Electricity Generating (EGCO TB)

Falling earnings trend

Despite having limited exposure to policy risk at home, we downgrade EGCO to SELL due to its falling earnings trend from a peaking of contributions from overseas projects and expiring adders. We cut our earnings estimates by 9-12% in 2025-27F and TP to Bt93.5/share.



Falling earnings trend; SELL

We downgrade EGCO to SELL (from Buy). *First*, we expect EGCO's earnings to fall 7% p.a. over 2025-27F after cutting our estimates by 9/10/12% in 2025-27F due to a weaker-than-expected overseas contribution and the impact of policy risk on its SPP projects. Our DCF-derived SOTP-based TP (2025F base year) falls to Bt93.5 (from Bt150). *Second*, we expect lower profit contributions from its Quezon coal power plant in the Philippines after its current contract expires in May 2025. The project is sizable to EGCO at 33% of its earnings in 9M24. *Third*, profit contributions from other overseas projects look to have peaked, while an adder subsidy for its 80MW wind farm at home is also set to expire in 2026F. *Lastly*, with no capacity growth in the pipeline to counter its falling earnings, EGCO's low 6x PE with a 6% dividend yield in 2025F is cheap for a reason, in our view.

Quezon profit to fall

One major earnings drag for EGCO is the expiry of its current power purchase agreement (PPA) for Quezon in May. Though EGCO is working on securing a new contract for the project, we expect profit from Quezon to fall from Bt3.5bn in 2024F to Bt1.5-1.6bn in 2025-26F. That is due to 1) a seven-month gap before the new contract would start in January 2026, 2) the likelihood of the new private power supply agreement (PSA) contract to offer a lower return than the current PPA with the Philippines' state power company, Meralco, and 3) the contracted volume which is likely to drop from 460MW now, to 400MW under the PSA deal.

Other headwinds

We project that the margin from EGCO's 893MW Paju gas-fired power plant in Korea will continue falling from the exceptionally high level in 2023 due to diminishing benefits from the LNG price surge against its favored long-term contracted purchase price. Meanwhile, we expect the windfall from tight supply in the US market to peak in 2025-26F, then gradually fall with faster gas power development under the Trump administration. EGCO's 27%-owned 640MW Yunlin offshore wind farm in Taiwan finally commenced operation in 4Q24 after three years of delays, but we expect a minimal profit contribution as the return is offset by hefty debt incurred to compensate for the project's cost overrun.

Lower policy risk than peers

EGCO's capacity breakdown is 56% overseas, 35% IPPs, 6% SPPs, and 3% domestic renewables. EGCO has low SPP exposure, which we see as the easiest policy risk victim. In our view, the risk to IPPs of adjusting the contracts is likely the most difficult task for the government, followed by renewables. We thus only factor in impacts from policy risk to its SPP plants and apply higher discount rates to IPP and renewable projects.

COMPANY VALUATION

(From: Bt 150.00)

Y/E Dec (Bt m)	2023A	2024F	2025F	2026F
Sales	49,627	46,325	37,337	36,264
Net profit	(8,384)	9,978	8,864	8,826
Consensus NP	_	7,717	8,630	8,867
Diff frm cons (%)	_	29.3	2.7	(0.5)
Norm profit	10,098	9,978	8,864	8,826
Prev. Norm profit	_	9,955	9,670	9,762
Chg frm prev (%)	_	0.2	(8.3)	(9.6)
Norm EPS (Bt)	19.2	19.0	16.8	16.8
Norm EPS grw (%)	(20.3)	(1.2)	(11.2)	(0.4)
Norm PE (x)	5.4	5.5	6.2	6.2
EV/EBITDA (x)	16.4	18.1	20.3	19.1
P/BV (x)	0.5	0.5	0.5	0.4
Div yield (%)	6.3	6.3	6.3	6.3
ROE (%)	9.0	9.2	7.8	7.4
Net D/E (%)	76.0	81.1	63.6	54.3

PRICE PERFORMANCE



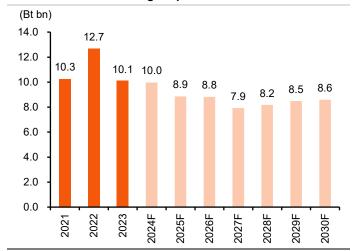
COMPANY INFORMATION

Price as of 04-Feb-25 (Bt)	104.00
Market Cap (US\$ m)	1,618.6
Listed Shares (m shares)	526.5
Free Float (%)	50.0
Avg Daily Turnover (US\$ m)	2.9
12M Price H/L (Bt)	133.50/96.00
Sector	Utilities
Major Shareholder	EGAT 25.41%

Sources: Bloomberg, Company data, Thanachart estimates

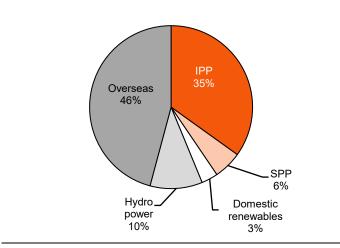
ESG Summary Report P41

Ex 1: Near-Term Earnings Dip



Sources: Company data, Thanachart estimates

Ex 2: Well Diversified Portfolio, In Our View



Sources: Company data, Thanachart estimates

Ex 3: 12-month SOTP-derived DCF-based TP Calculation Using A Base Year Of 2025F

Projects	Valuation method	WACC	Value
			(Bt/share)
TH Conventional - IPP			51.3
- BLCP	DCF	0.0%	10.7
- GPG	DCF	8.9%	16.4
- KEGCO	DCF	5.3%	24.2
TH Conventional - SPP			7.7
- EGCO Cogen	DCF	7.3%	0.1
- BPU	DCF	7.3%	5.7
- KLU	DCF	7.3%	1.9
TH Renewables			16.5
- Roi-et Green	DCF	4.6%	0.1
- GYG	DCF	4.6%	0.8
- NED	DCF	4.9%	2.4
- SPP 2-5	DCF	4.6%	1.2
- GPS	DCF	7.2%	2.0
- Solarco	DCF	4.3%	4.6
- CWF	DCF	4.8%	4.3
- TWF	DCF	5.1%	1.2
Overseas power plants			149.1
- Laos Hydro	DCF	5.5%	38.9
- Australia Wind	DCF	6.3%	7.8
- Philippines Coal	DCF	9.4%	21.3
- Korea Gas	DCF	0.0%	50.1
- Taiwan Wind	DCF	6.8%	0.2
- US Gas	DCF	5.9%	30.8
Subtotal - existing projects			224.7
Other businesses & net debts			(131.2)
Grand total			93.5

Sources: Company data, Thanachart estimates

COMPANY DESCRIPTION

Electricity Generating Pcl (EGCO) operates and invests in power plants globally with diversified fuel types, i.e., natural gas, coal, solar, wind, and hydropower. Its total equity-owned power capacity stands at 7.0GW as of 2Q24, with targeted capacity growth of 1.0GW per year. EGCO is also providing operation and maintenance (O&M) and engineering construction services to power and oil & gas industries. The company is also setting up energy technology businesses with one of its major shareholders, the Electricity Generating Authority of Thailand (EGAT), to enhance the country's electricity grid efficiency.

Source: Thanachart

THANACHART'S SWOT ANALYSIS

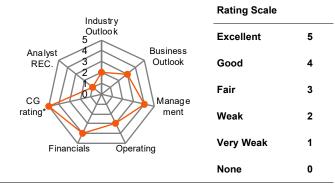
S — Strength

- Operationally defensive. Predetermined tariffs over power plants' lives in PPAs generate fixed revenues and returns.
- Access to cheap financing sources due to low business risk and trustworthy and well-known shareholders.

Opportunity

- Large power-expansion projects in Asian countries, both conventional and renewable power capacities.
- Diversification opportunities for LNG imports in ASEAN.

COMPANY RATING



Source: Thanachart; *CG Rating

W — Weakness

- Increased competition from new power plants may affect dispatched capacities and increase O&M costs.
- Lower tariffs from new projects given the global trend.
- Slow decision making process with a state-owned enterprise being one of its major shareholders.

T — Threat

 Regulatory risks and stricter environmental requirements, especially increased expansion overseas.

CONSENSUS COMPARISON

	Consensus	Thanachart	Diff
Target price (Bt)	130.14	93.50	-28%
Net profit 24F (Bt m)	7,717	9,978	29%
Net profit 25F (Bt m)	8,630	8,864	3%
Consensus REC	BUY: 6	HOLD: 3	SELL: 2

HOW ARE WE DIFFERENT FROM THE STREET?

- Our 29% higher 2024F earnings estimate than the Bloomberg consensus number is likely since we assume higher output from its hydropower project and an earlier COD of the Yunlin project this year. Our 2025F number is in line with the Street.
- We believe our 28% lower TP is due to us being earlier in factoring domestic policy risks into our valuation.

RISKS TO OUR INVESTMENT CASE

- Stronger-than-expected electricity demand in the countries where EGCO's major power plants are located, i.e., the US, the Philippines, and South Korea, and thus better profitability from the plants, is a key upside risk to our numbers.
- Lower-than-expected natural gas prices in South Korea and the US would improve the profitability of EGCO's power plants in those countries, thus offering potential upside to our earnings forecasts.
- A faster-than-expected fall in global interest rates would be an upside positive for EGCO's earnings and the attractiveness of the stock.

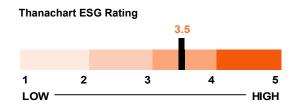
Sources: Bloomberg consensus, Thanachart estimates

Source: Thanachart

Electricity Generating Pcl.

Sector: Resources | Energy & Utilities

EGCO is a power plant operator with a total of 7.0GW of committed capacity as of 2Q24, of which 62% is gas-based, 20% coal, and 18% renewables. Only 46% of the capacity is domestic projects, while another 54% is abroad (Laos, Philippines, Korea, US, etc.). We assign an ESG score of 3.5 to reflect its clear environmental and social targets with a strong commitment to adopt more innovative energy technologies to reduce emissions from its legacy coal-fired power plants.



							S&P		
	SET ESG	SET ESG	DJSI	MSCI	ESG Book	Refinitiv	Global	Moody's	CG Rating
	Index	(BBB-AAA)	Index	(CCC-AAA)	(0-100)	(0-100)	(0-100)	(0-100)	(0-5)
EGCO	YES	-	YES	ВВ	61.15	64.68	85.00	-	5.0

Sources: SETTRADE, SET ESG Index, SET ESG Rating, The Dow Jones Industrial Average (DJSI), MSCI ESG Research LLC, ESG Book, Refinitiv ESG Information, S&P Global Market Intelligence, Moody's ESG Solutions, Thai IOD (CG rating) Note: Please see third party on "terms of use" toward the back of this report.

Factors

Our Comments

ENVIRONMENT

- Environmental Policies & Guidelines
- Energy Management
- Carbon Management
- Water Management
- Waste Management
- EGCO has set clear targets for environmental aspects. It aims to have 30% of its power generated from renewable energy (18% as of 2022) by 2030, which should reduce its carbon emission intensity by 10% from the 2022 baseline. Long term, it aims to achieve carbon neutrality by 2050 and net-zero carbon emissions by 2065.
- EGCO implements the "3Rs" principle (reduce, reuse, and recycle) to preserve water supplies for its own operations and prevent unfavorable impacts on the surrounding environment. These same procedures extend to its fuel-management approach to ensure sufficient fuel supplies for its electricity generation.

SOCIAL

- Human Rights
- Staff Management
- Health & Safety
- Product Safety & Quality
- Social Responsibility
- EGCO is committed to the UN Guiding Principles (UNGP) on human rights to protect its employees from discrimination and harassment, especially child labor and human trafficking. The policies extend to its suppliers and all stakeholders.
- EGCO has formed a solid long-term target for its employee management scheme. To ensure operational sustainability, it plans a 100% employee succession program. It also aims to add more female employees to make up 30% of its total staff by 2025.
- EGCO is 25% owned by the state-owned enterprise Electricity Generating Authority of Thailand (EGAT). Thus, EGCO works closely with its parent to minimize the effects of its operations on the community. It has set up initiatives to support local employment, develop skills, educate children in the community, and improve the quality of life of local residents.

GOVERNANCE & SUSTAINABILITY

- Board
- Ethics & Transparency
- Business Sustainability
- Risk Management
- Innovation

- EGCO's board of directors comprises 15 members, which looks too large in our view. Moreover, most of them are representatives from its major shareholders, leaving room for only six independent directors.
- EGCO communicates its investment plans clearly to the public. However, it is difficult to track each project's performance closely from its financial report as most of them use offbalance sheet accounting.
- We like EGCO's well-diversified power generation portfolio in terms of fuel type and generating technology and its geographical diversification across developed and developing countries.
- We also like its initiative to leverage its healthy balance sheet and resilient cash flow from operating power plants to invest in innovative energy solutions technology for its long-term business sustainability. It is now strongly committed to introducing hydrogen fuel into the power generation industry to help cut Thailand's carbon emissions.

Sources: Company data, Thanachart

INCOME STATEMENT

BALANCE SHEET

FY ending Dec (Bt m)	2022A	2023A	2024F	2025F	2026F
Sales	59,632	49,627	46,325	37,337	36,264
Cost of sales	50,512	40,916	38,465	31,530	30,545
Gross profit	9,120	8,711	7,860	5,807	5,719
% gross margin	15.3%	17.6%	17.0%	15.6%	15.8%
Selling & administration expenses	2,754	3,537	2,922	2,541	2,466
Operating profit	6,366	5,174	4,938	3,266	3,253
% operating margin	10.7%	10.4%	10.7%	8.7%	9.0%
Depreciation & amortization	3,285	3,040	3,114	3,114	3,115
EBITDA	9,651	8,213	8,052	6,381	6,368
% EBITDA margin	16.2%	16.5%	17.4%	17.1%	17.6%
Non-operating income	2,093	3,657	1,422	1,476	1,531
Non-operating expenses	0	0	0	0	0
Interest expense	(4,019)	(4,829)	(6,163)	(5,679)	(5,613)
Pre-tax profit	4,440	4,001	197	(937)	(829)
Income tax	1,120	1,029	49	0	0
After-tax profit	3,320	2,972	147	(937)	(829)
% net margin	5.6%	6.0%	0.3%	-2.5%	-2.3%
Shares in affiliates' Earnings	9,300	7,123	9,841	9,809	9,663
Minority interests	57	2	(10)	(8)	(8)
Extraordinary items	(9,994)	(18,482)	0	0	0
NET PROFIT	2,683	(8,384)	9,978	8,864	8,826
Normalized profit	12,677	10,098	9,978	8,864	8,826
EPS (Bt)	5.1	(15.9)	19.0	16.8	16.8
Normalized EPS (Bt)	24.1	19.2	19.0	16.8	16.8

Slight earnings correction ahead

EGCO may need to gear up its balance sheet for

faster investments

FY ending Dec (Bt m)	2022A	2023A	2024F	2025F	2026F
ASSETS:					
Current assets:	61,649	54,710	64,846	68,272	73,231
Cash & cash equivalent	43,645	40,608	46,746	51,746	56,746
Account receivables	10,123	6,523	6,089	4,908	4,767
Inventories	4,180	4,150	3,162	2,592	2,511
Others	3,701	3,429	8,850	9,027	9,208
Investments & loans	113,899	115,835	127,835	120,835	120,835
Net fixed assets	48,160	46,936	47,325	44,713	42,102
Other assets	30,335	25,751	26,471	26,693	26,919
Total assets	254,043	243,233	266,477	260,514	263,087
LIABILITIES:					
Current liabilities:	31,373	22,873	35,925	33,150	32,547
Account payables	6,322	4,115	3,688	3,023	2,929
Bank overdraft & ST loans	56	0	0	0	0
Current LT debt	20,528	14,096	27,484	25,273	24,662
Others current liabilities	4,467	4,662	4,753	4,854	4,956
Total LT debt	94,026	106,465	109,937	101,093	98,647
Others LT liabilities	7,847	8,669	8,823	9,029	9,239
Total liabilities	133,246	138,007	154,685	143,272	140,433
Minority interest	303	299	309	317	325
Preferreds shares	0	0	0	0	0
Paid-up capital	5,265	5,265	5,265	5,265	5,265
Share premium	8,601	8,601	8,601	8,601	8,601
Warrants	0	0	0	0	0
Surplus	4,038	277	277	277	277
Retained earnings	102,590	90,784	97,341	102,783	108,186
Shareholders' equity	120,494	104,927	111,483	116,925	122,329
Liabilities & equity	254,043	243,233	266,477	260,514	263,087
Sources: Company data. Thanachart est	imatee				

Sources: Company data, Thanachart estimates

CASH FLOW STATEMENT

2023A 2024F 2025F 2026F FY ending Dec (Bt m) 2022A Earnings before tax 4,440 4,001 197 (937)(829)(1,029)(1,120)(49)Tax paid 0 0 3,285 3,040 3,114 3,114 3,115 Depreciation & amortization (2,355)1,423 996 1,086 128 Chg In working capital 7,388 4,835 9,760 9,613 Chg In other CA & CL / minorities 15,660 Cash flow from operations 19,910 14,823 9,092 13,024 12,026 (1,847)(1,816)(3,500)(500)(500)Capex Right of use 40 29 (50)(50)(50)154 (28)1,779 (325)(27)ST loans & investments 10,563 (1,937)(12,000)7,000 LT loans & investments 0 0 Adj for asset revaluation 0 0 0 0 (11,866)31 30 (12,457)(519)Chg In other assets & liabilities (1,922)Cash flow from investments (15,435)(16,393)6,454 (547)Debt financing 3,390 4,757 16,861 (11,056)(3,056)Capital increase Dividends paid (3,422)(3,424)(3,422)(3,422)(3,422)(3,760)Warrants & other surplus 7,793 7,760 (2,426)13,439 Cash flow from financing (14,478)(6,478)18,062 13,008 5,592 12,524 11,526 Free cash flow

Higher capex budget likely limits potential for dividend hikes

VALUATION

FY ending Dec	2022A	2023A	2024F	2025F	2026F
Normalized PE(x)	4.3	5.4	5.5	6.2	6.2
Normalized PE - at target price (x)	3.9	4.9	4.9	5.6	5.6
PE(x)	20.4	na	5.5	6.2	6.2
PE - at target price (x)	18.3	na	4.9	5.6	5.6
EV/EBITDA (x)	13.0	16.4	18.1	20.3	19.1
EV/EBITDA - at target price (x)	12.5	15.7	17.4	19.4	18.2
P/BV (x)	0.5	0.5	0.5	0.5	0.4
P/BV - at target price (x)	0.4	0.5	0.4	0.4	0.4
P/CFO (x)	2.8	3.7	6.0	4.2	4.6
Price/sales (x)	0.9	1.1	1.2	1.5	1.5
Dividend yield (%)	6.3	6.3	6.3	6.3	6.3
FCF Yield (%)	33.0	23.8	10.2	22.9	21.1
(Bt)					
Normalized EPS	24.1	19.2	19.0	16.8	16.8
EPS	5.1	(15.9)	19.0	16.8	16.8
DPS	6.5	6.5	6.5	6.5	6.5
BV/share	228.9	199.3	211.8	222.1	232.4
CFO/share	37.8	28.2	17.3	24.7	22.8
FCF/share	34.3	24.7	10.6	23.8	21.9

Prolonged high interest rates make its 6% dividend yield less attractive to us

Sources: Company data, Thanachart estimates

FINANCIAL RATIOS

FINANCIAL RATIOS					
FY ending Dec	2022A	2023A	2024F	2025F	2026F
Growth Rate					
Sales (%)	66.1	(16.8)	(6.7)	(19.4)	(2.9)
Net profit (%)	(34.6)	na	na	(11.2)	(0.4)
EPS (%)	(34.6)	na	na	(11.2)	(0.4)
Normalized profit (%)	23.6	(20.3)	(1.2)	(11.2)	(0.4)
Normalized EPS (%)	23.6	(20.3)	(1.2)	(11.2)	(0.4)
Dividend payout ratio (%)	127.5	(40.8)	34.3	38.6	38.8
Operating performance					
Gross margin (%)	15.3	17.6	17.0	15.6	15.8
Operating margin (%)	10.7	10.4	10.7	8.7	9.0
EBITDA margin (%)	16.2	16.5	17.4	17.1	17.6
Net margin (%)	5.6	6.0	0.3	(2.5)	(2.3)
D/E (incl. minor) (x)	0.9	1.1	1.2	1.1	1.0
Net D/E (incl. minor) (x)	0.6	0.8	0.8	0.6	0.5
Interest coverage - EBIT (x)	1.6	1.1	0.8	0.6	0.6
Interest coverage - EBITDA (x)	2.4	1.7	1.3	1.1	1.1
ROA - using norm profit (%)	5.1	4.1	3.9	3.4	3.4
ROE - using norm profit (%)	10.8	9.0	9.2	7.8	7.4
DuPont					
ROE - using after tax profit (%)	2.8	2.6	0.1	na	na
- asset turnover (x)	0.2	0.2	0.2	0.1	0.1
- operating margin (%)	14.2	17.8	13.7	na	na
- leverage (x)	2.1	2.2	2.4	2.3	2.2
- interest burden (%)	52.5	45.3	3.1	(19.8)	(17.3)
- tax burden (%)	74.8	74.3	75.0	na	na
WACC(%)	7.8	7.8	7.8	7.8	7.8
ROIC (%)	2.3	2.0	2.0	1.2	1.3
NOPAT (Bt m)	4,760	3,843	3,703	2,450	2,440
invested capital (Bt m)	191,458	184,879	202,159	191,545	188,892

ROE falling below the sector average

Sources: Company data, Thanachart estimates

ESG Information - Third Party Terms

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. ESG Book (0-100)
- 3. Refinitiv (0-100)
- 4. S&P Global (0-100) 5. Moody's ESG Solutions (0-100)
- 6. SET ÉSG Rating (BBB-AAA)

SETESG Index (SETESG)

The SETESG Index reflects the price movement of stock of companies that have sustainable business practices which consider environmental, social and governance (ESG) aspect

SET Index, SET50 Index, SET100 Index and all indices calculated by the Stock Exchange of Thailand ("SET") (collectively called "SET Index Series") are the registered trademarks/service marks solely owned by, and proprietary to SET. Any unauthorized use of SET Index Series is strictly prohibited. All information provided is for information purposes only and no warranty is made as to its fitness for purpose, satisfactory quality or otherwise. Every effort has been made to ensure that all information given is accurate, but no responsibility or liability (including in negligence) can be accepted by SET for errors or omissions or for any losses arising from the use of this information.

SET ESG Index (SET ESG)

Currently, long-term investment guidelines abroad are beginning to focus on investing in companies that have sustainable business practices. which considers environmental, social and governance factors (Environmental, Social and Governance or ESG) of the company in making investment decisions along with analyzing the company's financial data.

Stock Exchange Has prepared the results of evaluating sustainable stocks which are stocks of listed companies (SETESG Rating) as an alternative for investors who want to invest in stocks of listed companies that are outstanding in ESG, including to support listed companies with operations, sustainable business Taking into account all stakeholders in both social and environmental aspects. There is a management process to create sustainability for the organization, such as risk management. Supply chain management and innovation development. Therefore, the SETESG index was created to be an index that reflects the price movement of a group of securities. of companies with sustainable business operations that meet the required size and liquidity criteria

ESG Book's Disclaimer

ESG Book's Disclaimer

Arabesque S-Ray GmbH, also trading as "ESG Book", is a limited liability company (Gesellschaft mit beschränkter Haftung) incorporated in Frankfurt am Main and organised 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 (hereinafter "ESG Book"). ESG Book with its UK branch and local subsidiaries, is a provider of sustainability data and advisory services and operates the sustainability data platform ESG Book. ESG Book does not offer any regulated financial services nor products. This document is provided on a confidential basis by ESG Book and is for information purposes only; accordingly, it is not a solicitation or an offer to buy any security or instrument or to participate in any trading activities nor should it be construed as a recommendation or advice on the merits of investing in any financial product. THIRD PARTY INFORMATION. Certain information contained in this document has been obtained from sources outside ESG Book. While such information is believed to be reliable for the purposes used herein, no representations are made as to the accuracy or completeness thereof and neither ESG Book nor its affiliates take any responsibility for such information. To the extent this document contains any links to third party websites, such links are provided as a convenience and for information and purposes only; they do not constitute an endorsement or a paperoval by ESG Book of any of the products services or opinizations of the comporations of the comporations. information purposes only; they do not constitute an endorsement or an approval by ESG Book of any of the products, services or opinions of the corporations or organization or individual operating such third party websites. ESG Book bears no responsibility for the accuracy, legality or content of the external site or for that of subsequent links. RELIANCE – ESG Book 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. CONFIDENTIALITY. This document contains highly confidential information regarding ESG Book's strategy and organization. Your acceptance of this document constitutes your agreement to keep confidential all the information contained in this document, as well as any information derived by you from the information contained in this document and not disclose any such information to any other person. This document may not be copied, reproduced, in any way used or disclosed or transmitted, in whole or in part, to any other person.

MSCI ESG Research LLC

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 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

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 as action or appropriate an investment that is part of the Content. 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 ARE 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 AND PUBLICATIONS OR 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

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 ("MOO") hereby discloses that most issuers of debt securities (including corporate).

NO WARKANTY, EXPRESS OR IMPLIED, AS TO THE ACCURACY, TIMELINESS, COMPLETENESS, MERCHANT ABILITY 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 and nave 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 Investor 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 will directly or indirectly disseminate this document is intended to be provided only to "wholesale 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 rat

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.

These Terms of Use govern your access or use of the ESG information and materials on the Refinitiv website and any Al powered voice assistance software ("Refinitiv ESG Information"). 2020© Refinitiv. All rights reserved. Refinitiv ESG Information is proprietary to Refinitiv Limited and/or its affiliates ("Refinitiv").

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

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. 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 Al 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 and issued by Thanachart Securities Public Company Limited (TNS) as a resource only for clients of TNS, Thanachart Capital Public Company Limited (TCAP) and its group companies. Copyright © Thanachart Securities Public Company Limited. All rights reserved. The report may not be reproduced in whole or in part or delivered to other persons without our written consent.

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 Derivative Warrants underlying securities before making investment decisions.

Note: Thanachart Capital PcI (TCAP) holds an 89.96% of Thanachart Securities (TNS). TCAP holds a 100% of Thanachart SPV1 Co. Ltd. TCAP and Thanachart SPV1 combinedly hold a 60% stake in 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 24.35% of the shareholding in TMBThanachart Bank Pcl.

Note: 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 LIMITED (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.

Note: Thanachart Securities Public Company Limited (TNS) acts as an underwriter of "Debentures of MUANGTHAI CAPITAL PUBLIC COMPANY LIMITED No. 1/2025 (B.E. 2568) tranche 1-3 which its maturity at 2028, 2030, 2032 (B.E. 2571, 2573, 2575)", therefore investors need to be aware that there could be conflicts of interest in this research.

Note: Thanachart Securities Public Company Limited (TNS) acts as an underwriter of "Debentures of SRISAWAD CAPITAL 1969 PUBLIC COMPANY LIMITED No. 1/2025 (B.E. 2568) tranche 1-3 which its maturity at 2027-2029 (B.E. 2570-2572)", therefore investors need to be aware that there could be conflicts of interest in this research.

Note: Thanachart Securities Public Company Limited (TNS) acts as an underwriter of "Debentures of GULF ENERGY DEVELOPMENT PUBLIC COMPANY LIMITED No. 1/2025 (B.E. 2568) tranche 1 which its maturity at 2028 (B.E. 2571)", therefore investors need to be aware that there could be conflicts of interest in this research.

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:

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, Strategy pimpaka.nic@thanachartsec.co.th

Nuttapop Prasitsuksant

Telecom, Utilities nuttapop.pra@thanachartsec.co.th

Rata Limsuthiwanpoom

Auto, Industrial Estate, Media, Prop. Fund rata.lim@thanachartsec.co.th

Siriporn Arunothai

Small Cap, Healthcare, Hotel siriporn.aru@thanachartsec.co.th

Sittichet Rungrassameephat

Analyst, Retail Market Strategy sittichet.run@thanachartsec.co.th

Adisak Phupiphathirungul, CFA

Retail Market Strategy adisak.phu@thanachartsec.co.th

Pattadol Bunnak

Electronics, Food & Beverage, Shipping pattadol.bun@thanachartsec.co.th

Saksid Phadthananarak

Construction, Transportation saksid.pha@thanachartsec.co.th

Yupapan Polpornprasert

Energy, Petrochemical yupapan.pol@thanachartsec.co.th

Thaloengsak Kucharoenpaisan

Analyst, Retail Market Strategy thaloengsak.kuc@thanachartsec.co.th

Pattarawan Wangmingmat

Senior Technical Analyst pattarawan.wan@thanachartsec.co.th

Phannarai Tiyapittayarut

Property, Retail phannarai.von@thanachartsec.co.th

Sarachada Sornsong

Bank, Finance sarachada.sor@thanachartsec.co.th

Witchanan Tambamroong

Technical Analyst witchanan.tam@thanachartsec.co.th

Nariporn Klangpremchitt, CISA

Analyst, Retail Market Strategy nariporn.kla@thanachartsec.co.th