

# Utilities

SET ENER index      SET ENER index      Close: 2/10/2024      19,546.72      -181.38 / -0.92%  
 Bloomberg ticker:      SETENERG



## Several positive catalysts coming

We see several upcoming catalysts: 1) the bid for Phase 2 of renewable energy of 3,668MW, 2) the PDP 2024 that will add more green power capacity, 3) the downtrend in global interest rates and bond yield that will lower interest cost, 4) an expected FX gain after the appreciation of the baht against the USD in 3Q24 and 5) potentially lower market LNG price in the medium to long term that will improve SPP margins. We maintain our positive view on the sector and GULF as our top sector pick; we upgrade our recommendation on GPSC to Outperform from Neutral; BGRIM stays Neutral.

**Soon-coming Phase 2 of renewable energy bids.** The Energy Regulatory Commission (ERC) has officially announced the first round of bids for Phase 2 of the renewable energy program, with feed-in tariff (FiT) purchases for wind power capped at 600MW and ground-mounted solar power at 1,580MW for a total of 2,180MW. It will prioritize the first-round bidders (198 bids) that met criteria but were not selected. The ERC has not yet confirmed the details for the remaining 1,488MW open for general bidding.

**Expect the new PDP2024 to finalize in early 2025.** The Energy Policy and Planning Office (EPPO) held a public hearing in June for the draft of the new power development plan (PDP) for 2024-2037. Key details: 1) CAGR for 2024-2037 electricity demand is projected at 3.5%, driven by rising demand for electric vehicles (EVs), high-speed trains and green data center projects. 2) EPPO plans to prioritize renewable energy sources to where this accounts for 51% of total electricity generation by 2037. To achieve this, it will add capacity of 24.4GW to the country's solar capacity, 5.3GW to wind, 1,046MW to biomass and 936MW to biogas. We expect the new PDP 2024 to approved by Cabinet in early 2025. Phase 2 of the renewable energy plan and PDP 2024 are expected to benefit the Thai utilities sector in the medium to long term, with a focus on power capacity additions within Thailand, where risks are generally lower, returns are fair, and close monitoring is easier than for overseas projects.

**Benefits from downtrend in global interest rate cycle and appreciation of the baht.** Given the sector's capital-intensive nature that necessitates a high proportion of debt funding, a step down in interest rates will benefit. Our sensitivity analysis suggests that each half point decline in interest rates will raise earnings for GPSC by 4.8%, BGRIM by 3.2% and GULF by 0.5%. As some of the funding is in USD-denominated loans, the appreciation of the baht against the USD is also good for the sector: GULF has a USD loan portion of 41%, BGRIM 21%, and GPSC <5%. Our sensitivity analysis suggests that each Bt0.5/USD appreciation per year will lift 2025F net profit by 8.5% for BGRIM, 1.4% for GULF and 2.9% for GPSC.

**Good 2H24 earnings.** The downward movement in interest rate and boost to sector earnings from FX gains will benefit BGRIM the most, followed by GPSC and GULF. In terms of core operating profit, we expect GULF to report record-high earnings in 2H24 due to addition of GPD unit 4. GPSC earnings will grow after the COD of its CXFD offshore wind farm and better earnings contribution from the AVAADA group. We expect a dip in BGRIM from higher gas cost with some partial offset by capacity additions.

**Positive on the sector: Top pick is still GULF, GPSC raised to Outperform.** We maintain our 3-month tactical Outperform rating on **GULF**, raising our mid-2025 DCF-based target price to Bt70.0/share from Bt63/share (WACC at 4.7%, long-term growth at 1.5%), on its potential to win a project in the upcoming bidding for both Phase 2 of the renewable energy scheme and PDP 2024, which is expected to be finalized next year. We expect its earnings to be strong in 2H24 upon the full-quarter recognition of revenue from the new GPD and HKP projects, as well as the planned COD of its solar, solar + battery energy storage system (BESS) and solar rooftop projects that will add 605MW in 2H24. We upgrade our recommendation for **GPSC** to Outperform from Neutral, as the onset of a cyclic interest rate downtrend will be very positive given the 35% of its debt that carries a floating interest rate. The potential for lower market LNG prices and its low net debt/equity ratio will allow medium- to long-term growth investment. We expect 3Q24 core earnings to grow slightly QoQ on better contribution from AVAADA, the full COD of the CXFD offshore wind farm and better contribution from Xayaburi hydropower. For **BGRIM**, although we expect it to benefit from the appreciation of the baht in the short term, core profit will soften due to potentially higher gas costs, with LNG price currently high.

**Key risks:** Higher than expected gas cost. Key ESG risks are the environmental impact from exposure to fossil fuels, energy management, high greenhouse gas emission and nearby community impact.

### Valuation summary

|         | Rating     | Price (Bt) | TP (Bt) | ETR (%) | P/E (x) 24F | P/E (x) 25F | P/BV (x) 24F | P/BV (x) 25F |
|---------|------------|------------|---------|---------|-------------|-------------|--------------|--------------|
| BGRIM   | Neutral    | 23.8       | 24.5    | 4.5     | 29.7        | 25.7        | 1.6          | 1.5          |
| GPSC    | Outperform | 48.0       | 60.0    | 26.7    | 29.6        | 25.4        | 1.2          | 1.2          |
| GULF    | Outperform | 56.5       | 70.0    | 25.7    | 33.1        | 26.5        | 5.3          | 4.8          |
| Average |            |            |         |         | <b>30.8</b> | <b>25.9</b> | <b>2.7</b>   | <b>2.5</b>   |

Source: InnovestX Research

### Price performance

| (%)   | Absolute |      |        | Relative to SET |       |        |
|-------|----------|------|--------|-----------------|-------|--------|
|       | 1M       | 3M   | 12M    | 1M              | 3M    | 12M    |
| BGRIM | 15.0     | 11.7 | (11.0) | 8.1             | (0.3) | (11.3) |
| GPSC  | 13.6     | 22.3 | 11.0   | 6.8             | 9.1   | 10.7   |
| GULF  | 11.3     | 40.4 | 27.7   | 4.7             | 25.2  | 27.3   |

Source: SET, InnovestX Research

### Analyst

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**Several catalysts for the Thai utilities sector.** 1) Phase 2 of the renewable energy scheme, which will bring capacity growth. 2) The finalization of the new PDP 2024 by end-2024, which will also bolster domestic capacity growth. 3) Lower interest costs for the sector from the start of the cyclic downtrend in global interest rates and in bond yields. 4) FX gain from the appreciation of the baht against the USD in 3Q24. 5) Possible lower market LNG prices in the medium to long term that will help improve SPP margins in the future.

**Phase 2 of renewable energy bids.** On September 27, the ERC officially announced the first round of bidding for Phase 2 renewable energy for feed-in tariff (FiT) purchases. Wind power is capped at 600MW and ground-mounted solar power at 1,580MW, for a total of 2,180MW. This round will prioritize bidders in the first phase (5.2GW) who met the criteria but were not selected (198 bids).

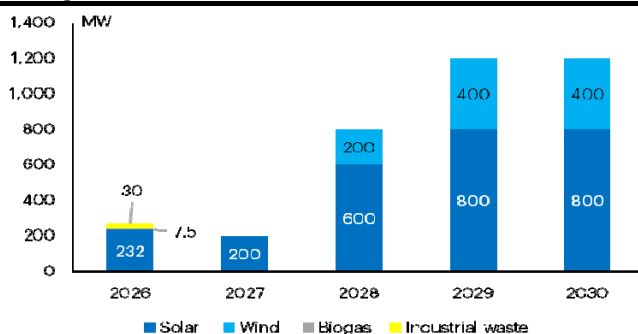
**Timeline for the purchase of electricity:** The ERC has set the following timeframe: EGAT will specify the details, procedures, location, duration and other relevant conditions for the purchase of electricity on October 8, 2024, after which bidders have 30 days to submit their applications along with a bid bond; EGAT then has seven days to announce the list of applicants. The ERC office will announce the list of selected applicants within 30 days of EGAT's announcement. EGAT will notify those selected and obtain their acceptance of the terms and conditions for the Power Purchase Agreement (PPA) within 14 days of the ERC's announcement. Those selected must sign the PPA in line with the SCOD specified in the PPA: within 180 days if the SCOD is scheduled within 2024 or within two years if the SCOD is scheduled for 2027-2030.

**Preliminary Conditions:** EGAT will purchase wind and solar farm electricity under a 25-year Non-Firm PPA from Small Power Producers (SPP) or Very Small Power Producers (VSPP) based on the capacity of the power grid. VSPPs can submit their applications to the PEA, with SPPs submitting applications to EGAT. The purchase rate for wind power is Bt3.1014 per unit, with Bt2.1679 per unit for solar farm power. The ERC has not yet detailed the remaining 1,488MW that will be opened for general bidding.

Our channel check shows GULF has some projects that were not selected in the first phase, but not many. BGRIM has 500-600MW (44.9% stake) in projects that were not selected for the first phase and GPSC has ~300MW ready to resubmit. We expect Phase 2 of the renewable scheme to benefit the Thai utilities sector in the medium to long term. The new plan focuses on power capacity additions within Thailand, where risks are generally lower, returns are fair and monitoring is closer than for overseas projects. We expect the second phase of FiT purchases to be similar to the first round in 2023, with FiT fixed at Bt2.1679/kWh for solar farms and Bt3.1014/kWh for wind power plants. We estimate the investment cost at Bt25mn per MW for solar farm projects and Bt60mn per MW for wind farm projects. This gives an estimated equity internal rate of return (EIRR) for solar projects of 10% and 9.5% for wind farm projects. At the same time, each company has variable factors such as the cost of debt, operational cost management and procurement/supplies related to building a power plant, which will affect the EIRR of each project.

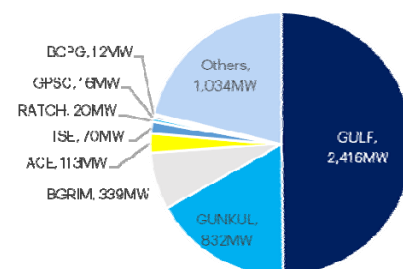
In Phase 1 bidding for 5.2GW in renewable energy in 2023, GULF was awarded projects under a FiT scheme and signed PPAs to develop 2.4GW: 870MW in solar farms, 1,526MW in solar farms with battery energy storage systems (BESS), and 20MW in industrial waste-to-energy projects in Thailand. GUNKUL was awarded 832.4MWe: 568.8MW solar, 83.6MW solar + BESS, and 180MW wind and BGRIM got 161.3MWe: 145.3MWe solar and 16MWe wind.

**Figure 1: SCOD schedule for Phase 2 of renewable energy bidding**



Source: ERC and InnovestX Research

**Figure 2: Breakdown of Phase 1 renewable energy bidding winners by awarded MW**

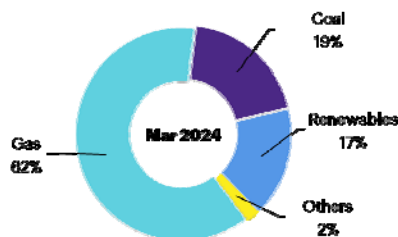


Source: ERC, company data, Manager.com and InnovestX Research

**Expect finalization of the new PDP 2024 by early 2025.** EPPO held a public hearing June 12-19 on the draft new PDP for 2024-2037. Main details: 1) Electricity demand forecast: a CAGR of 3.5% is projected for electricity demand over 2024-2037, on average GDP growth of 3.1%, rising demand for electric vehicles (EVs), high-speed trains, and green data center projects. 2) Electricity supply focus: EPPO plans to prioritize renewable energy sources, aiming for them to account for 51% of total electricity generation by 2037. To do this it will add 24.4GW to the country's solar capacity, 5.3GW to wind, 1,046MW to biomass and 936MW to biogas, among others. EPPO also intends to increase the proportion of hydropower imported from neighbors, particularly Laos, to 15% of total electricity generation in 2037, from 9%. To promote clean/green energy and address declining gas supplies and reserve depletion in the Gulf of Thailand, EPPO also plans to reduce the reliance on gas-fired power plants, expecting their share to decrease from 53% to 41% by 2037. 3) Electricity tariff cap: EPPO hopes to cap the electricity tariff at no more than Bt4 per kWh. The average electricity price forecast for the new PDP 2024 is ~Bt3.8704 per unit over 2024-2037, which is lower than the Bt3.9479 per unit projected in PDP 2018 Rev.1. 4) Loss of Load Expectation (LOLE) criteria: For reliability purposes, the new PDP 2024 uses the LOLE criteria instead of the previous reserve margin criteria. LOLE should not exceed 0.7 days per year, or in other words, a maximum of 17 hours out of 8,760 hours.

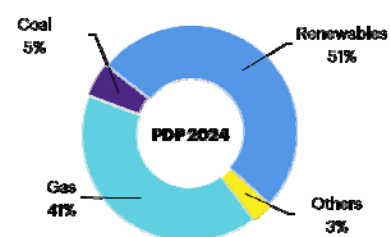
We expect the new PDP 2024 to benefit the Thai utilities sector in the medium to long term. The new plan focuses on power capacity additions within Thailand, which generally have lower risks, appropriate returns and allow closer monitoring than overseas projects. We expect the regulator to attempt to reduce the longer-than-expected timeline for new renewable energy additions, with the first large batch coming online only in 2032.

**Figure 3: Thailand power generation breakdown by energy source**



Source: ERC, EPPO and InnovestX Research

**Figure 4: Thailand power generation breakdown by energy source in 2037 (public hearing version)**



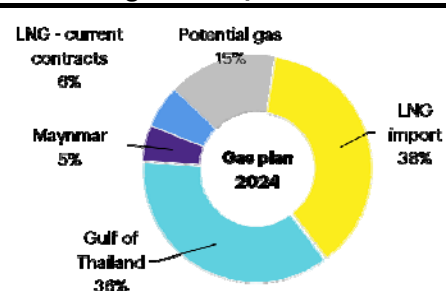
Source: ERC, EPPO and InnovestX Research

**Figure 5: New power capacity addition in PDP 2024 (public hearing version)**

| (MW)            | 2024-2030 | 2031  | 2032  | 2033  | 2034  | 2035  | 2036  | 2037  | Total         |
|-----------------|-----------|-------|-------|-------|-------|-------|-------|-------|---------------|
| Solar           | 800       | 1,248 | 6,767 | 1,835 | 1,475 | 8,387 | 1,470 | 2,430 | 24,412        |
| Wind            |           | 810   | 800   | 750   | 750   | 750   | 750   | 735   | 5,345         |
| Biomass         | 249       | 156   | 120   | 120   | 141   | 141   | 95    | 24    | 1,046         |
| Biogas          |           | 160   | 160   | 160   | 160   | 160   | 136   |       | 936           |
| Solar floating  | 2,656     | 10    |       | 5     | 5     |       | 5     |       | 2,681         |
| Industry Waste  |           | 12    |       |       |       |       |       |       | 12            |
| Waste to energy |           | 200   |       |       |       | 100   |       |       | 300           |
| Small Hydro     | 26        | 4     | 6     | 8     | 19    | 12    | 10    | 13    | 98            |
| Geothermal      |           |       |       |       |       |       |       | 21    | 21            |
| <b>Total</b>    |           |       |       |       |       |       |       |       | <b>34,851</b> |

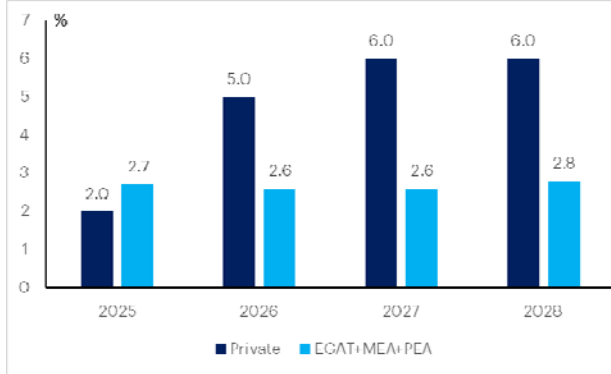
Source: EPPO and InnovestX Research

**Figure 6: Gas plan 2024: LNG imports remain high in 2037 (public hearings version)**

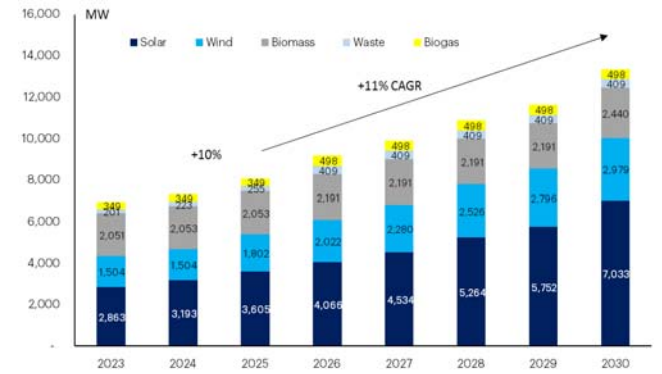


Source: EPPO and InnovestX Research

**Thailand focusing on renewable energy for the next decade.** Thailand will spend the next ten years focusing on renewable energy. According to SCB EIC research, Thailand's total electricity consumption between 2025 and 2028 is expected to grow 2.5-3.1% per year, in line with economic expansion. However, new electricity usage patterns need to be monitored, such as increased nighttime electricity consumption from EV charging, which is expected to rise due to government incentives promoting EV adoption. Off-grid electricity is expected to continue growing an average of 4.7% per year, driven by the demand for electricity from renewable energy, particularly solar PV/solar rooftops, which is required for new industries like data centers. This is pushing the government to accelerate the implementation of policies supporting clean electricity, such as the Direct PPA policy totaling 2,000MW, which is to be in place by 2025, and the law promoting solar rooftop installation, to be drafted in 2024. SCB EIC estimates Thailand's electricity tariff will remain at Bt4.1-4.2/kWh in 2025 from Bt4.18/kWh in 2024 as the government eases cost of living for the populace and the potential for lower gas costs to below Bt300/mmmbtu in 2025.

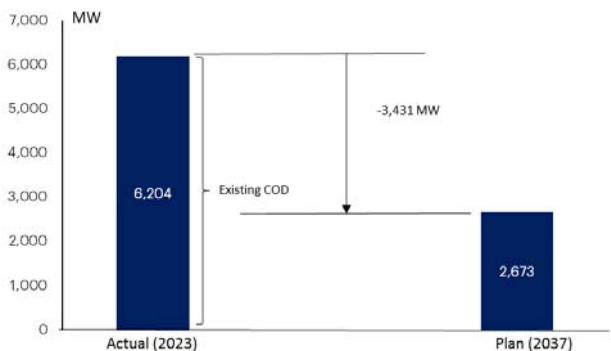
**Figure 7: Forecast electricity demand growth for EGAT, MEA and PEA vs private sector**


Source: ERC, EPPO and InnovestX Research

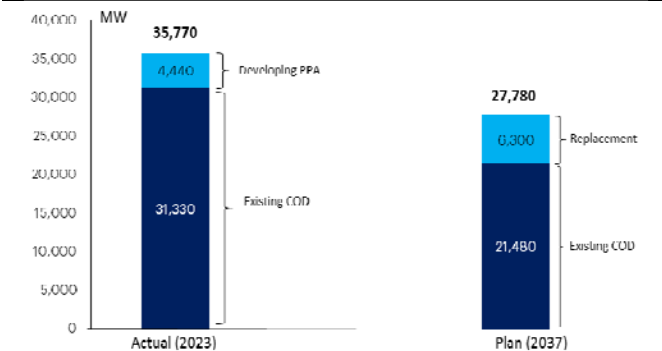
**Figure 8: Thailand power generation – renewable energy source forecasts for 2023-30**


Source: SCB EIC, ERC, EPPO and InnovestX Research

PDP 2024 also places less focus on coal-fired power plants, expected to drop by 3,431MW by 2037 from the 2023 level of 6,204MW capacity. Gas-fired power plants are also expected to decrease to 27,780MW in 2037 from 35,770MW in 2023, despite some replacements of 6,300MW during the lifespan of the Plan. This is in line with the global trend to focus more on renewable energy and less on fossil fuel.

**Figure 9: Thailand power – from coal in 2023 and 2037 (PDP 2024 public hearing)**


Source: SCB EIC, PDP2018 v.1, AEDP draft, PDP2024 and InnovestX Research

**Figure 10: Thailand power generation – from natural gas in 2023 and 2037 (PDP 2024 public hearing)**


Source: SCB EIC, PDP2018 v.1, AEDP draft, PDP2024 and InnovestX Research

**Excellent potential for sector capacity growth.** Apart from the upcoming 3.6GW in Phase 2 renewable energy and from PDP 2024. BGRIM, GPSC, and GULF have several projects in the pipeline that will add new capacity, both domestic and overseas (see table below). We believe the sector has sufficient resources to fund the planned material investments. GPSC's net debt/equity ratio was only 0.9x as of June 2024, far below its debt covenant of <2.5x, GULF's was 1.7x but should decline to 0.9x after the complete amalgamation of and merger with INTUCH (expected to be finalized in 2Q25), which is also comfortably below its debt covenant of <3.5x, and BGRIM's was 1.65x as of June 2024, well below its debt covenant of <3.0x.

**Figure 11: Expansion projects in the pipeline for BGRIM, GPSC and GULF**

| Equity installed Capacity (MW) Jun-24 | 2024                                                                                                                                                                                                                                                                                                                                                                                                   | 2025                                                                                                                                                                                                                                                                                                                        | 2026                                                                                                                                                                                                                                                                            | 2027 onward                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Long-term MWe target                  |
|---------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|
| <b>BGRIM</b> <b>2,596</b>             | <ul style="list-style-type: none"> <li>Solar U-Tapao Phase 1 (18MW, COD: 2H24)</li> <li>GIFU Solar (20MW, 49% stake, COD: 4Q24)</li> <li>KOPOS Onshore wind farm (20MW, 49.9% stake, 4Q24)</li> </ul>                                                                                                                                                                                                  | <ul style="list-style-type: none"> <li>Nakwol 1 offshore wind (365MW, COD: 4Q25)</li> <li>IBS solar (76.2MW, 25% stake, COD: 2025)</li> <li>386 Solar rooftop (29.6MW, 40% stake, COD: 2025)</li> <li>ZC Rubber Solar rooftop (35MW, 49% stake, COD: 2025)</li> <li>Huon Hoa 1 wind (48MW, 80% stake, COD: 2025)</li> </ul> | <ul style="list-style-type: none"> <li>Solar under Fit (323.3MW, 44.9% stake, COD: 2026-30)</li> <li>Nakwol 2 offshore wind (375MW, COD: 4Q26)</li> <li>U-Tapao phase 2 (80MW + steam 50t/h, COD: 2026)</li> <li>Tadsakha hydro power (30MW, 70% stake, COD: 2026)</li> </ul>   | <ul style="list-style-type: none"> <li>Solar under Fit (323.3MW, 44.9% stake, COD: 2026-30)</li> <li>Nam Khao 1-5 Hydro power (67.5MW, 72% stake, COD: 2026-30)</li> <li>Xekong 4 Hydro power (355MW, 20% stake, COD: 2033)</li> </ul>                                                                                                                                                                                                                                                    | <b>10,000 MW (2030) (+13.9% CAGR)</b> |
| <b>GPSC</b> <b>6,849</b>              | <ul style="list-style-type: none"> <li>IRPC-CP Phase 3 (36MW, COD: Mar 24)</li> <li>GLOW SPP2 (98MW + steam 230t/h, COD: Mar-Apr 24)</li> <li>CXFD offshore wind farm (595MW, 25% stake, COD: 4Q24)</li> <li>AEPL (+800MW in 2024, 43% stake)</li> </ul>                                                                                                                                               | <ul style="list-style-type: none"> <li>Energy Recovery Unit – ERU (250MW + steam 175t/h, 2025)</li> <li>AEPL (+2,069MW under construction during 2024-25)</li> </ul>                                                                                                                                                        | <ul style="list-style-type: none"> <li>AEPL (+10,283MW secured pipeline under execution during 2025-28)</li> </ul>                                                                                                                                                              | <ul style="list-style-type: none"> <li>AEPL (+10,283MW secured pipeline under execution during 2025-28)</li> </ul>                                                                                                                                                                                                                                                                                                                                                                        | <b>11,667MWe (2026) (+19.5% CAGR)</b> |
| <b>GULF</b> <b>7,562</b>              | <ul style="list-style-type: none"> <li>GPD – IPP unit 3 (625MW, 70% stake, COD: Mar 24)</li> <li>Hin Kong Power IPP unit 1 (700MW, 49% stake, COD: Mar 24)</li> <li>GPD – IPP unit 4 (625MW, 70% stake, COD: Oct 24)</li> <li>GULF 1 Solar rooftop (273MW, COD: 2021-24)</li> <li>Solar farm under FiT scheme (870MW, COD: 2024-28)</li> <li>Solar + BESS under FiT (1,668MW, COD: 2024-29)</li> </ul> | <ul style="list-style-type: none"> <li>Hin Kong Power IPP unit 2 (700MW, 49% stake, COD: Mar 25)</li> <li>Solar farm under FiT scheme (870MW, COD: 2024-28)</li> <li>Solar + BESS under FiT (1,668MW, COD: 2024-29)</li> </ul>                                                                                              | <ul style="list-style-type: none"> <li>Solar farm under FiT scheme (870MW, COD: 2024-28)</li> <li>Solar + BESS under FiT (1,668MW, COD: 2024-29)</li> <li>Waste-to-energy under FiT (119MW, 51% stake, COD: 2026)</li> <li>CM Waste-to-energy (&gt;9.5MW, COD: 2026)</li> </ul> | <ul style="list-style-type: none"> <li>Burapa Power – IPP (540MW, 35% stake, COD: 2027)</li> <li>Solar farm under FiT scheme (870MW, COD: 2024-28)</li> <li>Solar + BESS under FiT (1,668MW, COD: 2024-29)</li> <li>Luang Prabang hydropower (1,460MW, 20% stake, COD: 2030)</li> <li>Outer Dowsing offshore wind (1,500MW, 24.99% stake, COD: 2031)</li> <li>Pak Lay hydro power (77MW, 40% stake, COD: Mar 33)</li> <li>Pak Beng Hydro power (912MW, 49% stake, COD: Jan 33)</li> </ul> | <b>12,750MWe (2033) (+5.4% CAGR)</b>  |

Source: Company Data, and InnovestX Research

**Direct PPA adds upside for green power generation for Thai utilities.** The National Energy Policy Council (NEPC), chaired by former Prime Minister Settha Thavisin, approved the guidelines for a pilot project for direct power purchase agreements (Direct PPA) for renewable energy in June 2024. This will be achieved through the use of third-party access (TPA) to the power grid and will allow direct purchase of renewable energy by leading global companies that have been invited by the government to invest in Thailand, particularly in the data center sector.

The approved Direct PPA framework allows for a maximum capacity of 2,000MW, with the pilot project expected to be launched within 1-2 years. Investment by companies eligible to participate must be large-scale and they will not be allowed to sell electricity back into the national grid. The Ministry of Energy and the ERC will study the impact of the Direct PPA pilot project through TPA on the status of the three public electricity generating entities (EGAT, MEA, PEA) and users in both the residential and industrial sectors. The ERC will set the TPA service rates within 2024 and these will include: 1) wheeling charge for transmission and distribution systems, 2) connection charge for connecting to the power grid, 3) system security charge or ancillary services charge, 4) imbalance charge for balancing or managing electricity volume, 5) policy expenses, and other service fees or expenses for electricity users nationwide. These rates should also align with the proposed Utility

Green Tariff (UGT) currently under development and will be presented to NEPC for approval. SCB EIC estimates the TPA service charge will be in the range of Bt0.65-1.30/kWh.

We believe the Direct PPA will benefit GULF, GPSC and BGRIM, all of which have industrial customers. It should boost demand for green power purchases, especially from customers in industrial estates, both domestic and multinationals, as well as from green data centers that have strong green power generation demand. SCB EIC projects Thailand's data center capacity will surge to 241MW during 2023-2028 from 67MW in 2023.

**Onset of cyclic downtrend in interest rates is positive.** After the Fed reduced the Fed Funds Rate by 0.5% in September, global interest rates are likely to also move into a cyclic downtrend. Our analysis shows lower bond yields and interest rate will benefit the utilities sector, given their capital-intensive nature that mandates a high proportion of debt funding (typically a 3:1 debt-to-equity ratio). Our sensitivity analysis suggests that each half point step down in interest rate will add 4.8% to GPSC's earnings, 3.2% to BGRIM's and 0.5% to GULF's.

**Figure 12: GPSC to benefit the most positive from declining interest rate**

| Net profit   |               | Outstanding interest-bearing debt | % of floating interest rate | % impact from lower interest rate |             |                             |             |
|--------------|---------------|-----------------------------------|-----------------------------|-----------------------------------|-------------|-----------------------------|-------------|
| (Bt mn)      | 2025F         |                                   |                             | % impact on 2025 net profit       |             | % impact on 2025 net profit |             |
|              |               |                                   |                             | -50 bps                           |             | -1.0 pp                     |             |
| BGRIM        | 2,412         | 110,782                           | 14%                         | 76                                | 3.2%        | 155                         | 6.4%        |
| GPSC         | 5,323         | 146,579                           | 35%                         | 257                               | 4.8%        | 513                         | 9.6%        |
| GULF         | 25,043        | 179,112                           | 15%                         | 134                               | 0.5%        | 269                         | 1.1%        |
| <b>Total</b> | <b>32,778</b> | <b>436,473</b>                    | <b>21.5%</b>                | <b>468</b>                        | <b>1.4%</b> | <b>937</b>                  | <b>2.9%</b> |

Source: Company data, and InnovestX Research

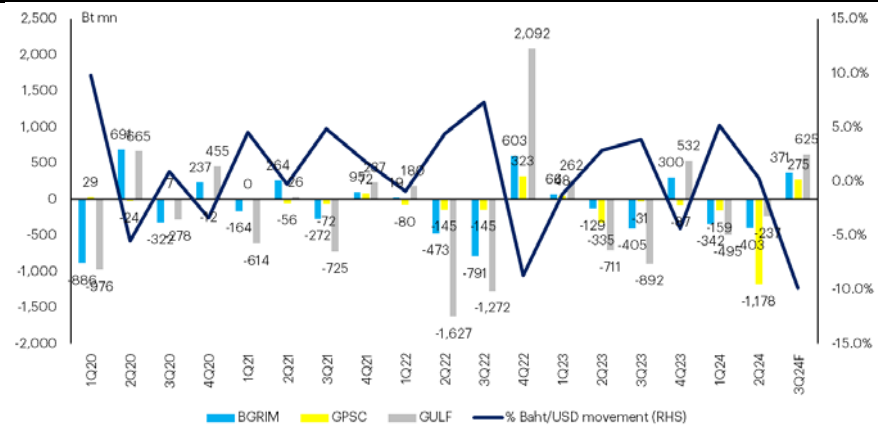
The 9.8% appreciation of the baht against the USD or by Bt3.61/USD in 3Q24 will be good for the earnings of utilities companies due to their USD-denominated loans. GULF has a USD loan portion of 41%, BGRIM 21%, and GPSC <5%. Our sensitivity analysis suggests that each Bt0.5/USD appreciation per year will add 8.5% to 2025F net profit for BGRIM, 1.4% for GULF and 2.9% for GPSC. This works out to a substantial FX gain for BGRIM of Bt371mn in 3Q24, accounting for 23% of our 2024 net profit forecast, for GULF of Bt625mn, 3.1% of our 2024F, and for GPSC of Bt275mn or 6% of our 2024F.

**Figure 13: BGRIM to benefit most from the baht appreciation against the USD in the short-term**

| Net profit   |               | Outstanding interest-bearing debt | % of USD loan | % impact on the appreciation of Baht against USD |                             |                                 |                             |
|--------------|---------------|-----------------------------------|---------------|--------------------------------------------------|-----------------------------|---------------------------------|-----------------------------|
| (Bt mn)      | 2025F         |                                   |               | Bt0.5/USD appreciation (annual)                  | % impact on 2025 net profit | Bt1.0/USD appreciation (annual) | % impact on 2025 net profit |
| BGRIM        | 2,412         | 110,782                           | 21%           | 205                                              | 8.5%                        | 411                             | 17.0%                       |
| GPSC         | 5,323         | 146,579                           | <5%           | 152                                              | 2.9%                        | 304                             | 5.7%                        |
| GULF         | 25,043        | 179,112                           | 41%           | 347                                              | 1.4%                        | 693                             | 2.8%                        |
| <b>Total</b> | <b>32,778</b> | <b>436,473</b>                    | <b>19%</b>    | <b>704</b>                                       | <b>2.1%</b>                 | <b>1,408</b>                    | <b>4.3%</b>                 |

Source: Company data, and InnovestX Research

**Figure 14: Historical FX gain/(loss) vs % baht/USD movement in 1Q20-2Q24 for BGRIM GPSC and GULF**

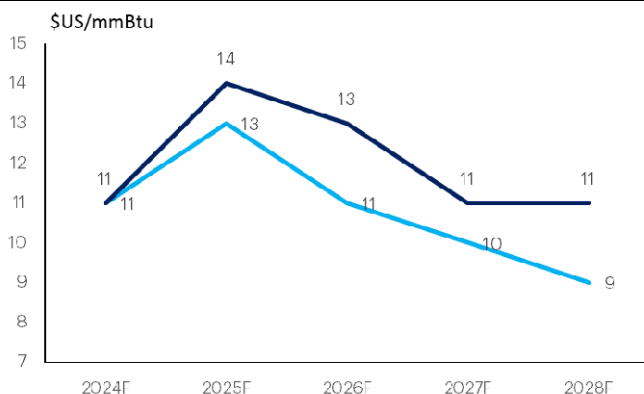


Source: Company data, and InnovestX Research

**Despite short-term pressure from rising gas costs, market LNG price should fall in the medium to long term.** We expect a drop in market price of liquefied natural gas (LNG) in the Japan/Korea market (JKM) over the medium to long term due to new and existing LNG terminals in the US (a major natural gas producer). The EIA has forecast a doubling in North America's LNG export capacity by 2028, reinforcing its critical role in global energy markets. The current export capacity of 11.4 billion cubic feet per day (Bcf/d), which equates to approximately 85mn tons per annum (mta), is projected to reach 24.3 Bcf/d, or roughly 181.00 mta, over the next several years. This growth is fueled by expansions at existing terminals, new projects and increasing global demand for North American LNG, particularly in Europe and Asia. Major developments include Venture Global's Plaquemines LNG (Louisiana), which is expected to come on line by end-2024 with a capacity of 13.33 MTPA in the first phase, Cheniere Energy's Corpus Christi Stage 3 expansion of 10 MTPA, expected to be completed in 2025, and NextDecade's Rio Grande LNG (Texas), expected to begin commercial operations in 2027 with a capacity of 5.87 MTPA in the first phase.

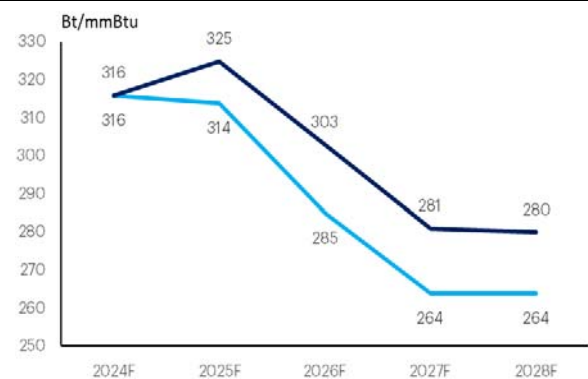
To assess the potential impact of a decline in gas costs, we ran a sensitivity analysis on the earnings of the three power generation companies under our coverage, GPSC, BGRIM and GULF. At GPSC, each Bt1 mmbtu drop in gas cost is estimated to raise profit by Bt25mn, equivalent to +0.5% to our 2024F. At BGRIM, each Bt1/mmbtu decrease in gas cost is estimated to boost profit by Bt15mn, equivalent to +0.6% to our 2024F. At GULF, each Bt1/mmbtu reduction in gas cost is estimated to increase profit by Bt12mn, equivalent to +0.06% of our 2024F.

**Figure 15: Market LNG (JKM) price forecasts for 2024-28**



Source: SCB EIC, ERC, EPPO, EGAT, Bloomberg, EIC macroeconomics' team and InnovestX Research

**Figure 16: Pool gas price forecasts for 2024-28**



Source: SCB EIC, ERC, EPPO, EGAT, Bloomberg, EIC macroeconomics' team and InnovestX Research

**Solid 2H24 earnings growth.** The step down in interest rate and its benefits, especially in terms of FX gain, is poised to benefit all players., BGRIM benefits the most from FX gains, followed by GPSC and GULF. In terms of core operating profit, we expect GULF to report record-high earnings in 2H24 thanks to capacity added by GPD unit 4. We expect GPSC to improve after the commercial startup of its CXFD offshore wind farm and higher contribution from the AVAADA group. BGRIM is expected to show a dip from higher gas cost but this will be partially offset by the addition of capacity at the solar GIFU and KOPOS projects.

**BGRIM:** We expect a slight decline in 2H24 core profit as gas costs returned to normal levels of Bt330-340/mmbtu in 3Q24. In 4Q24, gas prices may increase on persistently high global LNG prices. Note that the pool gas price rose 4.1% to Bt321-322/mmbtu in July-August from Bt309.0391/mmbtu in June. However, there will be some partial offset from capacity additions in 2H24, including the U-Tapao solar + ESS project (Phase 1, 18MW), the solar GIFU project in Japan (9.8MWe), and the wind KOPOS project in South Korea (10MWe), which are expected to begin commercial operations in 2024. Net profit should rise sharply on a substantial FX gain in 3Q24 from the appreciation of the baht against the USD.

**GPSC:** 2H24 operating profit is expected to improve slightly HoH, despite the potential of higher gas costs while electricity tariff remains fixed at Bt4.18/unit for the rest of the year. We expect this negative to be fully offset by improved contribution from AVAADA (no one-time prepayment expenses), along with an expected increase in installed capacity in its renewable portfolio in India. This will be aided by the full commercial operation of Taiwan's offshore wind power project (149MWe) in 3Q24 and the Xayaburi hydropower plant (25% stake) entering its peak season.

**GULF:** We expect core profit to soften slightly QoQ in 3Q24 on the lack of significant new capacity additions in the quarter and lower electricity demand after the period of peak demand. However, in 4Q24, a 2,700MW increase in capacity to 15,167MW is expected via several projects: 1) the full contribution of the new IPP GPD unit 4 (662.5MW, startup October 2024), 2) the full contribution from the new IPP at Hin Kong Power (HKP) unit 1 (capacity 770MW, startup March 2024), and 3) the planned COD of its solar, solar + battery energy storage system (BESS), and solar rooftop projects, adding 605MW in 2H24.

**Figure 17: Earnings in 3Q-4Q24**

| Core earnings<br>(Bt mn) | 3Q23         | 4Q23         | 1Q24         | 2Q24         | 3Q24F                                                                                                                                                                                                                                                                                                                                     |     | 4Q24F                                                                                                                                                                                               |     |
|--------------------------|--------------|--------------|--------------|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
|                          |              |              |              |              | YoY                                                                                                                                                                                                                                                                                                                                       | QoQ | YoY                                                                                                                                                                                                 | QoQ |
| <b>BGRIM</b>             | <b>609</b>   | <b>384</b>   | <b>488</b>   | <b>597</b>   | -                                                                                                                                                                                                                                                                                                                                         | -   | +                                                                                                                                                                                                   | -   |
|                          |              |              |              |              | A slight YoY and QoQ decline in core profit due to return of gas cost to normal level of Bt330-340/mmbtu in 3Q24, but a huge FX gain in 3Q24 will raise net profit QoQ and YoY.                                                                                                                                                           |     | Gas prices will rise in 4Q24 due to persistently high global LNG prices on the seasonal high for gas demand. This will cut earnings QoQ but YoY will grow off a low base.                           |     |
| <b>GPSC</b>              | <b>1,724</b> | <b>374</b>   | <b>860</b>   | <b>1,422</b> | -                                                                                                                                                                                                                                                                                                                                         | +/- | +                                                                                                                                                                                                   | -   |
|                          |              |              |              |              | Core earnings will be flat QoQ despite the better contribution from AVAADA (no one-time expense), full COD of CXFD offshore wind projects and high season contribution from XPCL but expect SPP margin to be eroded by higher gas cost.                                                                                                   |     | Earnings to soften QoQ after passing peak demand in 3Q24 and potentially higher gas cost. The YoY earnings growth comes off a low base.                                                             |     |
| <b>GULF</b>              | <b>4,203</b> | <b>4,217</b> | <b>4,152</b> | <b>4,779</b> | +                                                                                                                                                                                                                                                                                                                                         | -   | +                                                                                                                                                                                                   | +   |
|                          |              |              |              |              | Slight decline QoQ in core profit after passing peak electricity demand for IPPs in the hot season in 2Q24 and normal 3Q24 electricity demand to ease on the rainy season. The YoY earnings growth is driven by capacity additions at both GPD and HKP projects. 3Q24 net profit will rise QoQ and YoY on FX gain from the stronger baht. |     | 4Q24 core earnings to grow both YoY and QoQ due to the additional capacity of GPD unit 4 (625MW, 70% stake) in October and the ramping up of Solar under the FiT scheme and solar rooftop projects. |     |

Source: InnovestX Research

**Positive on the sector: Our top pick is still GULF, and we upgrade GPSC to Outperform**

We maintain our 3-month tactical Outperform rating on GULF, raising our mid-2025 DCF target price to Bt70.0/share from Bt63/share (WACC at 4.7%, long-term growth at 1.5%), reflecting its potential to win in the upcoming bidding for both Phase 2 of the renewable energy scheme and PDP 2024, which is expected to be finalized next year. We expect GULF's earnings to be strong in 2H24 due to the full-quarter recognition of revenue from the new GPD and HKP projects, as well as the planned COD of its solar, solar + battery energy storage system (BESS) and solar rooftop projects, adding 605MW in 2H24.

We upgrade our recommendation for GPSC to Outperform from Neutral on the medium-term positive from the lower interest rate given the high 35% of its debt load carrying a floating interest rate. The potential for lower market LNG prices and the company's low net debt/equity ratio should give room for medium- to long-term growth investment. We expect 3Q24 core earnings to increase slightly QoQ on higher contribution from AVAADA, the full COD of the CFXD offshore wind farm and better contribution from Xayaburi hydropower.

Although we expect BGRIM to benefit from the appreciation of the baht against the USD in the short term, we expect core profit to be eroded by higher gas costs given the currently high LNG price.

**Figure 18: GULF is our top pick**

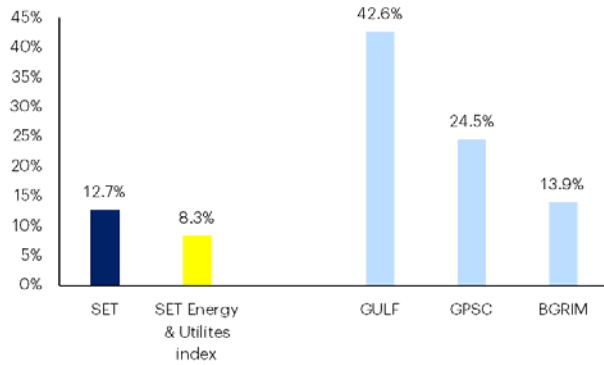
|              | Rating                 | Mid-2025 TP                                                     | Investment theme                                                                                                                                         | Valuation                                                                  | SET ESG ratings |
|--------------|------------------------|-----------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|-----------------|
| <b>GULF</b>  | Top pick<br>Outperform | Bt70.0/share<br>DCF (WACC at 4.7%,<br>long-term growth at 1.5%) | Expect record-high core earnings in 2H24 due to the new capacity addition. Potential to win bid for Phase 2 renewable energy and PDP 2024                | GULF is trading at 36.3x 2024PE, nearly -1SD of its historical average.    | AA              |
| <b>BGRIM</b> | Neutral                | Bt24.5/share<br>DCF (WACC at 4.6%,<br>long-term growth at 1.0%) | Catalyst from expected FX gain due to the appreciation of the baht and the potential for lower gas cost in the medium to long term.                      | BGRIM is trading at 35.5x 2024PE, nearly -0.5SD of its historical average. | AAA             |
| <b>GPSC</b>  | Outperform             | Bt60.0/share<br>DCF (WACC at 5.0%,<br>long-term growth at 1.0%) | Catalyst will be improving contribution from the rising green capacity of AVAADA, full COD of CXFD offshore wind farm and higher contribution from XPCL. | GPSC is trading at 30.7x 2024PE, below -0.5SD of its historical average.   | AA              |

Source: InnovestX Research

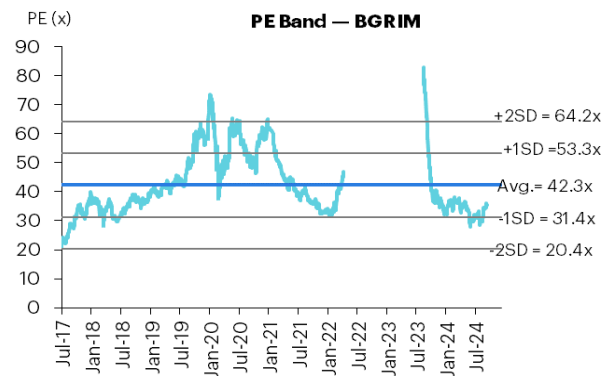
Figure 19: ESG summary

|                                                                                                                                                                                                     | BGRIM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | GPSC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | GULF                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>SET ESG ratings</b>                                                                                                                                                                              | AAA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | AA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | AA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Bloomberg ESG Financial Materiality Score (2022)</b>                                                                                                                                             | 68.21                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 73.2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 62.11                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Rank in Sector</b>                                                                                                                                                                               | 7/67                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 2/67                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 10/67                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Environmental Issue</b>                                                                                                                                                                          | <ul style="list-style-type: none"> <li>BGRIM actively looks for technologies to help it reach its net-zero carbon emissions goal by 2050 without compromising the reliability of its electricity and other utilities.</li> <li>In 2022, BGRIM was able to maintain GHG Emission Intensity at 0.38tCO<sub>2</sub>e/MWh with an increase of renewable energy production capacity. BGRIM will continue to invest in renewable energy with a goal of reaching the capacity of no less than 50% of total installed capacity by 2030 or 5GW.</li> <li>The 5 SPP replacement projects will continue to increase its energy efficiency and reduce the consumption of natural gas per unit by 10-15%.</li> <li>BGRIM was also able to reduce total freshwater consumption by 11% in 2022. It was also able to reuse or recycle 84.8% of all the waste it generated. Nonetheless, total waste disposed increased 28% YoY.</li> <li>We expect the environmental issue to be a key materialized for the future operation due to its exposure to fossil fuels, and nearby community impact.</li> </ul> | <ul style="list-style-type: none"> <li>GPSC has commitments to lessen CO<sub>2</sub> intensity by 35% by 2030, to achieve carbon neutrality by 2050, and to achieve Net Zero GHG emissions by 2060. The company also commits to raising the proportion of renewables to 50% by 2030. This could be achieved earlier than plan with the current proportion of 35%.</li> <li>GPSC enrolled in the Thailand Voluntary Emission Reduction Program (T-VER) by developing a solar farm project in Wangchan Valley and an RFD project in Rayong, which are expected to lower GHG emissions by a total of 20,993 tCO<sub>2</sub>e, with no water was disposed to public sources.</li> <li>GPSC continues to invest in the battery business and other innovations to support the energy transition from fossil fuel to renewable power. The battery business will accommodate energy storage systems, batteries for electric vehicles. Other new S-curve businesses include digital energy businesses, hydrogen energy business, and carbon capture, utilization and storage.</li> <li>We GPSC is in the leading position compared with peers on the air quality and sustainable products.</li> </ul> | <ul style="list-style-type: none"> <li>GULF aims to increase the proportion of renewables in its generation mix to ≥40% of total gross installed capacity by 2035. Currently, it has over 800MW committed renewable capacity.</li> <li>GULF has set a target to reduce its carbon intensity by 25% within 2030 from the base year of 2019 to align with the government's commitment to carbon neutrality and net zero GHG emissions.</li> <li>GULF's innovation in operations and several efficiency improvement projects have helped it reduce fuel consumption and carbon intensity, resulting in &gt;Bt300mn operational cost savings.</li> <li>GULF was able to maintain its zero waste to landfill target since 2020 and in 2022 was also able to achieve its zero-waste incineration target.</li> <li>We view that the environmental issue to be materialize factor for GULF and GULF is in the lagging position compared with peers on the climate exposure, GHG emission management and sustainable products.</li> </ul> |
| <b>Social Issue</b><br><br>We see the main ESG risk as patient safety (S). We note that BCH, BDMS, BH, CHG and RJH each have their own quality assurance system to provide continuous patient care. | <ul style="list-style-type: none"> <li>BGRIM is working toward its target of "Zero Lost Time Injuries and Fatalities" which could be achieved in 2022.</li> <li>BGRIM's social and community development projects fall into six categories: education, livelihood, culture, spirituality, sports and the environment. It continues to sponsor several educational and recreational programs in local communities while minimizing the environmental impact on the surrounding areas of its power plants to ensure quality of life.</li> <li>BGRIM has focused on forestation and forest conservation projects in collaboration with community members and local students for the past 12 years in various locations</li> </ul>                                                                                                                                                                                                                                                                                                                                                            | <ul style="list-style-type: none"> <li>GPSC continues to promote occupational health and safety in the workplace to ensure employee well-being with Zero Lost Time Injury Frequency Rate (LTIFR) in 2022.</li> <li>Community satisfaction rate increased to 78% in 2022, vs. target of &gt;75% with no report of human rights violations complaints.</li> <li>GPSC manages strategic manpower planning and improves organizational structure and processes arising from mergers and acquisitions to support its rapid growth. In 2022, employee engagement rate was 69% and turnover rate of 5.76%, up from 3.16% in 2021.</li> <li>GPSC has adopted a 'Shift to Customer-Centric Solutions' Strategy, to accommodate customer demands through modernization of services, such as replacement of fossil fuel-based power generators with small-scale cleaner renewable-based power generating units. The customer satisfaction rate is 95% in 2022.</li> <li>GPSC is also a leading position in social issue compared with peers on the occupational health and safety management</li> </ul>                                                                                                 | <ul style="list-style-type: none"> <li>GULF ensures that its employees are provided with a safe and healthy work environment. It achieved its Zero Accident target, having a lost-time injury frequency rate (LTIFR) of zero for both employees and contractors.</li> <li>The employee engagement rate was 77% and the satisfaction rate was 88%. GULF reported that it has not received any complaints regarding human rights violations. Its assessments have also determined that internal controls and human rights risk mitigation plans are adequate and appropriate at all sites.</li> <li>GULF has established a strategy to support local communities across the country under the "IMPACT" framework to create positive impacts and elevate quality of life for sustainable growth and development.</li> <li>GULF is also a below average position in social issue compared with peers on the operational risk management, access, ethics and compliance issues.</li> </ul>                                            |
| <b>Governance Issue</b>                                                                                                                                                                             | <ul style="list-style-type: none"> <li>BGRIM's board of directors consists of 10 directors, 9 non-executive directors (90% of the entire board), 6 independent directors (60% of the entire board), and an executive director. This includes five female members (50% of the entire board), among the highest in energy companies in Thailand.</li> <li>BGRIM has been rated "Excellent" (5 stars) by the Thai Institute of Directors in 2022.</li> <li>We view the company's social and governance practices as conforming to general industry standards.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <ul style="list-style-type: none"> <li>GPSC's board of directors consists of 14 directors, 13 non-executive directors (92.86% of the entire Board), 6 independent directors, which exceeds half of the Board (42.86% of the entire Board), and an executive director. These include three female directors (21.43% of the entire Board).</li> <li>The company was rated "Excellent" (5 stars) by the Thai Institute of Directors for the sixth consecutive year in 2021.</li> <li>We view GPSC's management and governance as satisfactory, reflecting in part management's ability to plan and execute large projects, its experience and expertise, its transparency with stakeholders, and its independent board of directors. GPSC's ESG score for governance still leads its peers</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                           | <ul style="list-style-type: none"> <li>GULF's board of directors consists of 12 directors, 8 non-executive directors (66.67% of the entire Board), 7 independent directors (58.33% of the entire Board), and an executive director. This includes four female members (33.33% of the entire board).</li> <li>GULF has been rated "Excellent" (5 stars) by the Thai Institute of Directors in 2022.</li> <li>We view GULF's management and governance as satisfactory, reflecting management's expertise and experience in the utilities sector, its transparency with stakeholders, and its independent board of directors but the governance score also lagging its peers from the executive compensation and shareholder rights.</li> </ul>                                                                                                                                                                                                                                                                                    |

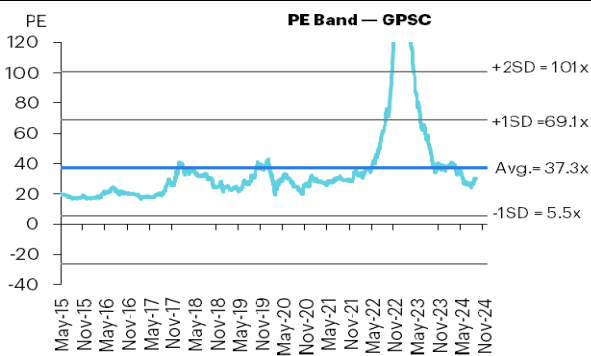
Source: Company data and InnovestX Research

**Figure 20: 3QTD Share price performance in the sector**

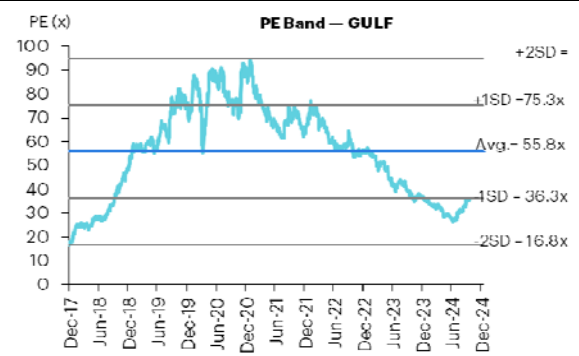
Source: SCB EIC, EIC Macroeconomic team and InnovestX Research

**Figure 21: BGRIM PE Band**

Source: SCB EIC, EIC Macroeconomic team and InnovestX Research

**Figure 22: GPSC PE Band**

Source: EPPO and InnovestX Research

**Figure 23: GULF PE Band**

Source: Investing.com, Company data and InnovestX Research

**Figure 24: Valuation summary** (price as of Oct 2, 2024)

|                | Rating     | Price<br>(Bt/Sh) | Target<br>(Bt/Sh) | ETR<br>(%) | P/E (x)     |             |             | EPS growth (%) |           |           | P/BV (x)   |            |            | ROE (%)  |          |          | Div. Yield (%) |            |            | EV/EBITDA (x) |             |             |
|----------------|------------|------------------|-------------------|------------|-------------|-------------|-------------|----------------|-----------|-----------|------------|------------|------------|----------|----------|----------|----------------|------------|------------|---------------|-------------|-------------|
|                |            |                  |                   |            | 23A         | 24F         | 25F         | 23A            | 24F       | 25F       | 23A        | 24F        | 25F        | 23A      | 24F      | 25F      | 23A            | 24F        | 25F        | 23A           | 24F         | 25F         |
| BGRIM          | Neutral    | 23.80            | 24.5              | 4.5        | 30.2        | 29.7        | 25.7        | 448            | 2         | 16        | 1.6        | 1.6        | 1.5        | 4        | 4        | 4        | 1.5            | 1.5        | 2.1        | 12.9          | 13.6        | 13.0        |
| GPSC           | Outperform | 48.00            | 60.0              | 26.7       | 39.6        | 29.6        | 25.4        | 311            | 34        | 16        | 1.3        | 1.2        | 1.2        | 3        | 4        | 4        | 1.5            | 1.7        | 1.9        | 13.3          | 12.1        | 11.4        |
| GULF           | Outperform | 56.50            | 70.0              | 25.7       | 42.3        | 33.1        | 26.5        | 30             | 28        | 25        | 5.7        | 5.3        | 4.8        | 14       | 17       | 19       | 1.6            | 1.8        | 2.3        | 36.0          | 28.4        | 25.1        |
| <b>Average</b> |            |                  |                   |            | <b>37.4</b> | <b>30.8</b> | <b>25.9</b> | <b>263</b>     | <b>21</b> | <b>19</b> | <b>2.9</b> | <b>2.7</b> | <b>2.5</b> | <b>7</b> | <b>8</b> | <b>9</b> | <b>1.5</b>     | <b>1.7</b> | <b>2.1</b> | <b>20.7</b>   | <b>18.0</b> | <b>16.5</b> |

Source: InnovestX Investment Research

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**CG Rating 2023 Companies with CG Rating**
**Companies with Excellent CG Scoring**

7UP, AAV, ABM, ACE, ACG, ADB, ADD, ADVANC, AEONTS, AF, AGE, AH, AHC, AIRA, AIT, AJ, AKP, AKR, ALLA, ALT, AMA, AMARIN, AMATA, AMATAV, ANAN, AOT, AP, APCO, APCS, ARIP, ARROW, ASEFA, ASK, ASP, ASW, ATP30, AUCTION, AWC, AYUD, B, BA, BAFS, BAM, BANPU, BAY, BBGI, BBIK, BBL, BC, BCH, BCP, BCPG, BDMS, BEC, BEM, BEYOND, BGC, BGRIM, BH, BIZ, BJC, BJCHI, BKI, BLA, BOL, BPP, BRI, BROOK, BRR, BTS, BTW, BWG, BYD, CBG, CENTEL, CFRESH, CHASE, CHEWA, CHG, CHOW, CIMBT, CIVIL, CK, CKP, CM, CNT, COLOR, COM7, COTTO, CPALL, CPAXTT, CPF, CPI, CPL, CPN, CPW, CRC, CRD, CSC, CSS, CV, DCC, DDD, DELTA, DEMCO, DMT, DOHOME, DRT, DUSIT, EA, EASTW, ECF, ECL, EE, EGCO, EPG, ERW, ETC, ETE, FE, FLOYD, FN, FPI, FPT, FSX, FVC, GBX, GC, GCAP, GENCO, GFPT, GGC, GLAND, GLOBAL, GPSC, GRAMMY, GULF, GUNKUL, HANA, HARN, HENG, HMPRO, HPT, HTC, ICC, ICHI, ICN, III, ILINK, ILM, IMH, IND, INET, INTUCH, IP, IRC, IRPC, ITC, ITCL, IVL, JAS, JTS, KBANK, KCC, KCE, KEX, KKP, KSL, KTB, KTC, KTMS, KUMWEL, KUN, LALIN, LANNAN, LH, LHFG, LIT, LOXLEY, LPN, LRH, LST, M, MAJOR, MALEE, MATCH, MBK, MC, M-CHAI, MCOT, MEGA, MFC, MFEC, MILL, MINT, MONO, MOONG, MSC, MST, MTC, MTI, NC, NCH, NCL, NDR, NER, NKI, NOBLE, NRF, NTV, NVD, NWR, NYT, OCC, OISHI<sup>1</sup>, ONEE, OR, ORI, OSP, OTO, PAP, PATO, PB, PCSGH, PDG, PDJ, PG, PHOL, PIMO, PJW, PLANB, PLAT, PLUS, PM, POLY, PORT, PPP, PPS, PR9, PRG, PRINC, PRM, PRTR, PSH, PSL, PT, PTC, PTT, PTTEP, PTTGC, Q-CON, QH, QTC, RATCH, RBF, RPH, RS, RT, S, S&J, SA, SABINA, SAK, SAMART, SAMTEL, SAPPE, SAT, SBNEXT, SC, SCB, SCC, SCCC, SCG, SCGP, SCM, SDC, SEAFICO, SEAOL, SECURE, SELIC, SENA, SENX, SFP<sup>2</sup>, SFT, SGC, SGF, SGP, SHR, SICT, SIRI, SIS, SITHAI, SJWD, SKR, SM, SMPC, SMT, SNC, SNNP, SNP, SO, SPALI, SPC, SPCG, SPI, SPRC, SR, SSC, SSF, SSSC, STA, STC, STEC, STGT, STI, SUC, SUN, SUSCO, SUTHA, SVI, SVT, SYMC, SYNEX, SYNTEC, TACC, TAE, TCAP, TCMC, TEAMG, TEGH, TFG, TFMAMA, TGE, TGH, THANA, THANI, THCOM, THIP, THRE, THREL, TIDLOR, TIPH, TISCO, TK, TKN, TKS, TKT, TLI, TM, TMC, TMD, TMT, TNDT, TNITY, TNL, TNR, TOA, TOG, TOP, TPBI, TPCS, TPIPL, TPIPP, TPS, TQM, TQR, TRT, TRUE, TRV, TSC, TSTE, TSTH, TTA, TTB, TTCL, TTW, TURTLE, TVDH, TVH, TVO, TVT, TWPC, UAC, UBE, UBIS, UKEM, UP, UPF, UPOIC, UV, VCOM, VGI, VIBHA, VIH, VL, WACOAL, WGE, WHA, WHAUP, WICE, WINMED, WINNER, XPG, YUASA, ZEN

**Companies with Very Good CG Scoring**

2S, A5, AAI, AIE, ALUCON, AMR, APURE, ARIN, AS, ASIA, ASIAN, ASIMAR, ASN, AURA, BR, BSBM, BSRC, BTG, CEN, CGH, CH, CHIC, CI, CIG, CMC, COMAN, CSP, DOD, DPAINT, DV8, EFORL, EKH, ESTAR, EVER, FORTH, FSMART, FTI, GEL, GPI, HEALTH, HUMAN, IFS, INSET, IT, J, JCKH, JDF, JKN, JMART, JUBILE, K, KCAR, KGI, KIAT, KISS, KK, KTIS, KWC, KWM, LDC, LEO, LHK, MACO, METCO, MICRO, MK, MVP, NCAP, NOVA, NTSC, PACO, PIN, PQS, PREB, PRI, PRIME, PROEN, PROS, PROUD, PSTC, PTECH, PYLON, RCL, SALEE, SANKO, SCI, SCN, SE, SE-ED, SFLEX, SINGER, SKN, SONIC, SORKON, SPVI, SSP, SST, STANLY, STP, SUPER, SVOA, SWC, TCC, TEKA, TFM, TMILL, TNP, TPLAS, TPOLY, TRC, TRU, TRUBB, TSE, VRANDA, WAVE, WFX, WIUK, WIN, WP, XO

**Companies with Good CG Scoring**

24CS, AMANAH, AMARC, AMC, APP, ASAP, BCT, BE8, BIG, BIOTEC, BLESS, BSM, BVG, CAZ, CCET, CHARAN, CHAYO, CHOTI, CITY, CMAN, CMR, CRANE, CWT, DHOUSE, DTCENT, EASON, FNS, FTE, GIFT, GJS, GTB, GTV, GYT, HL, HTECH, HYDRO, IIG, INGRS, INSURE, IRCP, ITD, ITNS, JCK, JMT, JR, JSP, KBS, KGEN, KJL, L&E, LEE, MASTER, MBAX, MEB, MENA, META, MGT, MITSIB, MJD, MOSHI, MUD, NATION, NNCL, NPK, NSL, NV, OGC, PAF, PCC, PEACE, PICO, PK, PL, PLANET, PLE, PMTA, PPM, PRAKIT, PRAPAT, PRECHA, PRIN, PSG, RABBIT, READY, RJH, RSP, RWI, S11, SAAM, SAF, SAMCO, SAWAD, SCAP, SCP, SIAM, SKE, SKY, SMART, SMD, SMIT, SOLAR, SPA, STECH, STPI, SVR, TC, TCCC<sup>3</sup>, TEAM, TFI, TIGER, TITLE, TKC, TMI, TNH, TPA, TPAC, TRITN, UBA, UMI, UMS, UTP, VARO, VPO, W, WARRIX, WORK, WPH, YONG, ZIGA

**Corporate Governance Report**

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The survey result is as of the date appearing in the Corporate Governance Report of Thai Listed Companies. As a result, the survey result may be changed after that date. InnovestX Securities Company Limited does not conform nor certify the accuracy of such survey result.

To recognize well performers, the list of companies attaining "Good", "Very Good" and "Excellent" levels of recognition (Not including listed companies qualified in the "no announcement of the results" clause from 1 January 2022 to 31 October 2023) is publicized.

<sup>1</sup>OISHI was voluntarily delisted from the Stock Exchange of Thailand, effectively on September 6, 2023

<sup>2</sup>SFP was voluntarily delisted from the Stock Exchange of Thailand, effectively on July 19, 2023

<sup>3</sup>TCCC was voluntarily delisted from the Stock Exchange of Thailand effectively on August 25, 2023

**Anti-corruption Progress Indicator**
**Certified (ได้ผ่านการรับรอง)**

2S, AAI, ADB, ADVANC, AE, AF, AH, AI, AIE, AIRA, AJ, AKP, AMA, AMANAH, AMATA, AMATAV, AP, APCS, AS, ASIAN, ASK, ASP, ASW, AWC, AYUD, B, BAFS, BAM, BANPU, BAY, BBGI, BBL, BCH, BCP, BCPG, BE8, BEC, BEYOND, BGC, BGRIM, BLA, BPP, BRI, BRR, BSBM, BTC, BTG, BTS, BWG, CBG, CEN, CENTEL, CFRESH, CGH, CHEWA, CHOTI, CHOW, CI, CIG, CIMBT, CM, CMC, COM7, CPALL, CPAXTT, CPF, CPI, CPL, CPN, CPW, CRC, CREDIT, CSC, DCC, DELTA, DEMCO, DIMET, DMT, DOHOME, DRT, DUSIT, EA, EASTW, ECF, EGCO, EP, EPG, ERW, ETC, ETE, FNS, FPI, FPT, FSMART, FSX, FTE, GBX, GC, GCAP, GEL, GFPT, GGC, GJS, GLOBAL, GPI, GPSC, GSTEEL, GULF, GUNKUL, HANA, HARN, HEALTH, HENG, HMPRO, HTC, ICC, ICHI, IFS, III, ILINK, ILM, INET, INOX, INSURE, INTUCH, IRPC, ITCL, IVL, JAS, JR, JTS, KASET, KBANK, KCAR, KCC, KCE, KGEN, KGI, KKP, KSL, KTB, KTC, L&E, LANNAN, LHFG, LHK, LPN, LRH, M, MAJOR, MALEE, MATCH, MBAX, MBK, MC, MCOT, MEGA, MENA, META, MFC, MFEC, MILL, MINT, MODERN, MONO, MOONG, MSC, MTC, MTI, NATION, NCAP, NEP, NKI, NOBLE, NRF, NWR, OCC, OGC, OR, ORI, OSP, PAP, PATO, PB, PCSGH, PDG, PDJ, PG, PHOL, PIMO, PK, PL, PLANB, PLANET, PLAT, PM, PPP, PPM, PPS, PR9, PREB, PRG, PRINC, PRM, PROS, PSH, PSL, PSTC, PT, PTECH, PTG, PTT, PTTEP, PTTGC, PYLON, Q-CON, QH, QLT, QTC, RABBIT, RATCH, RBF, RML, RS, RWI, S&J, SA, SAAM, SABINA, SAK, SAPPE, SAT, SC, SCB, SCC, SCCC, SCG, SCGP, SCM, SCN, SEAOL, SE-ED, SELIC, SENA, SENX, SFLEX, SGC, SGP, SIRI, SITHAI, SKR, SM, SMIT, SMPC, SNC, SNP, SORKON, SPACK, SPALI, SPC, SPI, SPRC, SRICHA, SSF, SSP, SSSC, SST, STA, STGT, STOWER, SUSCO, SVI, SVOA, SVT, SYMC, SYNTEC, TAE, TAKUNI, TASCO, TCAP, TCMC, TEGH, TFG, TFI, TFMAMA, TGE, TGH, THANI, THCOM, THIP, THRE, THREL, TIDLOR, TIPCO, TIPH, TISCO, TKN, TKS, TKT, TMD, TMILL, TMT, TNITY, TNL, TNP, TNR, TOG, TOP, TOPP, TPA, TPCS, TPLAS, TRT, TRU, TRUE, TSC, TSI, TSTE, TSTH, TTA, TTB, TTCL, TU, TURTLE, TVDH, TVO, TWPC, UBE, UEC, UKEM, UPF, UV, VCOM, VGI, VIBHA, VIH, WACOAL, WHA, WHAUP, WICE, WIUK, XO, YUASA, ZEN, ZIGA

**Declared (ประกาศเจตนารมณ์)**

AJE, ADVICE, ALT, AMARIN, AMC, ANI, APCO, B52, BLAND, BPS, BYD, CAZ, CHASE, CHG, CV, DEXON, DITTO, ECL, EKH, EVER, FLOYD, GREEN, HL, HUMAN, ICN, IHL, IP, ITC, JDF, JMART, K, KJL, LDC, LH, LIT, MITSIB, MJD, MOSHI, NER, NEX, PLE, PLUS, POLY, PQS, PRI, PRIME, PROEN, PROUD, PRTR, PTC, RT, S, SANKO, SAWAD, SCAP, SCGD, SFT, SHR, SINGER, SINO, SIS, SJWD, SKE, SNNP, SOLAR, SONIC, SUPER, TBN, TMI, TPAC, TPP, TQM, UREKA, VNG, WELL, WIN, WPH, XPG

**N/A**

24CS, 3K-BAT, A, A5, AAV, ABM, ACAP, ACC, ACG, ADD, AEONTS, AFC, AGE, AHC, AIT, AJA, AKR, AKS, ALLA, ALPHAX, ALUCON, AMARC, AMR, ANAN, AOT, APEX, APO, APP, APURE, AQUA, ARIN, ARIP, ARROW, ASAP, ASEFA, ASIA, ASIMAR, ASN, ATP30, AU, AUCTION, AURA, BA, BBIK, BC, BCT, BDMS, BEAUTY, BEM, BGT, BH, BIG, BIOTEC, BIS, BIZ, BJC, BJCHI, BKD, BKGI, BKIH, BLC, BLESS, BLISS, BM, BOL, BR, BROCK, BSM, BSRC, BTNC, BTW, BUI, BVG, CCET, CCP, CEYE, CFARM, CGD, CH, CHAO, CHARAN, CHAYO, CHIC, CHO, CITY, CIVIL, CK, CKP, CMAN, CMO, CMR, CNT, COCOCO, COLOR, COMAN, CPANEL, CPH, CPR, CPT, CRANE, CRD, CSP, CSR, CSS, CTW, CWT, D, DCON, DDD, DHOUSE, DOD, DPAINT, DTCENT, DTCL, DV8, EASON, EE, EFORL, EMC, ESTAR, ETL, EURO, F&D, FANCY, FE, FM, FMT, FN, FORTH, FTI, FVC, GABLE, GENCO, GFC, GIFT, GL, GLAND, GLOCON, GLORY, GRAMMY, GRAND, GSC, GTB, GTV, GYT, HFT, HPT, HTECH, HYDRO, I2, IIG, IMH, IND, INGRS, INSET, IRC, IRCP, IT, ITD, ITNS, ITTHI, J, JAK, JCK, JCKH, JCT, JKN, JMT, JPARK, JSP, JUBILE, KAMART, KBS, KC, KCG, KCM, KDH, KEX, KIAT, KISS, KK, KKC, KLINIQ, KOOL, KTIS, KTMS, KUMWEL, KUN, KWC, KWI, KWM, KYE, LALIN, LEE, LEO, LOXLEY, LPH, LST, LTS, MAGURO, MANRIN, MASTER, MATT, MCA, M-CHAI, MCS, MDX, MEB, METCO, MGC, MGI, MGT, MICRO, MIDA, MK, ML, MORE, MGT, MTW, MUD, MVP, NAM, NAT, NC, NCH, NCL, NDR, NEO, NETBAY, NEW, NEWS, NFC, NL, NNCL, NOK, NOVA, NPK, NSL, NTSC, NTV, NUSA, NV, NVD, NYT, OHTL, ONEE, ORN, PACO, PAF, PANEL, PCC, PCE, PEACE, PEER, PERM, PF, PHG, PICO, PIN, PJW, PLT, PMC, PMTA, POLAR, PORT, PPM, PRAKIT, PRAPAT, PRECHA, PRIN, PRO, PSG, PSP, PTL, QTCG, RAM, RCL, READY, RICHY, RJH, ROCK, ROCTEC, ROH, ROJNA, RP, RPC, RPH, RSP, S11, SABUY, SAF, SAFARI, SAFE, SALEE, SAM, SAMART, SAMCO, SAMTEL, SAUCE, SAV, SAWANG, SBNEXT, SCI, SCL, SCP, SDC, SE, SEAFICO, SECURE, SEI, SGF, SHANG, SIAM, SICT, SIMAT, SISB, SK, SKN, SKI, SLM, SLP, SMART, SMD, SMK, SMT, SO, SPA, SPCG, SPG, SPREME, SPVI, SQ, SR, SRS, SSC, STANLY, STC, STEC, STECH, STHAI, STI, STP, STPI, STX, SUC, SUN, SUTHA, SVR, SWC, SYNEX, TACC, TAN, TAPAC, TC, TCC, TCJ, TCOAT, TEAM, TEAMG, TEKA, TERA, TFM, TGPRO, TH, THAI, THANA, THE, THG, THMUI, TIGER, TITLE, TK, TKC, TLI, TM, TMC, TMW, TNDT, TNH, TNPC, TOA, TPBI, TPCH, TPIPL, TPIPP, TPL, TPOLY, TPS, TQR, TR, TRC, TRITN, TRP, TRUBB, TRV, TSE, TTI, TTT, TTW, TVH, TVT, TWP, TWZ, TYCN, UAC, UBA, UMI, UMS, UNIQ, UOBKH, UP, UPOIC, UTP, UVAN, VARO, VL, VPO, VRANDA, W, WARRIX, WAVE, WFX, WGE, WINDOW, WINMED, WINNER, WORK, WP, YGG, YONG, ZAA

**Explanations**

Companies participating in Thailand's Private Sector Collective Action Coalition Against Corruption programme (Thai CAC) under Thai Institute of Directors (as of June 30, 2024) are categorised into: companies that have declared their intention to join CAC, and companies certified by CAC.