Thanachart Securities

BUY (Unchanged)

Change in Numbers

TP: Bt 18.00 (From: Bt 22.50)

Upside : 25.0%

30 SEPTEMBER 2022

Banpu Power Pcl (BPP TB)

Likely over the worst

NUTTAPOP PRASITSUKSANT
662 – 483 8296
nuttapop.pra@thanachartsec.co.th

We believe BPP's earnings bottomed in 1H22 and expect a turnaround to start from 2H22F. Key drivers are improving margins at its coal power plants in China and stronger profit from its US gas-fired power plant. The stock is trading at 0.9x P/BV and we reaffirm BUY.

BUY into an earnings turnaround

We reaffirm BUY on BPP expecting its earnings turnaround to start in 2H22F to give 24% y-y earnings growth in 2022F (from -27% in 1H22). We then estimate 15/13% organic growth in 2023-24F on normalizing margin and some capacity expansion. We see two key factors driving BPP's turnaround after suffering from a coal price surge since 2H21. *First,* we expect higher margin and stronger demand at its Temple-1 gas-fired power plant in the US given tight energy and utility markets there. *Second,* BPP has secured low-priced coal purchase contracts for its SLG plant in China at 40% below the current market price. Despite cutting our earnings 27/22/11% in 2022-24F to reflect higher coal price assumptions (Exhibit 5), which also brings our DCF-based 12-month SOTP-TP (2023F base year) down to Bt18.0 (from 22.5), BPP does not look expensive to us at 0.9x P/BV with a 5% dividend yield in 2023F.

China factors

BPP has 3.1GW (equity-owned) of operating capacity, of which 45% is fuel-cost passed-through coal-fired IPP plants in Thailand, 31% is coal-price sensitive plants in China, 12% is a gas-fired power plant in the US electricity trading market, and the other 12% is renewable projects across Asia. Coal power plants in China have been BPP's earnings draggers over 2020-21 as their electricity tariffs were capped amid rising coal prices. However, we now see two positives for them: 1) its 548MW of CHP plants now generate a 20% higher tariff after it switched to sell to the trading market (instead of the central grid) since early this year, while steam demand (for heating) should be seasonally higher in 2H22F, and 2) BPP has secured 2m tonnes of coal purchase contracts for its 398MW Shanxi Lu Guang (SLG) plant at about CNY800/tonne.

Some organic capacity growth

BPP has a total of 126MW in power plant capacity that is in the development or deal finalization phases; 33MW of solar farms in Vietnam (deals due to close within 3Q22), a 40MW wind farm project in Vietnam (due to operate commercially by end-2023), 26MW of solar farms in Japan (mid-2024), and other small solar rooftop projects in Thailand and Vietnam. These imply 2% p.a. pro rata capacity growth for BPP over 2022-24F.

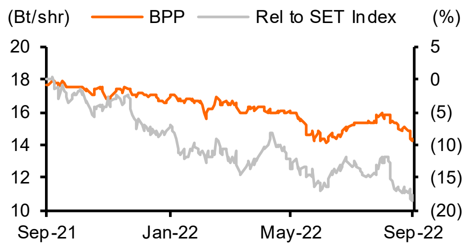
Strong potential for M&As

BPP targets to expand its capacity to 5.3GW in 2025 (up 65% from 3.2GW in 2022), with a commitment to lower the proportion of coal and raise renewables to over 15% (10% today) of its portfolio. We believe BPP is looking to acquire more gas-fired power plants in the US and renewable projects in ASEAN to reach its growth target. Its balance sheet at 0.5x net D/E with Bt7.4bn of cash on hand looks ready for those investments, in our view, but we conservatively leave them as potential upside to our numbers.

COMPANY VALUATION

Y/E Dec (Bt m)	2021A	2022F	2023F	2024F
Sales	6,784	19,042	19,881	19,728
Net profit	3,127	3,003	3,445	3,885
Consensus NP	—	5,851	5,192	5,354
Diff frm cons (%)	—	*(48.7)*	*(33.7)*	*(27.4)*
Norm profit	2,429	3,003	3,445	3,885
Prev. Norm profit	—	4,123	4,389	4,370
Chg frm prev (%)	—	*(27.2)*	*(21.5)*	*(11.1)*
Norm EPS (Bt)	0.8	1.0	1.1	1.3
Norm EPS grw (%)	(27.0)	23.6	14.7	12.8
Norm PE (x)	18.1	14.6	12.7	11.3
EV/EBITDA (x)	na	41.8	33.1	27.7
P/BV (x)	1.0	0.9	0.9	0.9
Div yield (%)	4.5	4.8	5.5	6.2
ROE (%)	5.6	6.5	7.3	8.0
Net D/E (%)	38.7	46.5	47.5	42.0

PRICE PERFORMANCE



COMPANY INFORMATION

Price *as of* 30-Sep-22 (Bt)	14.40
Market Cap (US$ m)	1,163.2
Listed Shares (m shares)	3,047.7
Free Float (%)	21.2
Avg Daily Turnover (US$ m)	0.8
12M Price H/L (Bt)	17.90/14.10
Sector	Utilities
Major Shareholder	BANPU 78.66%

Sources: Bloomberg, Company data, Thanachart estimates

Likely over the worst

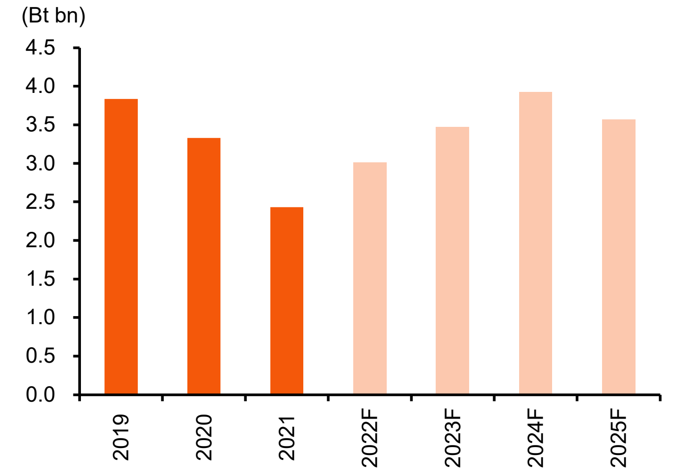
Reaffirm BUY into an earnings turnaround from two major drivers

We reaffirm our BUY rating on shares of Banpu Power Pcl (BPP) as we expect its earnings turnaround story to get started in 2H22F. We believe its share price falling below its book value already reflects the negative impact from the coal price surge in China on its earnings, and likely also market concerns regarding an ESG issue given that 80% of BPP's operating capacity comprises coal-fired power plants. Two supporting factors driving the turnaround for BPP are as follows:

1) Stronger profit from US gas power plant on solid demand with high margin

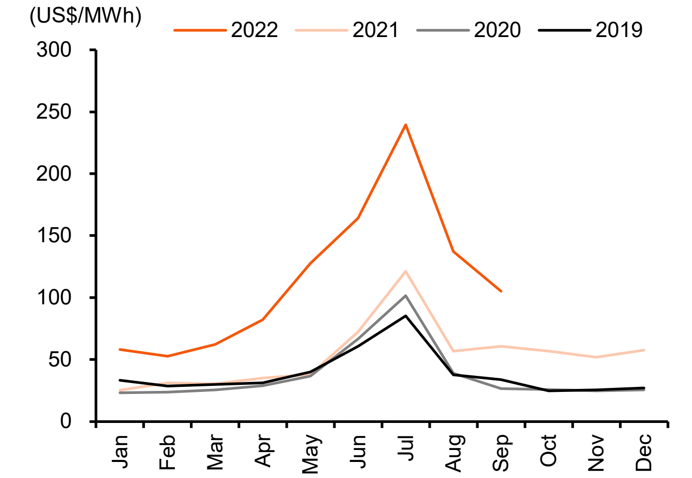
First, we expect stronger profit from its 50%-owned 768MW "Temple-1" gas-fired power plant in the US (acquired in 4Q21) in 2H22F to more than offset the negative of high coal prices in China. The Temple-1 project has secured a second Heat Rate Call Option (HRCO) contract for 200MW of its capacity, starting in 2Q22, at a 30% higher premium than its first contract (also 200MW) which began in 1Q22. These HRCO contracts fix recurring revenue for Temple-1 for contracted capacity, while passing on the fuel cost to its counterparties when electricity is ordered. The margin for electricity sales from the remaining 368MW of its capacity to the Electric Reliability Council of Texas (ERCOT) market should also be higher, backed by strong power demand during the summer period (3Q22F). Note that the high natural gas price environment is a positive for Temple-1 as the project could obtain a higher fuel cost spread against the market's average efficiency. The weakening of the baht against the US dollar should be another windfall for BPP when it recognizes profit from Temple-1.

Ex 1: Earnings Bottoming Out



Sources: Company data, Thanachart estimates

Ex 2: Seasonality Of Power Demand In Texas



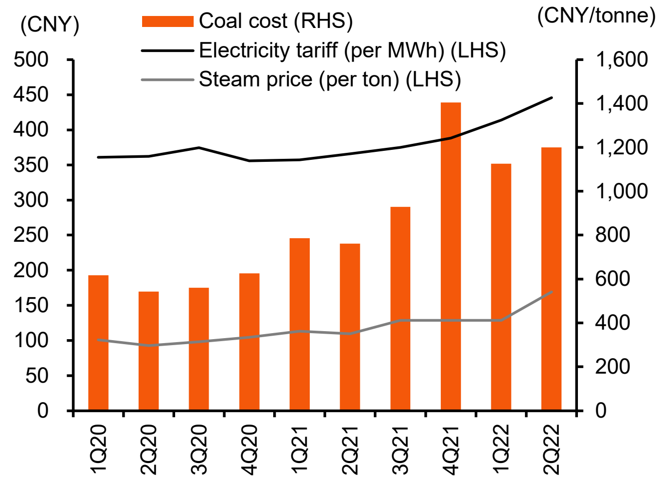
Sources: Bloomberg, ERCOT

2) Bottoming out of margin from coal power plants in China

Second, there have been strong attempts by the Chinese government to better balance the electricity tariff with rising fuel costs, especially coal prices, after multiple blackouts in the country over the past 12 months which were caused by some power plants cutting their power generation to prevent losses amid fuel price surges. Thanks to a major push by the local government, BPP's Shanxi Lu Guang power plant (SLG, 398MW equity capacity) has secured 2m-tonne coal procurement contracts at an average price of CNY800/tonne, approximately 40% lower than the current market price. Therefore, the fuel cost is sharply lower for the project. The contracted amount is sufficient for SLG's production at least from 2H22 to late-2023 and we believe it is probable that the project will be able to renew the contracts if coal prices remain elevated next year. This is because SLG is one of the major (large-sized) power plants with high efficiency in the Shanxi region, so it will therefore likely receive strong support from the local government.

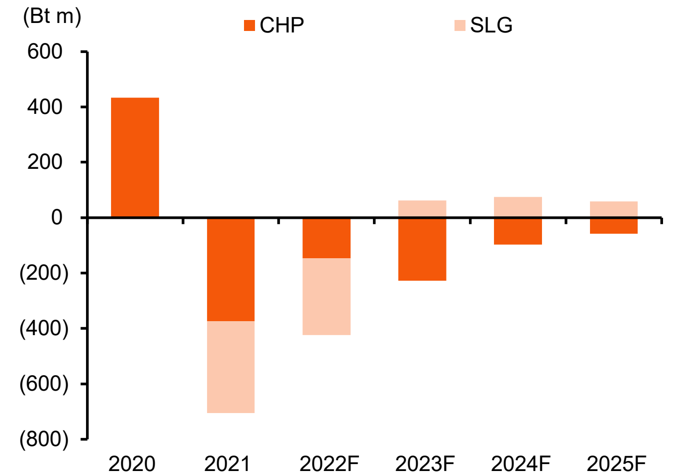
Its three coal-fueled Combined Heat and Power (CHP) plants (total of 548MW equity capacity) are receiving less support from the government as half of their revenues is from steam sales (for household heating and industrial uses) where the price is on a cost-plus basis. The improvement from these three plants is coming from their 20% higher electricity tariff after they were allowed (by the local governments) to sell power to the local electricity trading markets instead of to the central grid at the wholesale price. Going forward, by participating in bidding markets now, we believe the CHP plants will enjoy more benefits from recovering power demand in China and be able to pass on fuel costs to consumers more easily.

Ex 3: Better Selling Price Adjustments For CHP Plants



Sources: Company data, Thanachart

Ex 4: Improving Profits From Coal Plants In China



Sources: Company data, Thanachart estimates

Note: SLG commenced operation in 2Q21

Attractive valuation in our view despite our earnings cuts on higher coal prices

Despite cutting our earnings estimates for BPP by 27%/22%/11% in 2022-24F and therefore also our DCF-derived SOTP-based 12-month TP (2023F base year) to Bt18/share (from Bt22.5), mainly due to our higher coal price assumptions (Exhibit 5), we now see its valuation at 0.9x P/BV with a 5% dividend yield in 2022F as attractive.

Ex 5: Our Key Assumption Changes

	2020	2021	2022F	2023F	2024F	2025F
Average CHP electricity tariff (CNY/kWh)						
New	0.36	0.35	0.43	0.41	0.40	0.38
Old			0.36	0.36	0.36	0.36
Change (%)			*20.6*	*15.6*	*12.5*	*6.9*
BPP's CHP average coal cost (CNY/tonne)						
New	572	942	1,250	1,200	1,100	1,000
Old			680	650	630	630
Change (%)			*83.8*	*84.6*	*74.6*	*58.7*

Source: Thanachart estimates

Some organic capacity growth

Organic growth from renewable capacity expansion over 2022-24F

Apart from improvements at its existing plants, BPP also has secured renewable projects to drive its growth over 2H22-2024. BPP targets to finalize its acquisitions (already signed the share purchase contracts) of the 7.5MW Chu Nhoc solar farm and 25MW Ha Tihn solar farm in Vietnam by 3Q22F, so it should be able to fully recognize profits from the two projects in 4Q22F. The Vinh Chau wind power project, also in Vietnam, is scheduled to deliver electricity from its first development phase (15MW) by year-end and commence operations fully with its remaining 25MW by mid-2024. This is a similar timeline to its 26MW Yamagata solar farm in Japan, which is targeted to gradually come online over 2H23-2H24. There are also small solar rooftop and floating solar projects under development in Thailand and Vietnam. These secured projects combined provide 126MW of new capacity for BPP, or 2% p.a. organic capacity growth over 2022-24F.

Ex 6: Timeline For Projects Under Development In The Pipeline

Project	Location	Type	Equity capacity (MW)	Expected COD
Chu Ngoc	Vietnam	Solar	7.5	*4Q22F
Ha Tinh	Vietnam	Solar	25.0	*4Q22F
Vinh Chau #1	Vietnam	Wind	15.0	4Q22F
Vinh Chau #2-3	Vietnam	Wind	25.0	2H23-2H24F
Yamagata	Japan	Solar	26.0	2H23-2H24F
Solar rooftop	Thailand / Vietnam	Solar	27.7	2022-24F

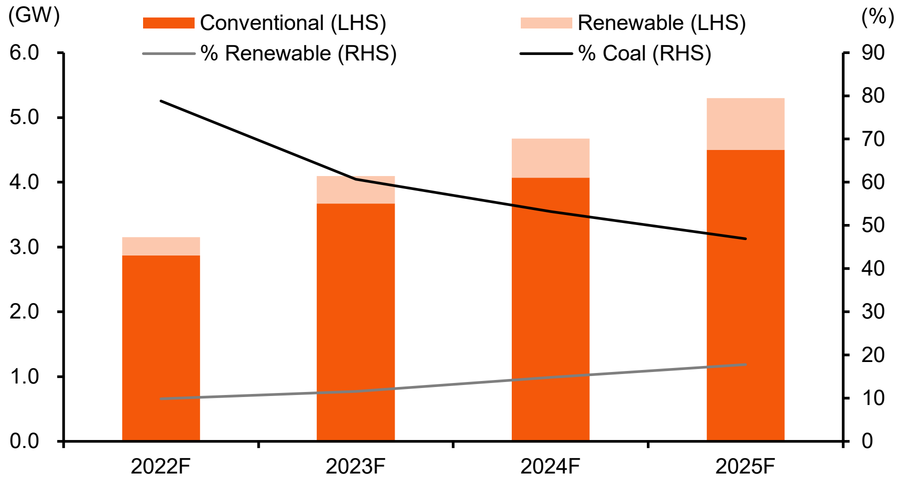
Sources: Company data, Thanachart estimates
Note: *Expected deal closing dates

Strong potential for M&As

Potential upside from more M&As, with US gas power plants its key target

BPP has strongly committed to expanding its power generation capacity to 5.3GW by 2025, which implies sizable potential expansion of 65% from its current operating capacity of 3.2GW (as of 2022). We believe majority of the new capacity will be from further acquisitions of gas-fired power plants in the US, likely a few assets with up to 1.5GW of total combined capacity, as BPP should be able to leverage on the footprint of its parent company, Banpu Pcl (BANPU TB, BUY, Bt12.30), which has invested heavily in the US gas business over the past few years. BPP also has a target to raise its power generation capacity from renewable sources to 800MW in 2025 (271MW as of 2022) to meet its environmental goal of having renewable projects providing more than 15% of its total capacity. We also believe this would come in the form of acquisitions, where BPP is aiming for solar and wind power plants in the region (especially ASEAN) as key targets. Note that we still leave these potential investments as potential upside to both our earnings forecasts and our valuation for BPP.

Ex 7: Capacity Expansion Target



Sources: Company data, Thanachart estimates

Ex 8: 12-month DCF-derived SOTP-based TP Calculation

	Valuation method	WACC (%)	Value per BPP's share (Baht)
China CHP	DCF	5.3%	1.2
BLCP	DCF	5.5%	2.5
HPC	DCF	6.0%	6.9
SLG	DCF	5.4%	1.1
Nakoso	DCF	4.2%	1.3
Temple-1	DCF	5.6%	2.9
Banpu NEXT	DCF	6-10%	2.7
Parents - HQ & Net debts	DCF	10.0%	(0.6)
Grand total			**18.0**

Source: Thanachart estimates

Valuation Comparison

Ex 9: Comparison With Regional Peers

Name	BBG code	Country	EPS growth 22F (%)	EPS growth 23F (%)	PE 22F (x)	PE 23F (x)	P/BV 22F (x)	P/BV 23F (x)	EV/EBITDA 22F (x)	EV/EBITDA 23F (x)	Div yield 22F (%)	Div yield 23F (%)
Huadian Power	1071 HK	China	na	33.1	8.1	6.1	0.5	0.5	15.3	12.1	6.8	8.1
Huaneng Power	600011 CH	China	154.0	190.4	40.6	14.0	1.2	1.1	11.0	8.4	0.7	2.7
Cheung Kong Infrastructure	1038 HK	Hong Kong	13.3	(2.5)	10.4	10.6	0.8	0.8	39.8	40.1	6.4	6.5
China Power Int'l	2380 HK	Hong Kong	na	58.2	14.7	9.3	0.9	0.9	10.1	7.7	3.7	4.9
China Resources Power	836 HK	Hong Kong	59.5	27.9	6.3	4.9	0.6	0.6	6.6	5.6	6.4	8.4
CLP Holdings	2 HK	Hong Kong	(36.6)	59.8	21.1	13.2	1.3	1.3	11.2	8.8	5.3	5.3
Hongkong Electric Holdings	6 HK	Hong Kong	5.8	(2.0)	12.4	12.7	1.0	1.0	35.2	61.2	7.2	7.2
Huaneng Power	902 HK	Hong Kong	180.0	183.3	20.4	7.2	0.5	0.5	10.7	8.2	1.9	6.5
Tata Power	TPWR IN	India	28.2	62.0	35.0	21.6	3.1	2.8	15.8	13.8	0.8	0.8
Tenaga Nasional	TNB MK	Malaysia	(9.0)	9.3	10.3	9.5	0.8	0.7	7.0	6.8	5.0	5.5
YTL Corp	YTL MK	Malaysia	na	187.5	na	41.4	0.5	0.5	10.9	8.9	4.0	5.2
YTL Power	YTLP MK	Malaysia	(105.4)	na	na	16.2	0.4	0.4	12.0	10.2	5.3	6.6
Manila Electric	MER PM	Philippines	11.2	(3.8)	11.4	11.8	2.9	2.6	8.2	7.2	5.8	6.0
BCPG Pcl *	BCPG TB	Thailand	(2.4)	(24.7)	12.1	16.0	0.9	0.9	8.1	9.6	3.5	3.5
B.Grimm Power Pcl *	BGRIM TB	Thailand	(81.8)	339.8	198.6	45.2	3.0	2.9	19.9	15.8	0.3	1.1
Banpu Power Pcl *	BPP TB	Thailand	23.6	14.7	14.6	12.7	0.9	0.9	41.8	33.1	4.8	5.5
CK Power Pcl *	CKP TB	Thailand	13.7	(4.5)	18.1	18.9	1.6	1.5	19.8	14.7	2.2	2.6
EA Pcl*	EA TB	Thailand	20.8	26.6	45.3	35.8	8.6	7.3	30.8	24.1	0.7	0.8
Electricity Generating *	EGCO TB	Thailand	3.9	1.7	8.2	8.0	0.7	0.7	18.7	17.7	3.9	4.2
Global Power Synergy *	GPSC TB	Thailand	(63.4)	132.2	72.6	31.3	1.7	1.6	22.9	17.7	0.8	1.8
Gulf Energy Dev. Pcl *	GULF TB	Thailand	22.2	37.4	56.9	41.4	4.9	3.9	41.1	32.4	1.1	1.4
Gunkul Engineering *	GUNKUL TB	Thailand	41.7	23.7	16.3	13.2	3.1	2.7	17.5	13.4	2.5	3.0
RATCH Group *	RATCH TB	Thailand	49.7	(19.9)	6.4	8.0	0.8	0.8	19.5	18.6	8.6	4.7
WHA Utilities & Power *	WHAUP TB	Thailand	45.9	9.3	10.9	10.0	1.2	1.1	26.2	23.2	5.5	6.0
Average			**17.9**	**58.2**	**29.6**	**17.5**	**1.8**	**1.6**	**19.2**	**17.5**	**3.9**	**4.5**

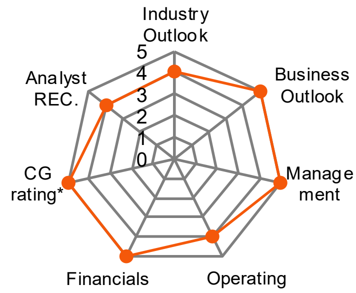
Sources: Bloomberg, * Thanachart estimates
Based on 30 September 2022 closing prices

COMPANY DESCRIPTION

Banpu Power Pcl (BPP), the power arm of Banpu Pcl (BANPU), has a well-diversified power portfolio in growing markets in the Asia-Pacific region, including China, Thailand, Laos, and lately in the US market. BPP has started to invest in renewable power projects to grow in line with the global trend, starting with diversification into solar power projects in China and Japan, while Vietnam has now become its latest focus. Currently, the company has a total of 3.2GW of committed capacity in hand and aims to reach 5.3GW by 2025, with 800MW of that to be from renewable sources.

Source: Thanachart

COMPANY RATING



Rating Scale	
Excellent	**5**
Good	**4**
Fair	**3**
Weak	**2**
Very Weak	**1**
None	**0**

Source: Thanachart; *CG Rating

THANACHART'S SWOT ANALYSIS

S — Strength

- Experienced management and a good track record with power investments.
- Advantages from BANPU's relationships in penetrating new power markets.

W — Weakness

- A bit late in tendering for Thailand's early renewable power contracts which obtained high returns.
- More risk of forex translation losses given diversified portfolio.

O — Opportunity

- High demand for power in the Asia-Pacific region.
- Growing trend of renewable power capacity creating new areas for expansion.

T — Threat

- Regulatory risks regarding power tariffs as many countries are looking to lower investors' returns.

CONSENSUS COMPARISON

	Consensus	Thanachart	Diff
Target price (Bt)	18.85	18.00	-5%
Net profit 22F (Bt m)	5,851	3,003	-49%
Net profit 23F (Bt m)	5,192	3,445	-34%
Consensus REC	**BUY: 6**	**HOLD: 1**	**SELL: 0**

HOW ARE WE DIFFERENT FROM THE STREET?

- Our 2022-23F earnings are significantly lower than the Bloomberg consensus numbers, which we believe is due to us having much higher coal price assumptions.
- However, our TP is only 5% lower, likely because we expect the coal price impact to gradually ease within just a few years.

Sources: Bloomberg consensus, Thanachart estimates

RISKS TO OUR INVESTMENT CASE

- Weaker-than-expected support and policies of the Chinese government in alleviating impacts from fuel price surges on local power plants are the key downside risks to our earnings forecasts.
- Weaker-than-expected electricity demand in the US market (especially in Texas) represents a secondary downside risk to our numbers.
- Delays in project procurements, either from those in the deal finalization process or in the development process, represents another minor downside risk.

Source: Thanachart

BPP

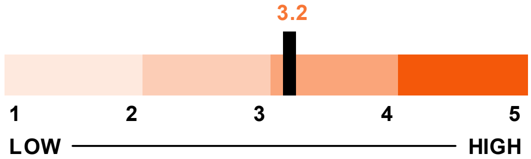
Banpu Power Pcl.

Sector: Resources | Energy & Utilities

ESG & Sustainability Report

BPP is a large power plant operator in Thailand with coal-fired exposure at 80% of its current 3.1GW of operating capacity. Despite its heavy exposure to coal, our ESG score for BPP of 3.2 is in line with the sector average since we see BPP, along with its parent company Banpu Pcl (BANPU TB), as having one of the best sets of ESG policies in Thailand.

Thanachart ESG Rating



	SETTHSI Index	THSI Index	DJSI Index	MSCI (CCC-AAA)	Arabesque S-Ray (0-100)	Refinitiv (0-100)	S&P Global (0-100)	Moody's (0-100)	CG Rating (0-5)
BPP	YES	YES	-	-	66.67	60.16	71.85	-	5.0

Sources: SETTRADE, SETTHSI Index, Thailand Sustainability Investment (THSI), The Dow Jones Industrial Average (DJSI), MSCI ESG Research LLC, Arabesque S-Ray®, Refinitiv ESG Information, S&P Global Market Intelligence, Moody's ESG Solutions, Thai IOD (CG rating)
Note: Please see third party on "term of use" in the following back page.

Factors	Our Comments
ENVIRONMENT – **Environmental Policies & Guidelines** – **Energy Management** – **Carbon Management** – **Water Management** – **Waste Management**	▪ Our key concern regarding BPP's environmental issues is its high exposure to coal. Coal-fired power plants make up 80% of its total operating capacity and we believe it would take at least next 5 years to bring this down to below 50%. Leaving aside difficulties in lowering coal-based capacity exposure, BPP is strongly committed to overall ESG issues. ▪ BPP emitted 3.63m tonnes of CO2 equivalent of greenhouse gas (GHG) and had an emission intensity of 0.603 tonnes of CO2 equivalent per MWh in 2021. This was 4% below its 2012 baseline and 0.676-tonne intensity target. ▪ BPP has a "Greener and Smarter" policy to grow capacity with its "High Efficiency, Low Emission" (HELE) concept, i.e., Integrated Gasification Combined Cycle (IGCC) coal plants, machinery efficiency improvements, and emission capture systems. ▪ BPP targets to raise the portion of renewable projects to 15% (800MW) of its power generation portfolio by 2025 from 8% (254MW) in 2022.
SOCIAL – **Human Rights** – **Staff Management** – **Health & Safety** – **Product Safety & Quality** – **Social Responsibility**	▪ BPP ensures rights protection and prevents discrimination and harassment for its staff through communication channels which allow them to voice workplace issues. Its 2021 employee engagement survey participation stood at 69% in Thailand and 93% in China. ▪ BPP shares the "Banpu Heart" corporate culture with its group, mainly a smarter and faster work environment to achieve business success for the Banpu Group, while the group provides equal training for all staff to enhance their skills and opportunities. ▪ Health and safety protocols are the core standard at all BPP's power plants. ▪ BPP serves local communities by improving their quality of life, i.e., job opportunities, compensation, and support for potential harm from power plants (including emissions), and educational and training group workshops for local residents.
GOVERNANCE & SUSTAINABILITY – **Board** – **Ethics & Transparency** – **Business Sustainability** – **Risk Management** – **Innovation**	▪ BPP has 10 members on its board of directors (BOD), four of whom are independent directors and two are female. ▪ BPP has an internal control system to monitor and evaluate its own (and stakeholders in its supply and value chains) transparency and corporate governance, including channels for staff to report suspicious issues. ▪ For business sustainability, BPP has made strong attempts to lower the proportion of coal in its portfolio and increase the proportion of gas-based and renewable power projects. ▪ BPP invests, through its 50%-owned subsidiary Banpu NEXT, in smart energy solutions, energy storage platforms, and smart electricity trading platforms to capture potential growth from these innovative business opportunities.

Source: Thanachart

We expect earnings turnaround starting in 2H22F

Decent gearing headroom for more investments to meet its expansion target

INCOME STATEMENT

FY ending Dec (Bt m)	2020A	2021A	2022F	2023F	2024F
Sales	5,506	6,784	19,042	19,881	19,728
Cost of sales	4,391	6,824	16,807	17,154	16,653
Gross profit	**1,115**	**(40)**	**2,234**	**2,727**	**3,075**
% gross margin	20.2%	-0.6%	11.7%	13.7%	15.6%
Selling & administration expenses	946	1,103	1,445	1,509	1,532
Operating profit	**169**	**(1,143)**	**789**	**1,218**	**1,543**
% operating margin	3.1%	-16.8%	4.1%	6.1%	7.8%
Depreciation & amortization	445	581	822	858	863
EBITDA	**614**	**(562)**	**1,612**	**2,075**	**2,405**
% EBITDA margin	11.1%	-8.3%	8.5%	10.4%	12.2%
Non-operating income	1,021	1,034	754	791	770
Non-operating expenses	(577)	0	0	0	0
Interest expense	(243)	(249)	(775)	(911)	(902)
Pre-tax profit	**370**	**(358)**	**769**	**1,097**	**1,411**
Income tax	300	57	269	329	423
After-tax profit	**70**	**(416)**	**500**	**768**	**987**
% net margin	1.3%	-6.1%	2.6%	3.9%	5.0%
Shares in affiliates' Earnings	3,340	2,892	2,736	3,196	3,545
Minority interests	(81)	(47)	(233)	(520)	(648)
Extraordinary items	373	698	0	0	0
NET PROFIT	**3,702**	**3,127**	**3,003**	**3,445**	**3,885**
Normalized profit	**3,329**	**2,429**	**3,003**	**3,445**	**3,885**
EPS (Bt)	1.2	1.0	1.0	1.1	1.3
Normalized EPS (Bt)	1.1	0.8	1.0	1.1	1.3

BALANCE SHEET

FY ending Dec (Bt m)	2020A	2021A	2022F	2023F	2024F
ASSETS:					
Current assets:	7,519	9,883	17,334	17,105	16,390
Cash & cash equivalent	2,319	2,760	5,300	5,300	5,300
Account receivables	938	1,311	3,652	3,813	3,783
Inventories	505	1,186	1,842	1,880	1,825
Others	3,757	4,625	6,540	6,113	5,481
Investments & loans	32,379	39,245	44,392	48,450	49,429
Net fixed assets	8,001	23,811	23,620	23,267	22,833
Other assets	1,664	1,928	4,434	4,650	4,672
Total assets	**49,563**	**74,867**	**89,780**	**93,472**	**93,324**
LIABILITIES:					
Current liabilities:	4,067	10,968	16,895	16,474	15,940
Account payables	170	331	921	1,175	1,141
Bank overdraft & ST loans	1,454	6,551	5,775	4,535	4,221
Current LT debt	951	1,439	2,310	2,570	2,392
Others current liabilities	1,492	2,647	7,889	8,195	8,187
Total LT debt	**3,481**	**13,965**	**20,790**	**23,126**	**21,527**
Others LT liabilities	37	354	1,340	1,410	1,428
Total liabilities	**7,585**	**25,287**	**39,026**	**41,010**	**38,895**
Minority interest	869	3,944	4,177	4,697	5,345
Preferreds shares	0	0	0	0	0
Paid-up capital	30,510	30,477	30,457	30,457	30,457
Share premium	7,231	7,231	7,231	7,231	7,231
Warrants	0	0	0	0	0
Surplus	(7,826)	(4,369)	(4,369)	(4,369)	(4,369)
Retained earnings	**11,193**	**12,295**	**13,258**	**14,446**	**15,765**
Shareholders' equity	41,109	45,635	46,577	47,765	49,084
Liabilities & equity	**49,563**	**74,867**	**89,780**	**93,472**	**93,324**

Sources: Company data, Thanachart estimates

Continued resilient cash flows from IPP plants

We see its valuation is attractive at 0.9x P/BV

CASH FLOW STATEMENT

FY ending Dec (Bt m)	2020A	2021A	2022F	2023F	2024F
Earnings before tax	370	(358)	769	1,097	1,411
Tax paid	(297)	(115)	(167)	(377)	(398)
Depreciation & amortization	445	581	822	858	863
Chg In w orking capital	(86)	(894)	(2,406)	55	50
Chg In other CA & CL / minorities	3,451	6,214	5,362	3,378	3,543
Cash flow from operations	**3,882**	**5,428**	**4,379**	**5,011**	**5,468**
Capex	3,450	(16,390)	(595)	(460)	(380)
Right of use	(569)	(62)	(200)	(100)	(100)
ST loans & investments	(3,179)	50	600	600	600
LT loans & investments	(11,835)	(6,866)	(5,146)	(4,058)	(979)
Adj for asset revaluation	0	0	0	0	0
Chg In other assets & liabilities	6,517	438	(1,357)	(91)	47
Cash flow from investments	**(5,616)**	**(22,831)**	**(6,698)**	**(4,109)**	**(812)**
Debt financing	(943)	16,445	6,920	1,355	(2,091)
Capital increase	0	(33)	(20)	0	0
Dividends paid	(1,829)	(1,981)	(2,041)	(2,257)	(2,565)
Warrants & other surplus	157	3,413	0	0	0
Cash flow from financing	**(2,616)**	**17,844**	**4,859**	**(902)**	**(4,656)**
Free cash flow	**7,332**	**(10,963)**	**3,784**	**4,551**	**5,088**

VALUATION

FY ending Dec	2020A	2021A	2022F	2023F	2024F
Normalized PE (x)	13.2	18.1	14.6	12.7	11.3
Normalized PE - at target price (x)	16.5	22.6	18.3	15.9	14.1
PE (x)	11.8	14.0	14.6	12.7	11.3
PE - at target price (x)	14.8	17.5	18.3	15.9	14.1
EV/EBITDA (x)	77.3	na	41.8	33.1	27.7
EV/EBITDA - at target price (x)	95.1	na	48.6	38.4	32.3
P/BV (x)	1.1	1.0	0.9	0.9	0.9
P/BV - at target price (x)	1.3	1.2	1.2	1.1	1.1
P/CFO (x)	11.3	8.1	10.0	8.8	8.0
Price/sales (x)	8.0	6.5	2.3	2.2	2.2
Dividend yield (%)	4.5	4.5	4.8	5.5	6.2
FCF Yield (%)	16.7	(25.0)	8.6	10.4	11.6
(Bt)					
Normalized EPS	1.1	0.8	1.0	1.1	1.3
EPS	1.2	1.0	1.0	1.1	1.3
DPS	0.7	0.7	0.7	0.8	0.9
BV/share	13.5	15.0	15.3	15.7	16.1
CFO/share	1.3	1.8	1.4	1.6	1.8
FCF/share	2.4	(3.6)	1.2	1.5	1.7

Sources: Company data, Thanachart estimates

Normalizing margin on better price adjustment at coal plants in China

FINANCIAL RATIOS

FY ending Dec	2020A	2021A	2022F	2023F	2024F
Growth Rate					
Sales (%)	(3.2)	23.2	180.7	4.4	(0.8)
Net profit (%)	24.7	(15.5)	(4.0)	14.7	12.8
EPS (%)	24.7	(15.5)	(4.0)	14.7	12.8
Normalized profit (%)	(13.2)	(27.0)	23.6	14.7	12.8
Normalized EPS (%)	(13.2)	(27.0)	23.6	14.7	12.8
Dividend payout ratio (%)	53.5	63.3	70.0	70.0	70.0
Operating performance					
Gross margin (%)	20.2	(0.6)	11.7	13.7	15.6
Operating margin (%)	3.1	(16.8)	4.1	6.1	7.8
EBITDA margin (%)	11.1	(8.3)	8.5	10.4	12.2
Net margin (%)	1.3	(6.1)	2.6	3.9	5.0
D/E (incl. minor) (x)	0.1	0.4	0.6	0.6	0.5
Net D/E (incl. minor) (x)	0.1	0.4	0.5	0.5	0.4
Interest coverage - EBIT (x)	0.7	na	1.0	1.3	1.7
Interest coverage - EBITDA (x)	2.5	na	2.1	2.3	2.7
ROA - using norm profit (%)	6.8	3.9	3.6	3.8	4.2
ROE - using norm profit (%)	8.3	5.6	6.5	7.3	8.0
DuPont					
ROE - using after tax profit (%)	0.2	na	1.1	1.6	2.0
- asset turnover (x)	0.1	0.1	0.2	0.2	0.2
- operating margin (%)	11.1	na	8.1	10.1	11.7
- leverage (x)	1.2	1.4	1.8	1.9	1.9
- interest burden (%)	60.4	328.8	49.8	54.6	61.0
- tax burden (%)	18.8	na	65.0	70.0	70.0
WACC (%)	5.2	5.2	5.2	5.2	5.2
ROIC (%)	0.1	(2.6)	0.8	1.2	1.5
NOPAT (Bt m)	32	(1,143)	513	852	1,080
invested capital (Bt m)	44,675	64,831	70,152	72,695	71,924

Sources: Company data, Thanachart estimates

ESG Information - Third Party Terms

www.Settrade.com
SETTRADE: You acknowledge that the use of data, information or service displayed and/or contained in this website may require third party's data, content or software which is subject to the terms of third party provider. By accessing and/or using of such certain data, you acknowledge and agree to comply with and be bound by the applicable third party terms specified below.

ESG Scores by Third Party data from www.SETTRADE.com
1. MSCI (CCC- AAA)
2. Arabesque S-Ray (0-100)
3. Refinitiv (0-100)
4. S&P Global (0-100)
5. Moody's ESG Solutions (0-100)

SET THSI Index (SETTHSI)
Nowadays, long-term investment tends to be more focused on sustainable companies. The financial statement performance and the consideration in environmental, social and governance (ESG) perspective are keys aspects for analysis.
SET has created a Thailand Sustainability Investment (THSI) list since 2015 for using as an alternative investment in the high performance ESG stocks for investors while, supporting the sustainable Thai companies. SET defines the sustainable companies as the companies that embrace risk management, supply chain management and innovations together with responsibility for environmental, social and governance aspects
As a result, SET has created the SETTHSI for the purpose of indicating the price of these sustainable companies that pass the market capital size and liquidity criteria.

Arabesque S-Ray®
The S-Ray data here is published with a 3 month delay. For the latest data, please contact sray@arabesque.com
Arabesque S-Ray® is a service (the "Service") provided by Arabesque S-Ray GmbH ("Arabesque S-Ray") and its branch and subsidiary companies. Arabesque S-Ray is a limited liability company (Gesellschaft mit beschränkter Haftung) incorporated in Frankfurt am Main and organized under the laws of Germany with registered number HRB 113087 in the commercial register of the local court with its seat and business address at Zeppelinallee 15, 60325 Frankfurt am Main, Germany. The Service is unconnected to any of the asset management activities conducted within the wider group of Arabesque companies, and is not investment advice or a solicitation or an offer to buy any security or instrument or to participate in investment services. RELIANCE - Arabesque S-Ray makes no representation or warranty, express or implied, as to the accuracy or completeness of the information contained herein, and accepts no liability for any loss, of whatever kind, howsoever arising, in relation thereto, and nothing contained herein should be relied upon. ENQUIRIES - Any enquiries in respect of this document should be addressed to Arabesque S-Ray.
Arabesque S-Ray® - The ESG Score, ranging from 0 to 100, identifies sustainable companies that are better positioned to outperform over the long run, based on the principles of financial materiality. That is, when computing the ESG Score of a company, the algorithm will only use information that significantly helps explain future risk-adjusted performance. Materiality is applied by overweighting features with higher materiality and rebalancing these weights on a rolling quarterly basis to stay up-to-date

MSCI ESG Research LLC
"Certain information @2021 MSCI ESG Research LLC. Reproduced by permission"
"Although [User ENTITY NAME's] information providers, including without limitation, MSCI ESG Research LLC and its affiliates (the "ESG Parties"), obtain information (the "Information") from sources they consider reliable, none of the ESG Parties warrants or guarantees the originality, accuracy and/or completeness, of any data herein and expressly disclaim all express or implied warranties, including those of merchantability and fitness for a particular purpose. The Information may only be used for your internal use, may not be reproduced or redisseminated in any form and may not be used as a basis for, or a component of, any financial instruments or products or indices. Further, non of the Information can in and of itself be used to determine which securities to buy or sell or when to buy or sell them. None of the ESG Parties shall have any liability for any errors or omissions in connection with any data herein, or any liability for any direct, indirect, special, punitive, consequential or any other damages (including lost profits) even if notified of the possibility of such damages."

Score range	Description
CCC - B	**LAGGARD:** A company lagging its industry based on its high exposure and failure to manage significant ESG risks
BB - BBB - A	**AVERAGE :** A company with a mixed or unexceptional track record of managing the most significant ESG risks and opportunities relative to industry peers
AA - AAA	**LEADER:** A company leading its industry in managing the most significant ESG risks and opportunities

The Dow Jones Sustainability Indices (DJSI)
The Dow Jones Sustainability Indices (DJSI) are a family of best-in-class benchmarks for investors who have recognized that sustainable business practices are critical to generating long-term shareholder value and who wish to reflect their sustainability convictions in their investment portfolios. The family was launched in 1999 as the first global sustainability benchmark and tracks the stock performance of the world's leading companies in terms of economic, environmental and social criteria. Created jointly by S&P Dow Jones Indices and SAM, the DJSI combine the experience of an established index provider with the expertise of a specialist in Sustainable Investing to select the most sustainable companies from across 61 industries. The indices serve as benchmarks for investors who integrate sustainability considerations into their portfolios, and provide an effective engagement platform for investors who wish to encourage companies to improve their corporate sustainability practices.

S&P Global Market Intelligence
Copyright © 2021, S&P Global Market Intelligence (and its affiliates as applicable). Reproduction of any information, opinions, views, data or material, including ratings ("Content") in any form is prohibited except with the prior written permission of the relevant party. Such party, its affiliates and suppliers ("Content Providers") do not guarantee the accuracy, adequacy, completeness, timeliness or availability of any Content and are not responsible for any errors or omissions (negligent or otherwise), regardless of the cause, or for the results obtained from the use of such Content. In no event shall Content Providers be liable for any damages, costs, expenses, legal fees, or losses (including lost income or lost profit and opportunity costs) in connection with any use of the Content. A reference to a particular investment or security, a rating or any observation concerning an investment that is part of the Content is not a recommendation to buy, sell or hold such investment or security, does not address the suitability of an investment or security and should not be relied on as investment advice. Credit ratings are statements of opinions and are not statements of fact.
ESG risk combines the concepts of management and exposure to arrive at an absolute assessment of ESG risk. We identify five categories of ESG risk severity that could impact a company's enterprise value

Moody's ESG Solutions
© 2022 Moody's Corporation, Moody's Investors Service, Inc., Moody's Analytics, Inc. and/or their licensors and affiliates (collectively, "MOODY'S"). All rights reserved.
CREDIT RATINGS ISSUED BY MOODY'S CREDIT RATINGS AFFILIATES ARE THEIR CURRENT OPINIONS OF THE RELATIVE FUTURE CREDIT RISK OF ENTITIES, CREDIT COMMITMENTS, OR DEBT OR DEBT-LIKE SECURITIES, AND MATERIALS, PRODUCTS, SERVICES AND INFORMATION PUBLISHED BY MOODY'S (COLLECTIVELY, "PUBLICATIONS") MAY INCLUDE SUCH CURRENT OPINIONS. MOODY'S DEFINES CREDIT RISK AS THE RISK THAT AN ENTITY MAY NOT MEET ITS CONTRACTUAL FINANCIAL OBLIGATIONS AS THEY COME DUE AND ANY ESTIMATED FINANCIAL LOSS IN THE EVENT OF DEFAULT OR IMPAIRMENT. SEE APPLICABLE MOODY'S RATING SYMBOLS AND DEFINITIONS PUBLICATION FOR INFORMATION ON THE TYPES OF CONTRACTUAL FINANCIAL OBLIGATIONS ADDRESSED BY MOODY'S CREDIT RATINGS. CREDIT RATINGS DO NOT ADDRESS ANY OTHER RISK, INCLUDING BUT NOT LIMITED TO: LIQUIDITY RISK, MARKET VALUE RISK, OR PRICE VOLATILITY. CREDIT RATINGS, NON-CREDIT ASSESSMENTS ("ASSESSMENTS"), AND OTHER OPINIONS INCLUDED IN MOODY'S PUBLICATIONS ARE NOT STATEMENTS OF CURRENT OR HISTORICAL FACT. MOODY'S PUBLICATIONS MAY ALSO INCLUDE QUANTITATIVE MODEL-BASED ESTIMATES OF CREDIT RISK AND RELATED OPINIONS OR COMMENTARY PUBLISHED BY MOODY'S ANALYTICS, INC. AND/OR ITS AFFILIATES. MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND PUBLICATIONS DO NOT CONSTITUTE OR PROVIDE INVESTMENT OR FINANCIAL ADVICE, AND MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND PUBLICATIONS ARE NOT AND DO NOT PROVIDE RECOMMENDATIONS TO PURCHASE, SELL, OR HOLD PARTICULAR SECURITIES. MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND PUBLICATIONS DO NOT COMMENT ON THE SUITABILITY OF AN INVESTMENT FOR ANY PARTICULAR INVESTOR. MOODY'S ISSUES ITS CREDIT RATINGS, ASSESSMENTS AND OTHER OPINIONS AND PUBLISHES ITS PUBLICATIONS WITH THE EXPECTATION AND UNDERSTANDING THAT EACH INVESTOR WILL, WITH DUE CARE, MAKE ITS OWN STUDY AND EVALUATION OF EACH SECURITY THAT IS UNDER CONSIDERATION FOR PURCHASE, HOLDING, OR SALE.
MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS, AND PUBLICATIONS ARE NOT INTENDED FOR USE BY RETAIL INVESTORS AND IT WOULD BE RECKLESS AND INAPPROPRIATE FOR RETAIL INVESTORS TO USE MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS OR PUBLICATIONS WHEN MAKING AN INVESTMENT DECISION. IF IN DOUBT YOU SHOULD CONTACT YOUR FINANCIAL OR OTHER PROFESSIONAL ADVISER.
ALL INFORMATION CONTAINED HEREIN IS PROTECTED BY LAW, INCLUDING BUT NOT LIMITED TO, COPYRIGHT LAW, AND NONE OF SUCH INFORMATION MAY BE COPIED OR OTHERWISE REPRODUCED, REPACKAGED, FURTHER TRANSMITTED, TRANSFERRED, DISSEMINATED, REDISTRIBUTED OR RESOLD, OR STORED FOR SUBSEQUENT USE FOR ANY SUCH PURPOSE, IN WHOLE OR IN PART, IN ANY FORM OR MANNER OR BY ANY MEANS WHATSOEVER, BY ANY PERSON WITHOUT MOODY'S PRIOR WRITTEN CONSENT.

MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND PUBLICATIONS ARE NOT INTENDED FOR USE BY ANY PERSON AS A BENCHMARK AS THAT TERM IS DEFINED FOR REGULATORY PURPOSES AND MUST NOT BE USED IN ANY WAY THAT COULD RESULT IN THEM BEING CONSIDERED A BENCHMARK.

All information contained herein is obtained by MOODY'S from sources believed by it to be accurate and reliable. Because of the possibility of human or mechanical error as well as other factors, however, all information contained herein is provided "AS IS" without warranty of any kind. MOODY'S adopts all necessary measures so that the information it uses in assigning a credit rating is of sufficient quality and from sources MOODY'S considers to be reliable including, when appropriate, independent third-party sources. However, MOODY'S is not an auditor and cannot in every instance independently verify or validate information received in the rating process or in preparing its Publications.

To the extent permitted by law, MOODY'S and its directors, officers, employees, agents, representatives, licensors and suppliers disclaim liability to any person or entity for any indirect, special, consequential, or incidental losses or damages whatsoever arising from or in connection with the information contained herein or the use of or inability to use any such information, even if MOODY'S or any of its directors, officers, employees, agents, representatives, licensors or suppliers is advised in advance of the possibility of such losses or damages, including but not limited to: (a) any loss of present or prospective profits or (b) any loss or damage arising where the relevant financial instrument is not the subject of a particular credit rating assigned by MOODY'S.

To the extent permitted by law, MOODY'S and its directors, officers, employees, agents, representatives, licensors and suppliers disclaim liability for any direct or compensatory losses or damages caused to any person or entity, including but not limited to by any negligence (but excluding fraud, willful misconduct or any other type of liability that, for the avoidance of doubt, by law cannot be excluded) on the part of, or any contingency within or beyond the control of, MOODY'S or any of its directors, officers, employees, agents, representatives, licensors or suppliers, arising from or in connection with the information contained herein or the use of or inability to use any such information.

NO WARRANTY, EXPRESS OR IMPLIED, AS TO THE ACCURACY, TIMELINESS, COMPLETENESS, MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OF ANY CREDIT RATING, ASSESSMENT, OTHER OPINION OR INFORMATION IS GIVEN OR MADE BY MOODY'S IN ANY FORM OR MANNER WHATSOEVER.

Moody's Investors Service, Inc., a wholly-owned credit rating agency subsidiary of Moody's Corporation ("MCO"), hereby discloses that most issuers of debt securities (including corporate and municipal bonds, debentures, notes and commercial paper) and preferred stock rated by Moody's Investors Service, Inc. have, prior to assignment of any credit rating, agreed to pay to Moody's Investors Service, Inc. for credit ratings opinions and services rendered by it fees ranging from $1,000 to approximately $5,000,000. MCO and Moody's Investors Service also maintain policies and procedures to address the independence of Moody's Investors Service credit ratings and credit rating processes. Information regarding certain affiliations that may exist between directors of MCO and rated entities, and between entities who hold credit ratings from Moody's Investors Service and have also publicly reported to the SEC an ownership interest in MCO of more than 5%, is posted annually at www.moodys.com under the heading "Investor Relations — Corporate Governance — Director and Shareholder Affiliation Policy."

Additional terms for Australia only: Any publication into Australia of this document is pursuant to the Australian Financial Services License of MOODY'S affiliate, Moody's Investors Service Pty Limited ABN 61 003 399 657AFSL 336969 and/or Moody's Analytics Australia Pty Ltd ABN 94 105 136 972 AFSL 383569 (as applicable). This document is intended to be provided only to "wholesale clients" within the meaning of section 761G of the Corporations Act 2001. By continuing to access this document from within Australia, you represent to MOODY'S that you are, or are accessing the document as a representative of, a "wholesale client" and that neither you nor the entity you represent will directly or indirectly disseminate this document or its contents to "retail clients" within the meaning of section 761G of the Corporations Act 2001. MOODY'S credit rating is an opinion as to the creditworthiness of a debt obligation of the issuer, not on the equity securities of the issuer or any form of security that is available to retail investors.

Additional terms for Japan only: Moody's Japan K.K. ("MJKK") is a wholly-owned credit rating agency subsidiary of Moody's Group Japan G.K., which is wholly-owned by Moody's Overseas Holdings Inc., a wholly-owned subsidiary of MCO. Moody's SF Japan K.K. ("MSFJ") is a wholly-owned credit rating agency subsidiary of MJKK. MSFJ is not a Nationally Recognized Statistical Rating Organization ("NRSRO"). Therefore, credit ratings assigned by MSFJ are Non-NRSRO Credit Ratings. Non-NRSRO Credit Ratings are assigned by an entity that is not a NRSRO and, consequently, the rated obligation will not qualify for certain types of treatment under U.S. laws. MJKK and MSFJ are credit rating agencies registered with the Japan Financial Services Agency and their registration numbers are FSA Commissioner (Ratings) No. 2 and 3 respectively.

Additional terms for Hong Kong only: Any Second Party Opinion or other opinion that falls within the definition of "advising on securities" under the Hong Kong Securities and Futures Ordinance ("SFO") is issued by Vigeo Eiris Hong Kong Limited, a company licensed by the Hong Kong Securities and Futures Commission to carry out the regulated activity of advising on securities in Hong Kong. This Second Party Opinion or other opinion that falls within the definition of "advising on securities" under the SFO is intended for distribution only to "professional investors" as defined in the SFO and the Hong Kong Securities and Futures (Professional Investors) Rules. This Second Party Opinion or other opinion must not be distributed to or used by persons who are not professional investors.

MJKK or MSFJ (as applicable) hereby disclose that most issuers of debt securities (including corporate and municipal bonds, debentures, notes and commercial paper) and preferred stock rated by MJKK or MSFJ (as applicable) have, prior to assignment of any credit rating, agreed to pay to MJKK or MSFJ (as applicable) for credit ratings opinions and services rendered by it fees ranging from JPY125,000 to approximately JPY550,000,000.

MJKK and MSFJ also maintain policies and procedures to address Japanese regulatory requirements.

Refinitiv ESG

These Terms of Use govern your access or use of the ESG information and materials on the Refinitiv website and any AI powered voice assistance software ("Refinitiv ESG Information").

The Refinitiv ESG Information is for general informational and non-commercial purposes only. Reproduction, redistribution or any other form of copying or transmission of the Refinitiv ESG Information is prohibited without Refinitiv's prior written consent.

All warranties, conditions and other terms implied by statute or common law including, without limitation, warranties or other terms as to suitability, merchantability, satisfactory quality and fitness for a particular purpose, are excluded to the maximum extent permitted by applicable laws. The Refinitiv ESG Information is provided "as is" and Refinitiv makes no express or implied warranties, representations or guarantees concerning the accuracy, completeness or currency of the information in this service or the underlying Third Party Sources (as defined below). You assume sole responsibility and entire risk as to the suitability and results obtained from your use of the Refinitiv ESG Information.

The Refinitiv ESG Information does not amount to financial, legal or other professional advice, nor does it constitute: (a) an offer to purchase shares in the funds referred to; or (b) a recommendation relating to the sale and purchase of instruments; or (c) a recommendation to take any particular legal, compliance and/or risk management decision. Investors should remember that past performance is not a guarantee of future results.

The Refinitiv ESG Information will not be used to construct or calculate and index or a benchmark, used to create any derivative works or used for commercial purposes. Refinitiv's disclaimer in respect of Benchmark Regulations applies to the Refinitiv ESG Information.

No responsibility or liability is accepted by Refinitiv its affiliates, officers, employees or agents (whether for negligence or otherwise) in respect of the Refinitiv ESG Information, or for any inaccuracies, omissions, mistakes, delays or errors in the computation and compilation of the Refinitiv ESG Information (and Refinitiv shall not be obliged to advise any person of any error therein). For the avoidance of doubt, in no event will Refinitiv have any liability for any direct, indirect, special, punitive, consequential or any other damages (including lost profits) relating to any use of the Refinitiv ESG Information.

You agree to indemnify, defend and hold harmless Refinitiv from and against any claims, losses, damages, liabilities, costs and expenses, including, without limitation, reasonable legal and experts' fees and costs, as incurred, arising in any manner out of your use of, or inability to use, any Information contained on the Refinitiv web site or obtained via any AI powered voice assistance software.

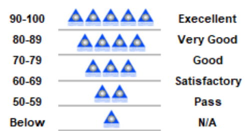
You represent to us that you are lawfully able to enter into these Terms of Use. If you are accepting these Terms of Use for and on behalf of an entity such as the company you work for, you represent to us that you have legal authority to bind that entity.

By accepting these Terms of Use you are also expressly agreeing to the following Refinitiv's website Terms of Use.

Refinitiv ESG scores are derived from third party publicly available sources ("Third Party Sources") and are formulated on the basis of Refinitiv own transparent and objectively applied methodology. Refinitiv's ESG Information methodology can be accessed here.

Score range	Description	
0 to 25	First Quartile	Scores within this range indicates poor relative ESG performance and insufficient degree of transparency in reporting material ESG data publicly.
> 25 to 50	Second Quartile	Scores within this range indicates satisfactory relative ESG performance and moderate degree of transparency in reporting material ESG data publicly.
> 50 to 75	Third Quartile	Scores within this range indicates good relative ESG performance and above average degree of transparency in reporting material ESG data publicly.
> 75 to 100	Fourth Quartile	Score within this range indicates excellent relative ESG performance and high degree of transparency in reporting material ESG data publicly.

CG Report : by Thai Institute of Directors Association (Thai IOD), Established in December 1999, the Thai IOD is a membership organization that strives to promote professionalism in directorship. The Thai IOD offers directors certification and professional development courses, provides a variety of seminars, forums and networking events, and conducts research on board governance issues and practices. Membership comprises board members from companies ranging from large publicly listed companies to small private firms.



General Disclaimers And Disclosures:

This report is prepared by analysts who are employed by the research department of TNS. While the information is from sources believed to be reliable, neither the information nor the forecasts shall be taken as a representation or warranty for which TNS or TCAP or its group companies or any of their employees incur any responsibility. This report is provided to you for informational purposes only and it is not, and is not to be construed as, an offer or an invitation to make an offer to sell or buy any securities. Neither TNS, TCAP nor its group companies accept any liability whatsoever for any direct or consequential loss arising from any use of this report or its contents.

The information and opinions contained herein have been compiled or arrived at from sources believed reliable. However, TNS, TCAP and its group companies make no representation or warranty, express or implied, as to their accuracy or completeness. Expressions of opinion herein are subject to change without notice. The use of any information, forecasts and opinions contained in this report shall be at the sole discretion and risk of the user.

TNS, TCAP and its group companies perform and seek to perform business with companies covered in this report. TNS, TCAP, its group companies, their employees and directors may have positions and financial interest in securities mentioned in this report. TNS, TCAP or its group companies may from time to time perform investment banking or other services for, or solicit investment banking or other business from, any entity mentioned in this report. Therefore, investors should be aware of conflict of interest that may affect the objectivity of this report.

Note: Thanachart Securities Public Company Limited act as a Market Maker and Derivative Warrants Issuer. At present, TNS has issued 93 Derivative Warrants which are ADVANC16C2301A, ADVANC16C2210A, ADVANC16C2211A, AMATA16C2212A, AMAT16C2209A, AOT16C2212A, AOT16C2209A, BANPU16C2212A, BANPU16C2210A, BBL16C2212A, BCH16C2211A, BH16C2212B, BH16C2212A, BGRIM16C2301A, BGRIM16C2212A, BGRI16C2209A, BLA16C2212A, BLA16C2209A, BTS16C2301A, CBG16C2301B, CBG16C2301A, CBG16C2210A, CENTEL16C2209A, COM716C2209A, COM716C2211A, COM716C2211B, COM716C2211C, CPALL16C2211A, CPN16C2301A, DTAC16C2212A, DOHOME16C2301A, EA16C2209A, EA16C2211A, ESSO16C2209A, ESSO16C2209B, FORTH16C2211A, GPSC16C2301A, GPSC16C2209A, GULF16C2301A, GULF16C2210A, GUNKUL16C2301A, GUNK16C2209A, HANA16C2301A, HANA16C2209A, HANA16C2211A, IVL16C2301A, IVL16C2212A, IVL16C2209A, IVL16C2211A, JMART16C2210A, JMART16C2211A, JMT16C2210A, JMT16C2211A, KBANK16C2301A, KBAN16C2209A, KBANK16C2211A, KCE16C2301A, KCE16C2209A, KCE16C2211A, KTC16C2211A, KTC16C2209A, MINT16C2301A, MINT16C2211A, MTC16C2301A, MTC16C2212A, MTC16C2209A, PSL16C2212A, PTG16C2211A, PTG16C2209A, PTTEP16C2212A, PTTE16C2209A, RBF16C2209A, SAWAD16C2211A, S5016C2209A, S5016P2209A, SAWA16C2209A, SCB16C2211A, SCGP16C2212A, SET5016P2212A, SET5016C2209B, SET5016C2212A, SET5016P2209B, SINGER16C2212A, SPRC16C2212A, SPRC16C2209A, STEC16C2209A, TIDLOR16C2212A, TOP16C2211A, TRUE16C2212A, TTA16C2211A, TU16C2210A, VGI16C2301A, WHA16C2209A (underlying securities are (ADVANC, AMATA, AOT, BANPU, BBL, BCH, BGRIM, BH, BLA, BTS, CBG, CENTEL, COM7, CPALL, CPN, DOHOME, DTAC, EA, ESSO, FORTH, GPSC, GULF, GUNKUL, HANA, IVL, JMART, JMT, KBANK, KCE, KTC, MINT, MTC, PSL, PTG, PTTEP, RBF, SAWAD, SCB, SET50, SCGP, SINGER, SPRC, STEC, TIDLOR, TOP, TRUE, TTA, TU, VGI, WHA). before making investment decisions.

Note: Our major shareholder TCAP (Thanachart Capital Pcl) which holding 50.96% of Thanachart Securities and also TCAP holding 100% of Thanachart SPV1 Co. Ltd. TCAP and Thanachart SPV1 Co. Ltd has stake in THANI for 60% and being the major shareholder of THANI.

Note: Thanachart Capital Public Company Limited (TCAP), TMBThanachart Bank Public Company Limited (TTB), are related companies to Thanachart Securities Public Company Limited (TNS). Thanachart Securities Pcl is a subsidiary of Thanachart Capital Pcl (TCAP) which holds 23% of the shareholding in TMBThanachart Bank Pcl.

Thanachart Capital Public Company Limited (TCAP), Ratchthani Leasing Public Company Limited (THANI), MBK PUBLIC COMPANY LIMITED (MBK) and PATUM RICE MILL AND GRANARY PUBLIC COMPANY LIMTED (PRG) are related companies to Thanachart Securities Public Company Limited (TNS) . Since TNS covers those securities in research report, consequently TNS incurs conflicts of interest.

Disclosure of Interest of Thanachart Securities

Investment Banking Relationship

Within the preceding 12 months, Thanachart Securities has lead-managed public offerings and/or secondary offerings (excluding straight bonds) of the securities of the following companies: The One Enterprise Pcl. (ONEE TB)

Recommendation Structure:

Recommendations are based on absolute upside or downside, which is the difference between the target price and the current market price. If the upside is 10% or more, the recommendation is BUY. If the downside is 10% or more, the recommendation is SELL. For stocks where the upside or downside is less than 10%, the recommendation is HOLD. Unless otherwise specified, these recommendations are set with a 12-month horizon. Thus, it is possible that future price volatility may cause a temporary mismatch between upside/downside for a stock based on the market price and the formal recommendation.

For sectors, an “Overweight” sector weighting is used when we have BUYs on majority of the stocks under our coverage by market cap. “Underweight” is used when we have SELLs on majority of the stocks we cover by market cap. “Neutral” is used when there are relatively equal weightings of BUYs and SELLs.

Thanachart Securities Pcl.

Research Team
18 Floor, MBK Tower
444 Phayathai Road, Pathumwan Road, Bangkok 10330
Tel: 662 - 779-9119
Email: thanachart.res@thanachartsec.co.th

Pimpaka Nichgaroon, CFA
Head of Research
Tel: 662-779-9199
pimpaka.nic@thanachartsec.co.th

Pattarawan Wangmingmat
Senior Technical Analyst
Tel: 662-779-9105
pattarawan.wan@thanachartsec.co.th

Phannarai Tiyapittayarut
Property, Retail
Tel: 662-779-9109
phannarai.von@thanachartsec.co.th

Sarachada Sornsong
Bank, Finance
Tel: 662-779-9106
sarachada.sor@thanachartsec.co.th

Witchanan Tambamroong
Technical Analyst
Tel: 662-779-9123
witchanan.tam@thanachartsec.co.th

Adisak Phupiphathirungul, CFA
Retail Market Strategy
Tel: 662-779-9120
adisak.phu@thanachartsec.co.th

Nuttapop Prasitsuksant
Telecom, Utilities
Tel: 662-483-8296
nuttapop.pra@thanachartsec.co.th

Rata Limsuthiwanpoom
Auto, Industrial Estate, Media, Prop. Fund
Tel: 662-483-8297
rata.lim@thanachartsec.co.th

Siriporn Arunothai
Small Cap, Healthcare, Hotel
Tel: 662-779-9113
siriporn.aru@thanachartsec.co.th

Sittichet Rungrassameephat
Analyst, Quantitative
Tel: 662-483-8303
sittichet.run@thanachartsec.co.th

Chak Reungsinpinya
Strategy, Insurance, Paper
Tel: 662-779-9104
chak.reu@thanachartsec.co.th

Pattadol Bunnak
Electronics, Food & Beverage, Shipping
Tel: 662-483-8298
pattadol.bun@thanachartsec.co.th

Saksid Phadthananarak
Construction, Transportation
Tel: 662-779-9112
saksid.pha@thanachartsec.co.th

Yupapan Polpornprasert
Energy, Petrochemical
Tel: 662-779-9110
yupapan.pol@thanachartsec.co.th

Thaloengsak Kucharoenpaisan
Analyst, Retail Market
Tel: 662-483-8304
thaloengsak.kuc@thanachartsec.co.th