Cash and cash equivalents at the end of period	24,749⁽¹⁾	17,131
Cash, cash equivalents, deposits at a financial institution used as collateral, and short-term investments	25,077	17,131

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

In 9M/21, Thaioil and Subsidiaries had cash flows generated from operating activities of Baht 4,234 million mainly from net profit for 9M/21 from continuing operations of Baht 7,912 million and the adjustments to reconcile profit (loss) to cash of Baht 14,916 million. Nevertheless, there was more cash used in operating assets and liabilities of Baht 17,252 million, income tax paid of Baht 1,282 million, and cash used in operating activities of discontinued operations of Baht 60 million. For investing activities, Thaioil and Subsidiaries had cash flows used in such activities of Baht 35,415 million as a main consequence of investments in associates of Baht 29,798 million mostly from the investment of PT TOP Investment Indonesia (TII) investing in PT Chandra Asri Petrochemical Tbk (CAP). In addition, there were purchases of property, plant and equipment of Baht 27,389 million, which were mainly spent by Thaioil refinery of Baht 26,224 million in main projects such as the Clean Fuel Project as well as by TOP SPP of Baht 771 million mainly for its expansion project. However, there were net proceeds from short-term investments of Baht 19,162 million and proceeds from restructuring of business of Baht 1,560 million.

Furthermore, cash flows generated from financing activities were Baht 1,425 million. These were mainly attributable to proceeds from long-term loans from the related parties and financial institutions with total amount of Baht 23,676 million and net proceeds from short-term borrowings of Baht 283 million. However, there were finance costs paid of Baht 4,749 million, dividends paid to non-controlling interests of Baht 5,972 million, dividends paid to the shareholders of the parent of Baht 2,652 million, payments for long-term loans from related parties of Baht 3,999 million, net payments for long-term borrowings of Baht 497 million, redemption of capital paid to non-controlling interests of Baht 806 million, and payments for debentures of Baht 3,000 million.

According to the mentioned cash flows activities, Thaioil and Subsidiaries reported cash and cash equivalents decreased by Baht 29,757 million from 31 December 2020. Nevertheless, Thaioil and Subsidiaries recorded gain on effect of exchange rate changes of Baht 1,262 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 24,749 million as of 30 September 2021. Including deposits at a financial institution used as collateral and short-term investments, Thaioil and Subsidiaries reported cash, cash equivalents, deposits at a financial institution used as collateral, and short-term investments of Baht 25,077 million.

3.3 Financial Ratios

Table 18: Financial Ratios (Consolidated) for Q3/21

Profitability Ratios	Q3/21	Q2/21	+/(-)	Q3/20 ⁽¹⁾ Re-presented	+/(-)
Quality of earnings ratio (%)	8%	9%	(1%)	7%	1%
Gross profit margin ratio (%)	7%	8%	(1%)	5%	2%
Net profit margin ratio (%)	2%	3%	(1%)	1%	1%

Liquidity Ratios	Q3/21	Q2/21	+/(-)	Q3/20 ⁽¹⁾ Re-presented	+/(-)
Current ratio (times)	2.6	2.7	(0.1)	4.7	(2.1)
Quick ratio (times)	1.3	1.6	(0.3)	3.4	(2.1)

Financial Policy Ratios	Q3/21	Q2/21	+/(-)	Q3/20 ⁽¹⁾ Re-presented	+/(-)
Total liability/ Total equity (times)	1.9	1.7	0.2	1.7	0.2
Net debt/ Equity (times)	1.4	1.0	0.4	0.8	0.6
Long-term loan/ Total equity (times)	1.6	1.3	0.3	1.5	0.1
Interest coverage ratio (times)	7.3	7.7	(0.4)	3.3	4.0
Long-term loan/ Total capitalization (%)	62%	57%	5%	59%	3%

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 Fourth Quarter of 2021 and for the Year 2022

Crude oil and refinery market outlook

In Q4/21, crude oil prices are likely to remain high compared to Q3/21 due to easing lockdown measures in many countries from promising vaccination progress resulting in market confidence over oil demand recovery. In addition, current energy crisis for power generation due to tight natural gas and coal supply in many regions is promoting gas-to-oil switching demand. Also, heating oil demand during the upcoming winter will lift total oil demand by approximately 1.5 million barrels per day compared to Q3/21 to 100 million barrels per day. However, the upside in crude oil price will be capped by rising supply from OPEC+ and non-OPEC+ due to high crude oil price level. (Source: International Energy Agency (IEA), October 2021)

In 2022, crude oil price is likely to remain stable compared to 2021 after improving oil demand following a significant increase in global vaccination rate resulting in controllable COVID-19 situation. From the October 2021 EIA report, global oil demand growth in 2022 is expected to be approximately 101.0 million barrels per day, increasing by 3.5 million barrels per day from 2021, which is in line with the International Monetary Fund's (IMF) economic growth forecast of global GDP growth in 2022 at 4.9%, according to the October 2021 report. However, rising crude oil supply in the market from increasing OPEC+ production, ending OPEC+ production cut agreement in September 2022 and potential resumption of Iranian oil export could cap the upside for crude oil price.

Gross Refinery Margin (GRM) in Q4/21 is likely to rally from Q3/21, supported by improving petroleum product demand following reducing number of new COVID-19 cases globally especially in Asia, where the Delta variant situation becomes under control, resulting in easing lockdown measures and more economic stimulus plan in many countries. Thus, gasoline demand has improved after easing lockdown measures in Asia especially in China, India and Southeast Asia. However, gasoline demand in the West is likely to be lower QoQ after the end of peak U.S. driving season in summer. Diesel demand is expected to rise in Q4/21 due to increasing economic activities in Southeast Asia after easing lockdown measures, reflected from by expanding manufacturing index above 50. Meanwhile, Jet fuel demand is likely to recover after many countries around the world have implemented more tourism promotion policies, i.e. quarantine exemptions for tourists who have completed two doses of vaccination, or opening travel bubbles with other countries that the spread of COVID-19 has been effectively controlled. Kerosene demand is also likely to improve from heating oil demand during winter. In terms of very low sulfur fuel oil (VLSFO) demand, it is expected to be supported by improving bunker demand during festive season. For high-sulfur fuel oil (HSFO) demand is expected to be better supported by gas-to-oil switching demand from power plants during the energy crisis situation.

In 2022, Gross Refining Margin (GRM) is expected to improve supported by recovering petroleum product demand from economic stimulus policies in many countries around the world after COVID-19 situation has improved following higher global vaccination rate especially in China, Europe and U.S., where the rate is approaching the herd immunity rate of 75%, resulting in resuming people's activities to normal life supporting all product demand for transportation and industrial sectors. Jet fuel and kerosene demand are expected to be supported by recovering international travelling activities. However, high sulfur fuel oil spread could be pressured by higher crude production from OPEC+ members.

Aromatics market outlook

In Q4/21, paraxylene (PX) market is expected to be softer than Q3/21 due to slower PX demand from lower operating rate or shutdown of downstream plants such as PTA and polyesters in China as a result of the dual control policy in China. However, it is expected that PX demand will gradually recover during the year-end from higher goods consumption.

In 2022, PX market is expected to remain stable compared to 2021 due to recovering demand of approximately 2.7 million tons after improving COVID-19 pandemic. However, increasing supply from Chinese plants addition approximately 5.8 million tons will pressure the PX market.

In Q4/21, Benzene (BZ) market is expected to be weaker than Q3/21 due to lower BZ demand in the short-term from lower operating rate or shutdown of styrene monomer plants in China as a result of the dual control policy in China and rising BZ supply from plants resumption after having an impact on hurricane Ida. However, low BZ inventory level in China will limit the downside risk in BZ market.

In 2022, BZ market is expected to be softer than 2021 due to rising BZ supply in the region led by new BZ plants addition in China with total capacity of around 2.9 million tons. However, BZ demand is expected to recover by approximately 1.6 million tons after improving COVID-19 pandemic situation.

For toluene (TL) market in Q4/21, it is likely to be weaker than Q3/21 following softening PX and BZ market due to higher feedstock cost tracking with gasoline product and lower TL demand for gasoline blending after U.S. driving season end.

In 2022, TL market is expected to be better than 2021 due to higher TL demand from both gasoline blending following improving gasoline demand after easing lockdown policies in many countries and TDP & STDP unit for PX production as a result of economic of scale.

LAB Market Outlook

In Q4/21, LAB market is expected to remain high compared to Q3/21 boosted by rising demand of washing products after monsoon season ended in India and Southeast Asia and lower supply from LAB plants shutdown in China with total production capacity of approximately 0.4 million tons as well as plants maintenance shutdowns in Taiwan. However, LAB market will be pressured by higher operating rate of LAB plants and higher LAB feedstock following rising utilization rate of Asian refineries.

In 2022, it is expected that LAB market will be softer than 2021 due to higher LAB supply in the region following higher refinery utilization rate and several Chinese plants resumption of total production capacity around 0.4 million tons which is expected to be resumed by Q1/22. However, LAB demand will be supported by strong demand for washing products.

Lube Base Oil market outlook

In Q4/21, lube base oil market is expected to be softer than Q3/21 due to rising supply from plant addition in China and India including higher lube base oil feedstock from increasing utilization rate of refineries in the region. However, lube base oil demand will be supported by high COVID-19 vaccination rate and easing lockdown measures globally.

In 2022, lube base oil market is expected to be lower than 2021 due to rising lube base oil supply following higher refinery utilization rate from recovering COVID-19 pandemic situation.

Bitumen market outlook

In Q4/21, bitumen market is expected to be better than Q3/21 due to improving demand from better weather condition after monsoon season and recovering COVID-19 pandemic situation, higher government's budget disbursement for road construction and repair. In

addition, lower supply from reducing utilization rate of regional bitumen refineries will also support the bitumen market. However, bitumen demand is expected to decline from the holiday season and cold weather during the end of the year.

In 2022, bitumen market is expected to be weaker than 2021 due to higher supply from increasing utilization rate of regional refineries. However, bitumen market will be supported by improving bitumen demand for road construction after better COVID-19 pandemic situation.

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

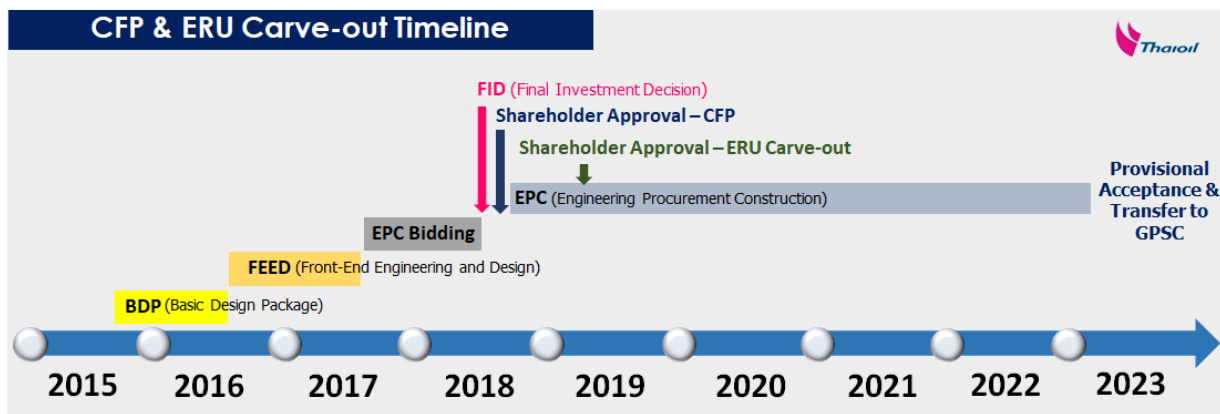
5.2 Summary of Key Project Investment: Clean Fuel Project (CFP)

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:

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**



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.