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Bangchak

Bangchak's Business Portfolio



Register Capital and Paid – up Capital 1,376,923,157 Baht



4.76% Ministry of Finance



19.84% Vayupak Fund 1



14.40% Social Security Office



Refinery and Oil Trading Business

Complex refinery with capacity of 120 KBD

Yields are mostly premium products in the gasoline and diesel groups

Marketing Business

Distribution channels through industrial & retail channel

- > 1,300 service stations
- > **850** Inthanin coffee stores



Green Power Business Holds 57.42%





- Integrated power generation company and service provider of smart energy system
- Listed in SET since September 2016

Natural Resources

Holds 45.46%

As of 30 SEP 22

OKEA ASA

 \bullet Norway-based company engaged in oil & gas exploration and production industry

- Mid-to-late-life operator
- Listed in Oslo Stock Exchange since June 2019

Bio-based Products

Holds 45.00%



As of 23 AUG 22

- No.1 fully Integrated Biofuel Producer in Thailand
- Collaborate with a synbio-technology player to bring Bio Business to "New Frontier"
- Listed in SET since March 2022

Key Significant Events in 2022



Q1/2022

 Winnonie successfully raised 80 MB for a Series A



BBGI IPO



 BCPG COD 25 MW Japan Komagane project



Q2/2022

 BCPG COD 20 MW Japan Yabuki project



 OKEA acquired a material portfolio of assets

Increasing Portion







Totally Added +7 Kboepd (Net to OKEA)

 BCP 1.00 Baht/share dividend payment

Q3/2022

 Established Thailand's first producer and supplier of Sustainable Aviation Fuel (SAF) from used cooking oil



• BCP 10,000 MB bond Issuance

Upcoming

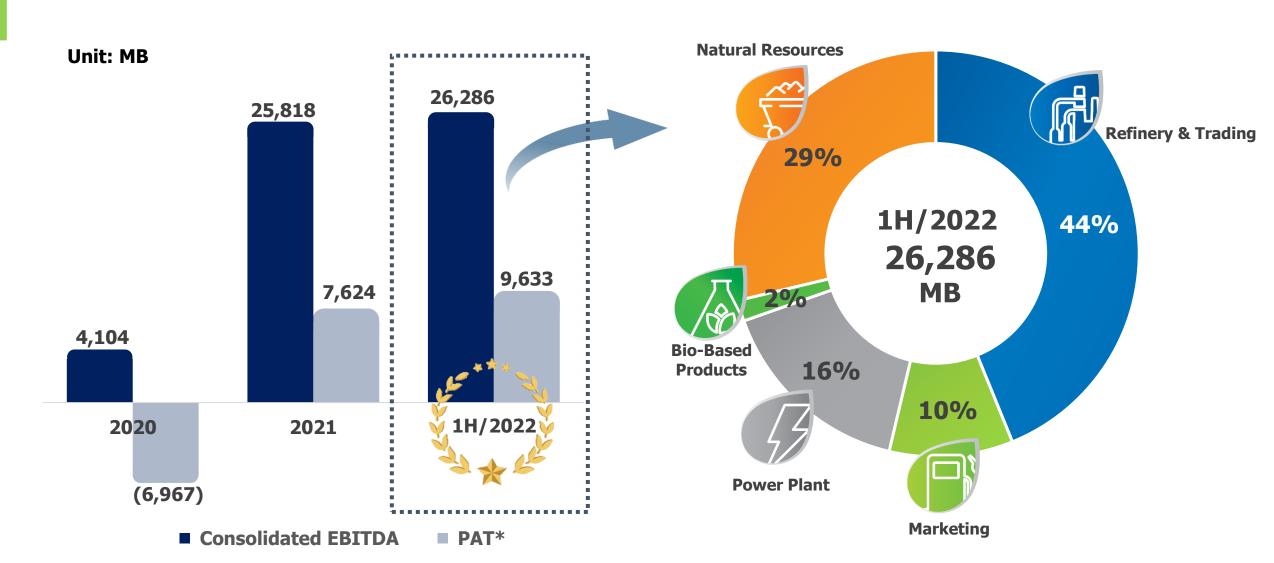
 BCP 3,000 MB Digital Bond (Subscription period: 18-20 OCT22)



Note: Business activity
Supporting activity

Bangchak Group's New High Record, the New Era awaits...





Highlights 1H/2022

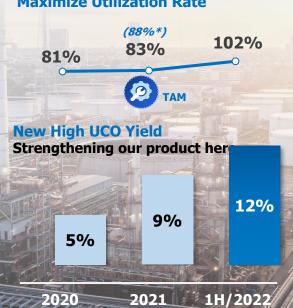


Strive for Better

Maximize Utilization >100% since Nov 21
New High @125 KBD (Jul 22)

Maximize Utilization Rate

* Excluding TAM



New High Sales Volume
Stronger than Pre-COVID*

RM Sale Volume (ML/MO)

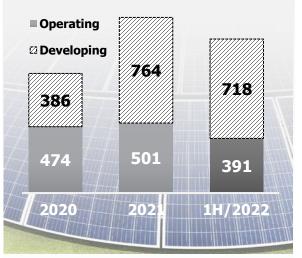
Through **1,301** Service Stations



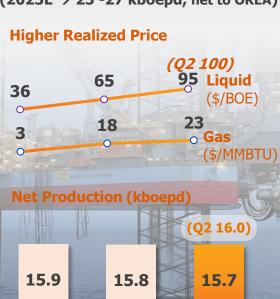
Installed Capacity;
Solid Assets in Asia
@1,109 MW PPA

Operating, MW

- COD 25 MW Japan Komagane project
- · COD 20 MW Japan Yabuki project







2021

1H/2022

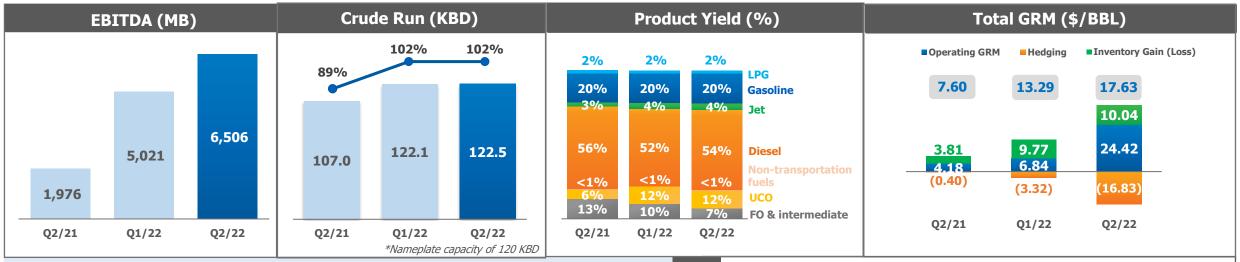
2020



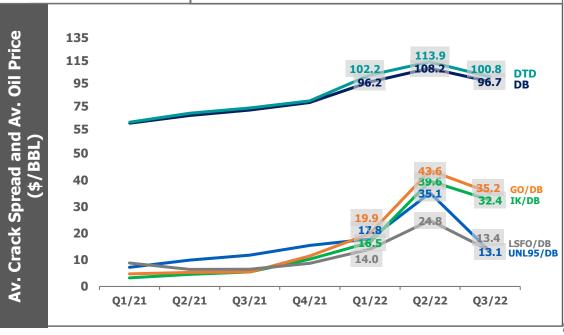


Refinery and Oil Trading Business





- Crude run remained high at 123 KBD (utilization rate of 102%)
- Extraordinarily high operating GRM of 24.42 \$/BBL from spiking crack spread of all products, especially diesel which is the main portion of BCP refinery's product yield
- Strong inventory gains of 10.04 \$/BBL from increased crude oil prices due to strengthening global oil demands and supply disruption from Russia-Ukraine war
- Competitive cost efficiency from integrated logistics network (BFPL & Switching FSU to oil tanks)



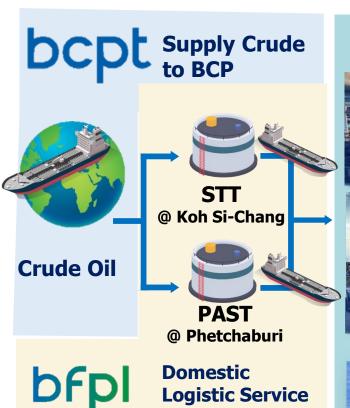
Refinery Business Group Value Chain

"Affordable and Sustainable Energy for All"

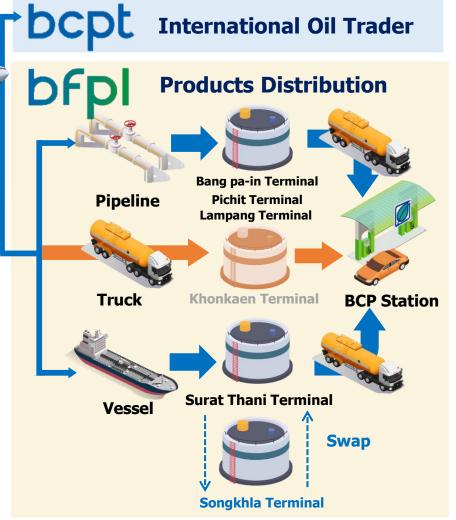
Crude & Component Supply

Refining & Blending

Product Trading & Distribution







Integrated Logistics and Sales Network



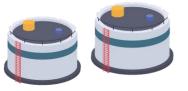
bfp Performance and Up-Coming Plan



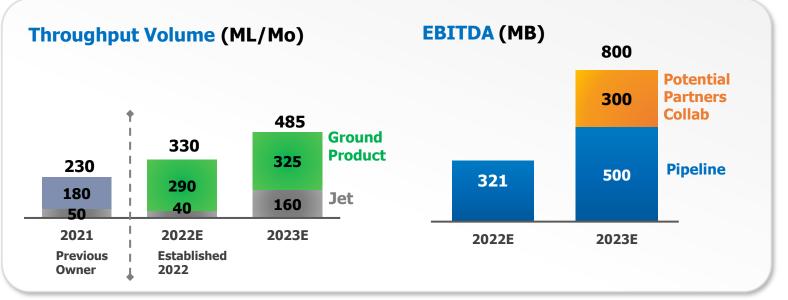
Approach customer demand in

- Northern (Lampang, Pichit) by Pipeline
- Northeastern (Khonkaen) by Truck
- Southern (SuratThani, SongKhla) by Vessel

with Potential Partners/ Terminal Owner

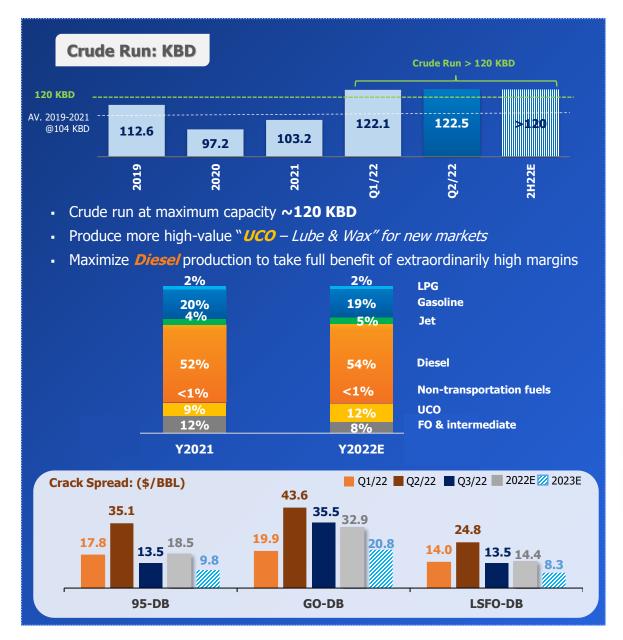


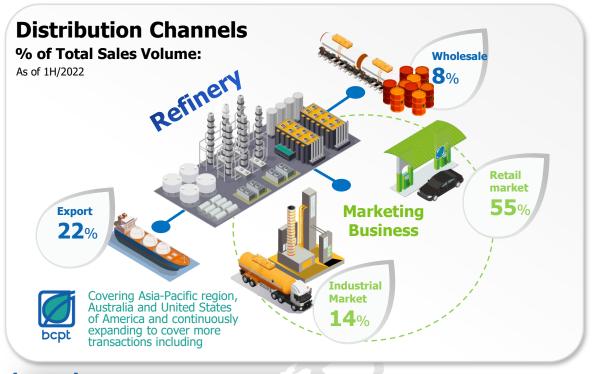




Production Profile & Distribution Channels









Turnaround Maintenance Cycle Extension



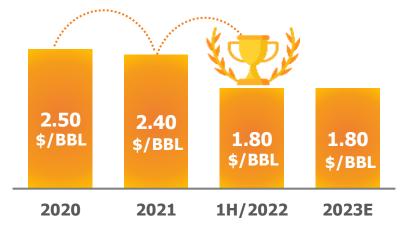
From every other year, the schedule has become



Scope of Work TAM-free during peaked oil margin







- Recorded at High Crude Run
- Improvement Projects
- Logistic Optimization

Bangchak Sustainable Green Fuel

An initial production capacity of 1 million liters per day





SAF pricing **2X** compared to regular conventional **JET**

SAF Unit is planned to be installed in Existing Refinery for ease of delivery to both airports

SAF Unit



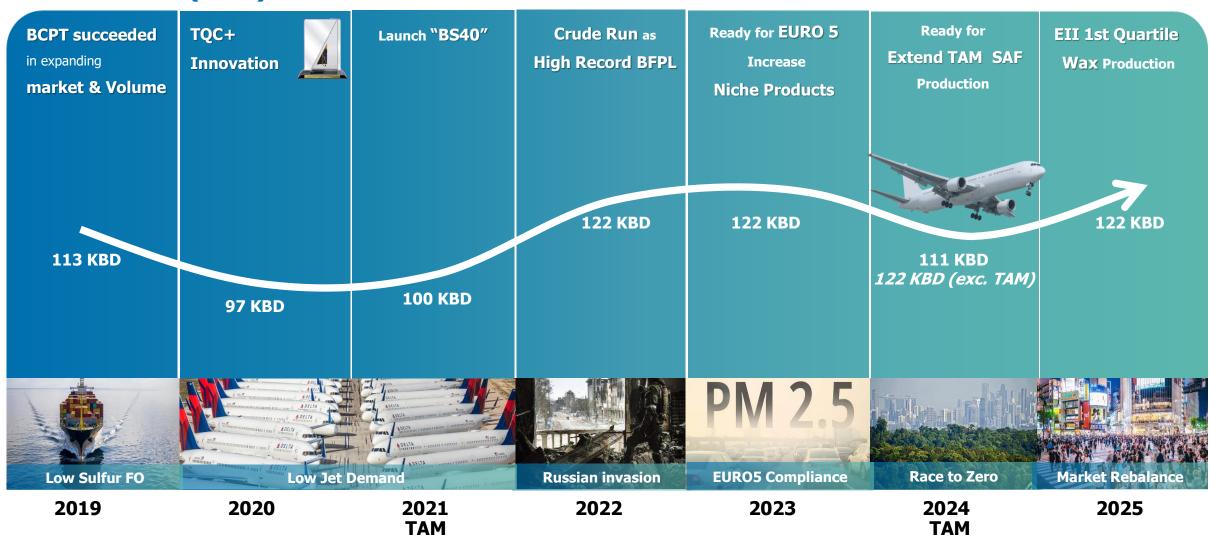
The first producer and supplier of sustainable aviation fuel (SAF) from Used Cooking Oil Methyl Ester (UCOME) in Thailand

Refinery: from Strength to STRENGTH



"Affordable and Sustainable Energy for All"

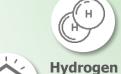
Crude Run (KBD)



Sustainable Energy Transition









Carbon Capture



Carbon Trading



Synthetic Bio



Mobility as a service





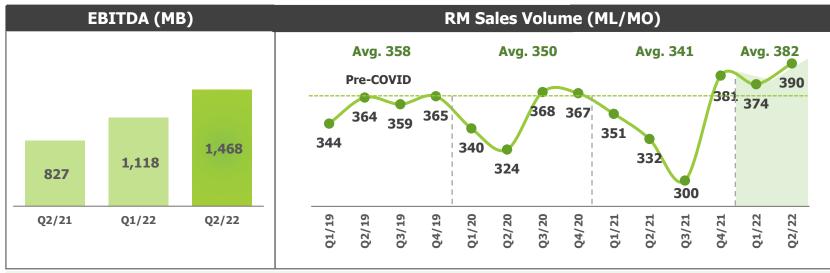






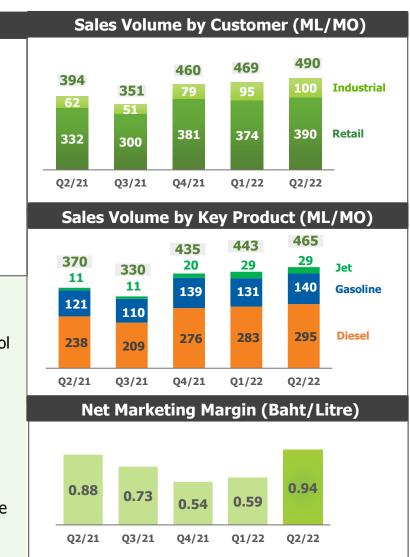
Marketing Business





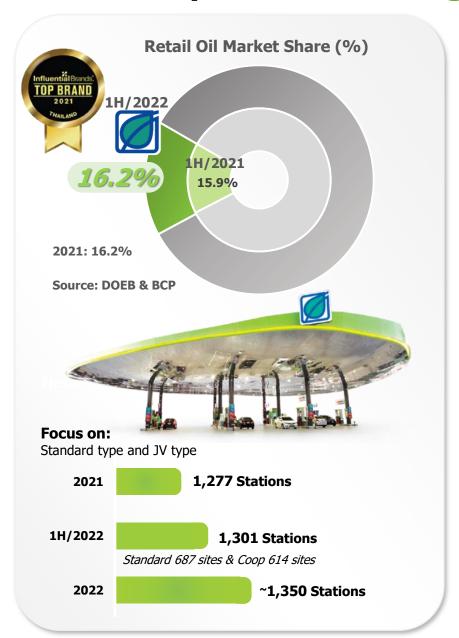


- Total sales volume improved QoQ due to higher domestic oil consumption, especially in diesel and gasohol products;
 - Employees and students resumed on-site activities
 - Tourism industry also began to recover
 - Rising diesel demand from power sector as a substitute sources for natural gas
- Improved net marketing margin to 0.94 Baht/Litre or 60% QoQ as the government raising diesel price cap to be more in line with global oil price situation



Business Update: Marketing











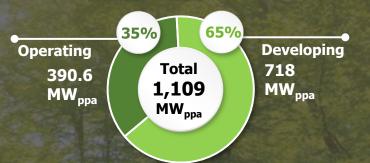




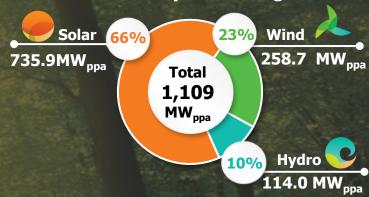
bcpg

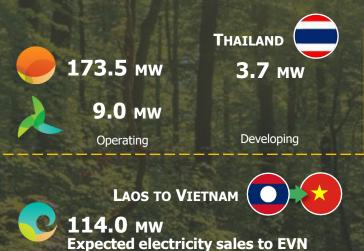
An integrated power generation company and service provider of smart energy system focusing on renewable and clean power. **Listed in SET since September 2016**

Production Capacity



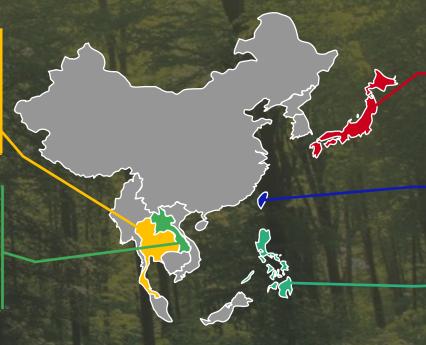
Generation by Technologies



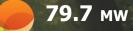


230.0 MW

Developing







10.0 MW

Operating

Developing



TAIWAN

(SCOD 2023-2025) 469.0 mw

Operating

Developing



THE PHILIPPINES

14.4 mw

5.3 mw

Operating

Developing







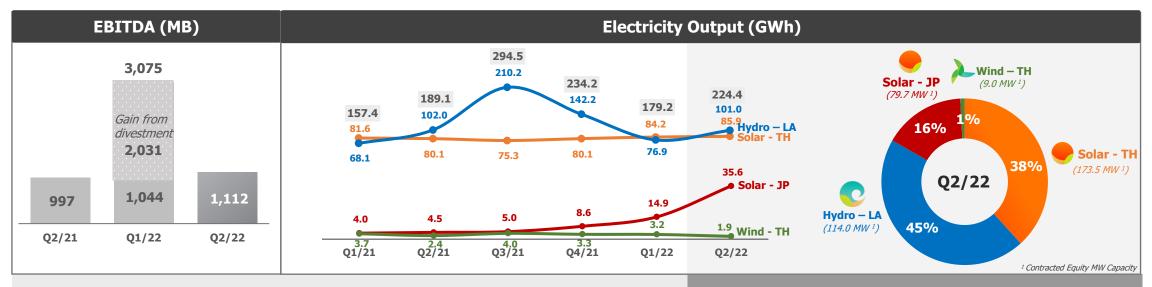
within 2022

Operating



Green Power Business





- Normalized EBITDA improved QoQ mainly due to better electricity outputs
 - The commencement of commercial operations of 2 solar power plants in Japan (45 MW in total), Komagane and Yabuki in late Q1/2022 and early Q2/2022, respectively, led Japan Solar power to surge significantly +139%
 - Thai solar power plant performance increased from the higher irradiation in Q2
 - Laos hydropower +31% due to seasonal factor as it has started entering the high season at the end of the second quarter
 - Lower performance from JV Philippines wind power plant due to low season

Business Update

 Construction of transmission line on track and expected selling electricity to EVN from Lao PDR within 2022





- Solar power projects in Taiwan 469 MW (SCOD 2023-25)
- New investments through M&A: 2022 CAPEX of 20,000 MB





Cassava

150,000 L/D

Operates under BBE

BBGI holds 85%

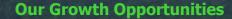
No.1 Fully Integrated Biofuel Producer in Thailand

- Listed in SET since March 2022
- Collaborate with a synbio-technology player through Investing and Partnering to Bring Bio Business to "New Frontier"

Biodiesel Business Ethanol Business Kanchanaburi **Ayutthaya** Khonkaen Molasses Crude palm oil **300,000** L/D Operates under KGI-BP Refined Glycerin Kanchanaburi BBGI holds 100% 27,000 Tons/Yr Operates by BBF Ayutthaya Khonkaen BBGI holds 70% Molasses **150,000** L/D Chachoengsao +200,000 L/D(Currently under construction) Operates under KGI-NP BBGI holds 100% **Biofuel Production Capacity** (Unit: ML/D) 1.8 Chachoengsao

BBGI's Dividend Policy ≥ 40% of net profit of Company's separate financial statements after all deductions as required by law or by Company. However, this is subject to the economic situation, Company's cash flow and investment plans according to the necessary, appropriation and other concerning as the Board of Directors' consideration.

1st dividend payment of 0.15 Baht/share in Jun 2022 2nd dividend payment of 0.05 Baht/share in Sep 2022



Leading and Pioneering in Thailand Synthetic Biology

Synthetic Biology

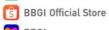




Distribution Platform







Food & Health

Supplement

www.bbgigroup.com

*currently under construction

Ethanol Expansion Capacity

Ethanol Capacity

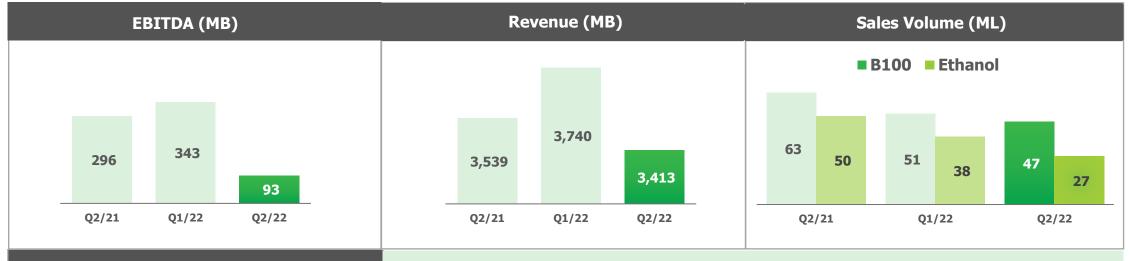
1.0 Biodiesel Capacity

0.6



Bio-Based Products Business





Average Market Price (Baht/Litre)



- Bio-Based Products business performance was softened QoQ, challenged by the rising raw material costs of both ethanol & B100 and lower sales volume of B100 due to the mandatory reduction from B7 to B5 since Feb 2022 while Ethanol production declined in accordance to sale management plan
- Average B100 market price continued to adjust upward due to the war between Russia-Ukraine and the drought in South America, causing a shortage of oil crops over the world, coupled with Indonesia's ban on palm oil export during late Apr – May 2022.
- Ethanol price slightly increased QoQ; however, the raw material price increased significantly from an increase of China import demand and low-level of sugarcane production.



OKEA ASA Listed in Oslo Stock Exchange

- A Norway-based oil company engaged in the oil and gas exploration and production industry
- Mid-to-late-life operator Listed in Oslo Stock Exchange since June 2019

CPR holds **45.46%**

As of Sep 2022

Current Assets in Production



Draugen **44.56%**



12%



Yme **15%**



Ivar Aasen

2.77% → *9.24%

*New Acquisitions



Brage

35.2%

Operator: OKEA



6% First Oil - 1 Aug 2022

*Transactions are expected to complete in Q4/22

Operator: OKEA

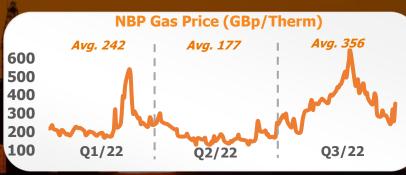
Strengthening a more robust and diverse production portfolio in the North Sea



Healthy balance between growth and dividends



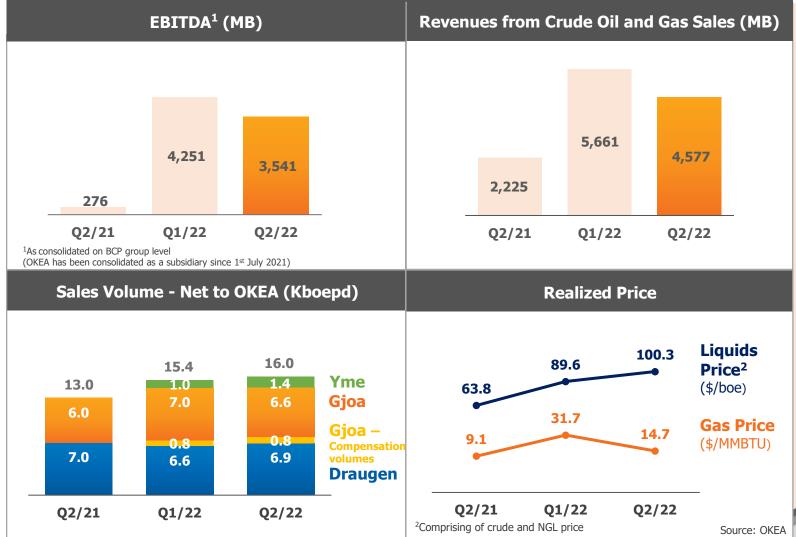
Gas prices on the rise due to the tight supply & rising demand for heating during winter





Natural Resources Business





- OKEA sales volumes slightly rose 3% QoQ due to increasing performance from Draugen and Yme oil fields.
- Realized liquids price continued to increase 12% QoQ while gas price remained volatile and softened QoQ, in line with the market price of the main export destination country (UK) led to a lower performance.

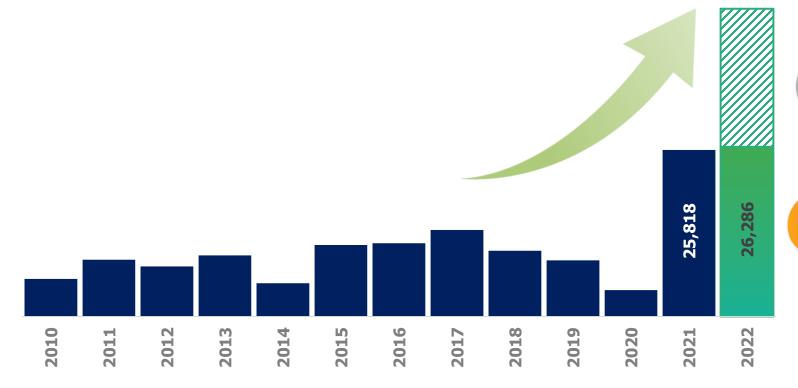
Note:

Full voluntary redemption of 100 MUSD OKEA02 bond in July for cost saving after tax of $^{\sim}$ 55 MNOK



2022 Performance Outlook

Accounting EBITDA (MB)







Refinery and Oil Trading Business

- Maximize crude run over 120 KBD for 2022E & continue running over 100% utilization rate
- High global GRM outlook
- Variety of crude mix for risk diversification
- Production agility for high yield products



Green Power Business

- Full recognition of 2 new solar Japan projects
- New Investment and projects in pipeline with the CAPEX of ~20,000 MB



Natural Resources Business

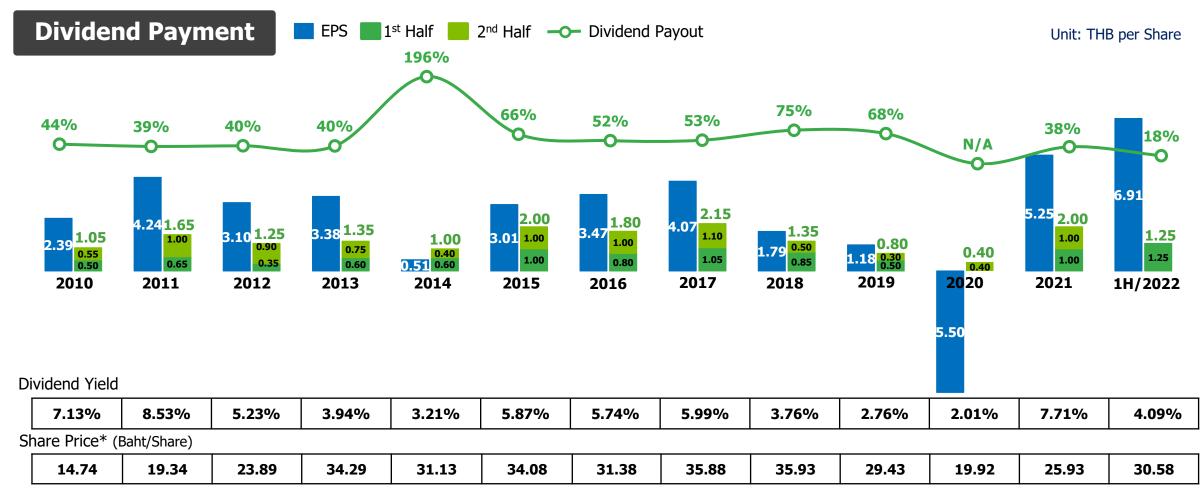
- Rising oil and gas price underpinned by strong demand recovery and supply disruption from Russia – Ukraine war
- Expected higher sales volume after the new acquisition/expansion of operating assets
- 2022 Target Production to increased by 39% from new acquisition to ~25 Kboepd

Bangchak's Historical Dividend



Dividend Policy: ≥ 30 percent of net profit after deduction of allocation of legal reserve

However, this is subject to the economic situation, the Company's cash flow and investment plans of the Company and its subsidiaries according to the necessary, appropriation and other concerning as the Board of Directors' consideration.



^{*}Average share price of the period

Pathway to NET ZERO 2050









Efficiency and Process Improvement = 30%



Green and Blue Carbon = 10%





Proactive Business Growth and Transition 6

Green Portfolio, Future Technology and Carbon Offset = 60%

NET

Net Zero Ecosystem

Ecosystem Creation





Appendix



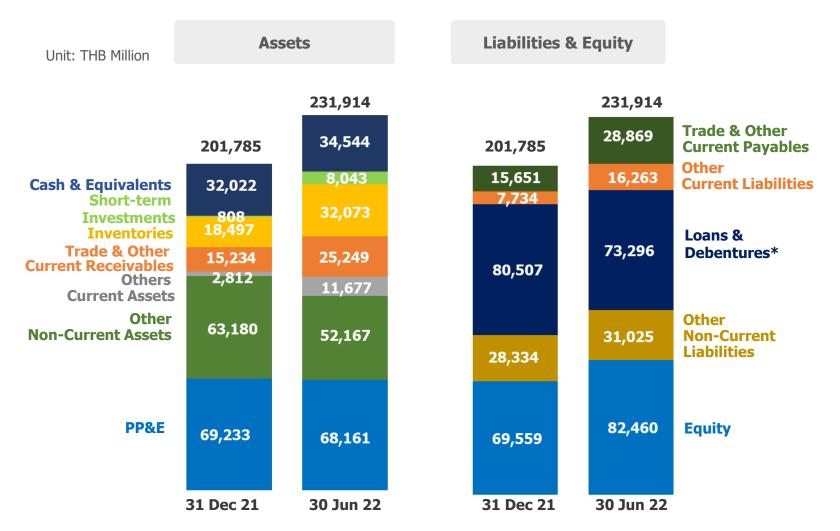


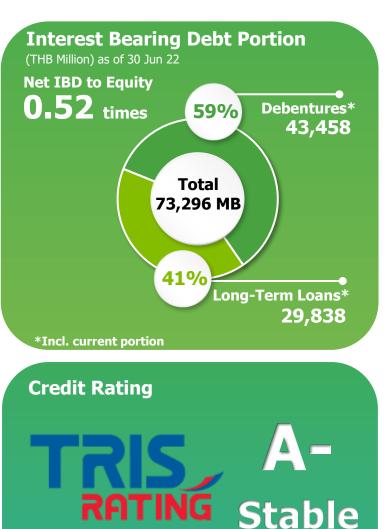


Financials

Bangchak's Financial Position (Consolidated) as of 30 June 22

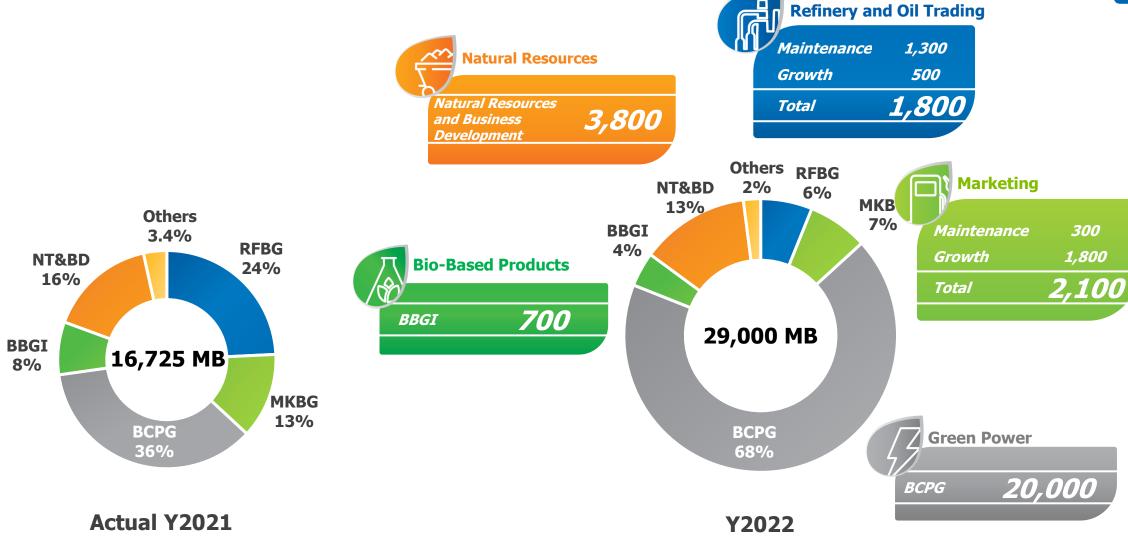






Bangchak's CAPEX Plan





5 Yr CAPEX (2022 – 2026) ~ 120,000 MB

EBITDA Structure (Consolidated)

Unit: THB Million	Q2/2022	Q1/2022	QoQ	Q2/2021	YoY
Total Revenue	83,796	69,055	21%	43,775	91%
Accounting EBITDA	12,572	13,714	-8%	4,269	195%
Refinery and Trading Business 1/	6,506	5,021	30%	1,976	229%
Marketing Business ^{2/}	1,468	1,118	31%	827	78%
Green Power Business ^{3/}	1,112	3,075	-64%	997	12%
Bio-Based Product Business ^{4/}	93	343	-73%	296	-68%
Natural Resources Business ^{5/}	3,541	4,251	-17%	276	>1000%
Others	(148)	(94)	-58%	(103)	-44%
Profit attributable to owners of the Company	5,276	4,356	21%	1,765	199%
Basic earnings (loss) per share (Baht)	3.79	3.12		1.21	

1H/2022	1H/2021	YoY
152,852	85,006	80%
26,286	9,006	192%
11,527	4,388	163%
2,585	1,797	44%
4,187	1,976	112%
437	717	-39%
7,792	307	>1000%
(242)	(179)	-35%
9,633	4,048	138%
6.91	2.80	

Unit: THB Million	2021	2020	2019
Total Revenue	199,417	136,450	190,489
Accounting EBITDA	25,818	4,104	8,709
Refinery and Trading Business ^{1/}	9,363	(2,169)	2,871
Marketing Business ^{2/}	2,614	2,174	2,279
Green Power Business ^{3/}	4,193	3,640	2,964
Bio-Based Product Business ^{4/}	1,863	1,828	1,000
Natural Resources Business ^{5/}	8,251	(1,004)	(36)
<i>Others</i>	(466)	(365)	(369)
Profit attributable to owners of the Company	7,624	(6,967)	1,732
Basic earnings (loss) per share (Baht)	5.25	(5.50)	1.18

Note: 1/ EBITDA from Refinery and Trading Business of the company (BCP), BCP Trading Pte. Ltd. (BCPT), Bangchak Fuel Pipeline and Logistic Co., Ltd. (BFPL) and others

^{2/} EBITDA from Marketing Business of the company (BCP), Bangchak Green Net Co., Ltd. (BGN), Bangchak Retail Co., Ltd., (BCR) and others

^{3/} EBITDA from Green Power Business of BCPG Plc. (BCPG Group)

^{4/} EBITDA from Bio-Based Product Business of BBGI Plc. (BBGI Group)

^{5/} EBITDA from Natural Resources Business of OKEA ASA (OKEA), BCP Innovation Pte. Ltd. (BCPI) And BTSG Co., Ltd. (BTSG) and others

Profit and Loss (Consolidated)



Consolidated Statement of Income (THB Million)	Q2/2022	Q1/2022	QoQ	Q2/2021	YoY
Revenue from sale of goods and rendering of services	83,796	69,055	21%	43,775	91%
Cost of sale of goods and rendering of services	(65,579)	(56,801)	15%	(40,032)	64%
Gross Profit	18,218	12,254	49%	3,744	387%
Other income	477	350	36%	176	171%
Selling and administrative expenses	(2,074)	(1,669)	24%	(1,590)	30%
Exploration and evaluation expenses	(95)	(346)	-73%	(38)	151%
Gain (loss) from derivatives	(6,422)	(1,320)	N/A	(202)	N/A
Gain (loss) on foreign exchange	(516)	60	N/A	181	N/A
Gain from sale of investment	-	2,031	N/A	-	N/A
Loss from impairment of assets	4	563	N/A	13	N/A
Profit (loss) from operating activities	9,592	11,923	-20%	2,283	320%
Finance costs	(1,043)	(836)	25%	(518)	101%
Impairment gain and reversal of impairment loss (impairment loss) determined in accordance with TFRS 9	(20)	(384)	N/A	(8)	N/A
Share of profit (loss) of associates and joint ventures accounted for using equity method	(6)	148	N/A	512	N/A
Profit (loss) before income tax expense	8,522	10,851	-21%	2,269	276%
Tax income (expense)	(3,033)	(5,347)	-43%	(195)	>1000%
Profit (loss) for the period	5,489	5,504	-0.3%	2,074	165%
Owners of parent	5,276	4,356	21%	1,765	199%
Non-controlling interests	213	1,205		309	
Basic earnings (loss) per share (Baht)	3.79	3.12		1.21	

1H/2021	YoY
85,006	80%
(76,658)	60%
8,348	265%
317	160%
(3,034)	23%
(39)	>1000%
(630)	N/A
223	N/A
(2)	N/A
413	N/A
5,596	284%
(982)	91%
(1)	N/A
706	N/A
5,319	264%
(603)	>1000%
4,716	133%
4,048	138%
668	
2.80	
	85,006 (76,658) 8,348 317 (3,034) (39) (630) 223 (2) 413 5,596 (982) (1) 706 5,319 (603) 4,716 4,048 668

Profit and Loss (Consolidated)



Consolidated Statement of Income (THB Million)	2021	2020	2019
Revenue from sale of goods and rendering of services	199,417	136,450	190,489
Cost of sale of goods and rendering of services	(175,744)	(132,122)	(180,257)
Gross Profit	23,673	4,328	10,232
Other income	1,279	533	495
Selling and administrative expenses	(7,669)	(7,141)	(7,614)
Exploration and evaluation expenses	(1,274)	17	0
Gain (loss) from derivatives	251	732	160
Gain (loss) on foreign exchange	614	0	614
Gain from sale of investment	120	0	0
Loss from impairment of assets	(1,358)	(2,375)	(34)
Profit (loss) from operating activities	15,635	(3,907)	3,853
Finance costs	(2,540)	(1,969)	(1,701)
Impairment gain and reversal of impairment loss (impairment loss) determined in accordance with TFRS 9	(30)	(891)	-
Share of profit (loss) of associates and joint ventures accounted for using equity method	1,042	(592)	404
Profit (loss) before income tax expense	14,108	(7,359)	2,556
Tax income (expense)	(4,263)	1,589	(68)
Profit (loss) for the period	9,845	(5,770)	2,488
Owners of parent	7,624	(6,967)	1,732
Non-controlling interests	2,221	1,197	757
Basic earnings (loss) per share (Baht)	5.25	(5.50)	1.18

Financial Ratio (Consolidated)



Profitability Ratios (%)	Q2/2022	Q1/2022 Q	2/2021
Gross Profit Margin	21.74%	17.75%	8.55%
EBITDA Margin	15.00%	19.86%	9.75%
Net Profit Margin	6.55%	7.97%	4.74%
Return on Equity ^{1/} (ROE)	23.40%	17.96%	7.67%
Efficiency Ratio (%)			
Return on Assets (ROA)	16.66%	13.45%	5.26%

1H/2022	1H/2021
19.94%	9.82%
17.20%	10.59%
7.19%	5.55%
N/A	N/A
N/A	N/A

2021	2020	2019
11.87%	3.17%	5.37%
12.95%	3.01%	4.57%
4.94%	-4.23%	1.31%
15.27%	-14.22%	3.67%
9.51%	-3.90%	3.47%

1/ F	Profit and	total equ	itv attrib	utable to	owners o	of the	narent
1/ 1	ront and	total cya	ity attiio	atable to	OWITCI S C	11 1110	Daioni

	30-Jun-22	31-Mar-22	30-Jun-21
Liquidity Ratios (Times)			
Current Ratio	1.97	2.19	1.94
Quick Ratio	1.19	1.46	1.07
AR Turnover	24.03	23.67	27.71
Collection Period (Days)	15	15	13
AP Turnover	14.67	16.71	25.74
Payment Period (Days)	25	22	14
Financial Policy Ratios (Times)			
Debt to Equity	1.81	1.78	1.32
Interest bearing Debt to Equity	1.03	1.11	1.06
Net Interest bearing Debt to Equity	0.52	0.49	0.80
Release of Debenture Ratio (Times)			
Net Interest bearing Debt to Net Equity	0.47	0.45	0.66

2021	2020	2019
2.03	1.85	1.39
1.40	1.10	0.69
26.29	18.33	23.76
14	20	15
18.61	13.44	20.92
20	27	17
1.90	1.54	1.17
1.28	1.22	0.82
0.81	0.85	0.69
0.70	0.66	0.57



Appendix







Sustainability

BCP and Sustainability





To achieve "Race to Zero"

Carbon Neutral Company by 2030 Net-Zero Greenhouse Gas Emissions by 2050















To Create Social Values









ESG Rating & SDGs Performance









Appendix





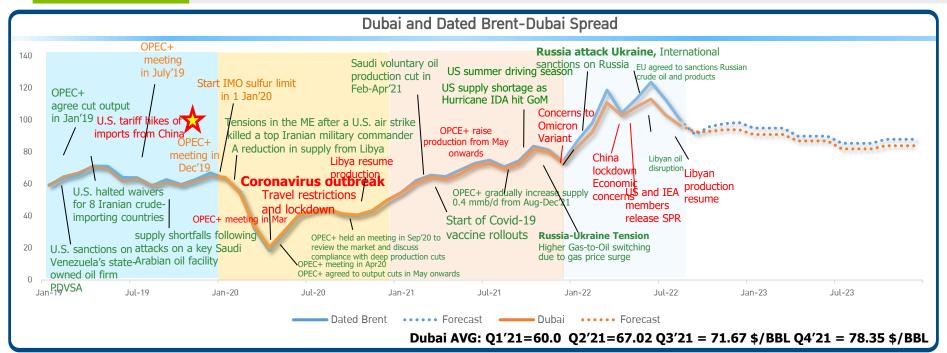


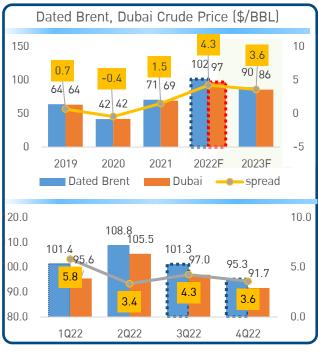
Oil Outlook

Crude Oil Price Outlook: Crude price move around 85-95 \$/BBL in Q4'22. Oil fundamentals have passed peak tightness and expected to ease further in Q4 but risks remain with relatively tight stocks and little spare capacity.

The down trend is expected to continue into the first half of 2023. Many uncertainties in 2023 such as Russian exports, Iran deal potential, macro headwinds and risk of low spare capacity and disruption.







Focus on Q4'22:

- Fears of global recession
- Dollar strengthens, US further big rate hikes
- COVID-induced demand in China, deepening property sector crisis drag on its economy.
- Commercial global oil stocks built will accelerate in Q4 thru Q1 even as SPR releases taper.
- Global refinery runs to pick up following seasonal higher demand.
- More gas-to-oil switching in winter.
- Very low spare capacity drive supply tightness
- Uncertainty on Russian exports as sanctions take effect
- OPEC signals a willingness to control productions to balance oil market

Market Highlights in 2023:

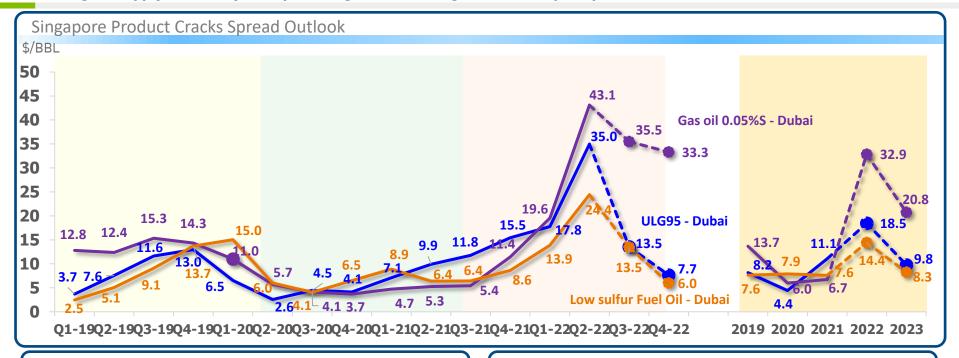
- Slowing economic growth temper global oil demand outlook. But Chinese oil demand is expected to recover.
- · Iran nuclear deal could lead to higher Iranian oil output.
- Refinery crude oil demand will remain healthy with little risk of significant run cuts.
- Uncertainty on Russian exports as sanctions take effect
- Low OPEC+ spare capacity remains in 2023.
- OPEC signals a willingness to control productions to balance oil market

Dated Brent – Dubai Spread

- Q4'22 spread is likely to strong due to EU imposes sanction on Russian crude and strong demand from refinery which runs at high rate.
- Higher light sweet crude from increasing US production and Iranian nuclear deal leading to higher condensate export in 2023

Strong gasoil crack as the seasonal demand in winter boosted by heating oil amid high gas prices and gas supply uncertainty, however more export from China and concern over recession have weighed on market sentiment. Weaker gasoline crack as low seasonal gasoline demand in winter and high retail prices pressure demand amid rising supply from refineries with more export from China after granted the additional export quotas. Lower low sulfur fuel oil crack as higher supply shift away from produce gasoline and higher VLSFO export quota from China





Focus on Q4'22:

- Gasoline crack will be pressured by continued rising supply from high refinery runs and higher export from China as additional oil product export quotas amid high retail prices and low seasonal could dampen Asian demand
- Gasoil crack will be supported by seasonal demand in winter and expected the strong pull barrels from West, stockpiling for winter amid raising gas supply uncertainty and ongoing Russian oil sanction. However, the upside is limit due to rising supply from China's export and refineries keep high runs
- Low Sulfur Fuel oil crack will be softened due to rising supply as producers moves to produce more LSFO and Chinese VLSFO export is projected to increase after government grant new round of VLSFO export quota this year

Market Highlights in 2023:

- Concern over recession weighed on the global demand
- Expected continued demand recovery to pre-COVID levels as relax restrictions and further border reopening
- Europe sanction Russian oil imports will implement on Feb'23 lead to global supply uncertainty
- The more resumption of air travel after lifting of travel international and expected China's easing restrictions
- The Low Sulfur Fuel Oil's supply as adequate supplies available and less lucrative in gasoline market lead to add supply from refiners away from FCC run