Energy

SET ENERG index Close: 29/10/2026 21,712.55 -108.38 / -0.50% Bt15,266mn
Bloomberg ticker: SETENERG

Rethinking climate risk in energy

We believe carbon pricing is becoming a key financial variable for Thai equities, with growing implications for earnings, capital allocation, and competitiveness. The critical investment differentiator is not absolute emissions, but companies' ability to mitigate carbon costs through operational efficiency, pricing power, and credible decarbonization plans. Against this backdrop, we favor utilities and diversified energy (PTT), which appear better positioned to manage a higher carbon-cost environment given stronger balance sheets and scalable transition opportunities. More broadly, the energy sector appears relatively resilient given its wider range of abatement options and lower exposure to hard-to-abate process emissions compared with sectors such as cement.

Carbon pricing becomes a financial reality. Climate risk is moving from corporate sustainability reports into income statements, capital budgets and valuation frameworks. Carbon taxes, emissions-trading systems and border-adjustment mechanisms increasingly assign an explicit economic cost to greenhouse-gas emissions. Direct carbon-pricing instruments now cover approximately 29% of global greenhouse-gas emissions, confirming that emissions pricing has become a mainstream policy mechanism rather than a niche environmental initiative.

Investment implications extend beyond compliance costs. The investment implications are broader than the direct payment of carbon taxes. A rising carbon price can weaken EBITDA, increase required capital expenditure, reduce returns on invested capital and accelerate asset obsolescence. It can also affect market access, particularly where exporters must disclose embedded emissions or comply with carbon-related import requirements. At the same time, carbon pricing can improve the economics of renewable power, energy efficiency, electrification, recycling, alternative fuels and carbon-management infrastructure. The result is likely to be wider earnings and valuation dispersion between transition leaders and laggards.

Carbon exposure does not equal carbon risk. Our analysis suggests carbon exposure among Thai corporates is concentrated but financially asymmetric. Although SCC is the largest disclosed Scope 1 emitter, emissions rankings do not necessarily translate into investment risk. At a theoretical carbon price of US$20/tCO$_2$e, carbon costs could absorb ~50% of 2025 EBITDA for SCCC and ~48% for TPIPL, versus just 3% for PTTEP and 2% for PTT. However, actual financial outcomes remain highly dependent on the eventual policy design, carbon-pricing mechanism, and potential exemptions or allowances yet to be finalized by policymakers. Even so, we believe carbon risk is driven less by absolute emissions than by companies' ability to reduce emissions, pass through costs, access transition financing, and execute credible decarbonization strategies.

Utilities and diversified energy offer relative resilience. Within our coverage, we favor utilities and diversified energy as relatively well positioned for a higher carbon-cost environment. Utilities benefit from clearer decarbonization pathways through renewable generation, energy storage, grid investment, and fuel switching. Diversified energy companies remain significant emitters but generally possess stronger balance sheets, infrastructure capabilities, and broader transition opportunities across carbon capture, alternative fuels, power, and carbon-management services. While upstream, refining, and petrochemical companies continue to face meaningful carbon exposure, transition risks vary significantly by asset quality, operating efficiency, product mix, and capital discipline. Participation in initiatives such as PTT Group's Eastern Thailand CCS Hub could also support long-term emissions reductions and mitigate transition-related risks.

Cement faces the highest transition risk. Among non-energy sectors, we view cement as the most vulnerable to climate-related risks and rising carbon costs. Calcination-related process emissions are structurally difficult to abate with currently available technologies, leaving producers highly exposed to future carbon-pricing mechanisms and potentially significant decarbonization capital requirements. As carbon costs become increasingly embedded in regulatory and market frameworks, the sector may face greater pressure on profitability and competitiveness than most other industries under our coverage.

Valuation summary – Energy

	Rating	Price (Bt)	TP (Bt)	ETR (%)	P/E (x) 26F	P/E (x) 27F	P/BV (x) 26F	P/BV (x) 27F
BCP	Outperform	46.8	75.00	73.3	1.4	3.1	0.7	0.6
IRPC	Neutral	2.7	3.40	36.1	3.4	7.0	0.7	0.7
OR	Outperform	12.5	16.00	31.2	14.8	12.7	1.3	1.2
PTT	Outperform	42.3	50.00	24.5	6.4	9.6	1.0	1.0
PTTEP	Outperform	163.5	185.00	19.3	7.6	7.4	1.1	1.0
SPRC	Outperform	13.6	16.70	31.6	2.6	6.1	1.0	0.9
TOP	Outperform	61.8	85.00	46.1	2.8	7.1	0.6	0.5
Average					**5.6**	**7.6**	**0.9**	**0.9**

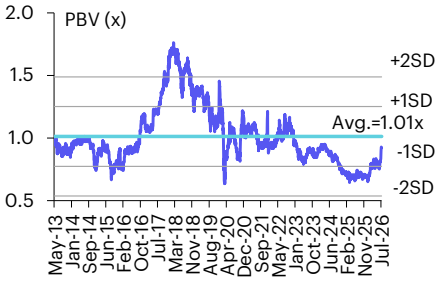
Source: InnovestX Investment Strategy & Research

Price performance

	Absolute			Relative to SET		
(%)	1M	3M	12M	1M	3M	12M
BCP	(11.0)	5.6	57.1	(8.1)	11.1	33.8
IRPC	(10.1)	23.1	139.6	(7.2)	29.5	104.1
OR	0.8	(2.3)	(12.6)	4.1	2.7	(25.5)
PTT	0.6	8.3	37.4	3.8	13.9	17.0
PTTEP	12.0	9.0	50.7	15.6	14.6	28.4
SPRC	(6.2)	27.1	184.5	(3.2)	33.7	142.3
TOP	(10.5)	(3.5)	71.5	(7.6)	1.5	46.1

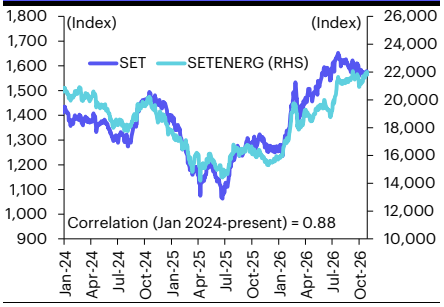
Source: SET, InnovestX Investment Strategy & Research

PBV band – SETENERG



Source: SET, InnovestX Investment Strategy & Research

SETENERG vs. SET



Source: Bloomberg Finance L.P., InnovestX Investment Strategy & Research

Analyst

Chaipat Thanawattano, IAA
Fundamental Investment
Analyst on Securities
(662) 793-9005
chaipat.t@innovestx.co.th

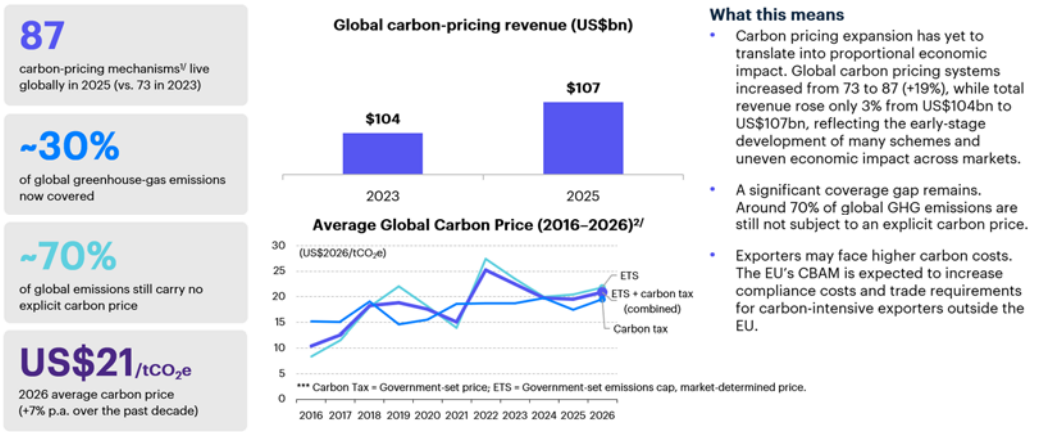
Carbon pricing is becoming a financial variable

Carbon pricing changes the nature of climate risk because it converts emissions into a measurable cost. Historically, greenhouse-gas emissions were largely treated as an externality. Companies disclosed emissions and announced long-range reduction targets, but the direct relationship with earnings was often limited. Under a carbon tax, emissions-trading system or border-adjustment mechanism, that relationship becomes increasingly explicit.

The global policy direction is clear. The number of operating carbon-pricing mechanisms has increased materially, while coverage has expanded across developed and emerging markets. The World Bank reports that direct carbon pricing covers approximately 29% of global greenhouse-gas emissions. Its 2026 assessment also emphasizes the expanding role of carbon pricing and carbon markets in supporting economic and development objectives.

Nonetheless, the economic effect differs considerably across markets. Some markets apply high carbon prices to a broad share of emissions, while others are at an early stage with low prices, generous allowances or narrow sector coverage. Investors should therefore avoid applying a single global carbon-price assumption mechanically. A more robust approach is to test multiple pricing scenarios and assess how exposure evolves as free allowances decline, sector coverage expands or reporting requirements become more stringent.

Figure 1: Global carbon pricing landscape



Source: World Bank, Reuters, InnovestX Investment Strategy & Research
Note: [1]Carbon tax and ETS (Emissions Trading System); [2]Calculated based on the share of global GHG emissions covered by ETS or carbon tax schemes, excluding newly launched ETS programs in India, Japan, and Vietnam for which carbon price data were not available as of the publication date. Carbon prices are referenced as of 1 April 2026.

For equity valuation, carbon pricing affects companies through several connected channels. The first is the direct cost attached to emitted tons. The second is the investment needed to avoid future costs. The third is the potential for higher prices to influence customer demand and product competitiveness. The fourth is the effect on financing conditions and terminal value. A business may report limited near-term compliance expense yet still face a meaningful valuation impact if its future growth requires carbon-intensive assets or if decarbonization demands returns-dilutive capital expenditure.

This makes carbon pricing comparable to other structural variables used in institutional research. Analysts routinely stress-test oil prices, refining margins, interest rates and foreign exchange assumptions. Carbon-price sensitivity should increasingly be treated in the same way, particularly for power, energy, cement, chemicals and other capital-intensive industries.

International policy direction raises the cost of inaction

The development of mature carbon markets provides a useful guide to how Thailand's framework could evolve. The European Union began its emissions-trading system in 2005, initially applying a relatively accommodating framework before progressively tightening the emissions cap and reducing free allowances. Carbon costs are now embedded in electricity and industrial economics across the region. China launched its national emissions-trading system in 2021 with an initial focus on power generation and a pathway toward broader sector coverage. Singapore adopted a carbon tax and has communicated a staged increase, giving industry greater visibility over future compliance costs.

The common policy lesson is not that every market will converge on a single carbon price. Rather, credible regimes tend to become more economically material over time. They generally begin with limited coverage, low effective costs or generous transition arrangements. Policymakers subsequently expand the system, improve measurement standards and strengthen the price signal after companies have been given time to prepare.

For investors, gradualism reduces the probability of an immediate earnings shock but raises the importance of early corporate action. A company that waits until a high carbon price is fully implemented may face a compressed investment timetable, higher project costs and greater operational disruption. A company that invests early can spread capital expenditure over a longer period, gain experience with emerging technologies and potentially develop products or services that benefit from the transition.

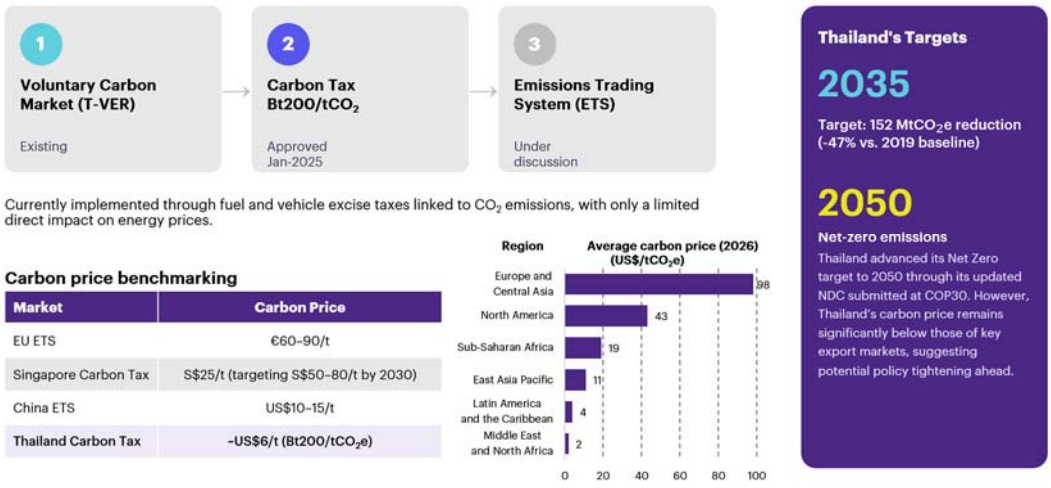
The European Union's Carbon Border Adjustment Mechanism adds a trade dimension. The definitive regime has applied since 1 January 2026 and requires qualifying importers to address embedded emissions in covered products. The mechanism currently encompasses carbon-intensive categories including cement, iron and steel, aluminum, fertilizers, electricity and hydrogen. The price of CBAM certificates is linked to the EU Emissions Trading System, subject to the detailed rules of the mechanism. This creates a clearer connection between emissions, import costs and market access.

Direct exposure for Thai listed companies is currently concentrated, and some covered product categories represent limited Thai exports to Europe. However, the strategic effect is wider than the immediate financial charge. Product-level carbon measurement, assurance and traceability are likely to become more important in global procurement. Even companies outside the initial CBAM Scope may encounter requests from multinational customers for verified emissions information and lower-carbon supply chains.

Thailand is moving gradually toward carbon pricing

Thailand's policy framework remains at an early stage, but the transition from voluntary action toward explicit carbon economics has begun. The country already operates the Thailand Voluntary Emission Reduction Program, or T-VER, and approved a carbon-pricing component equivalent to Bt200/tCO_2e within the excise-tax structure for petroleum products in January 2025. A future emissions-trading system remains under consideration.

Figure 2: Carbon tax comparison



Source: Thailand Greenhouse Gas Management Organization, Reuters, InnovestX Investment Strategy & Research

The current mechanism is designed to limit an immediate increase in retail fuel prices because the carbon component is incorporated within the existing excise structure. Near-term corporate earnings effects are therefore likely to be modest. Nevertheless, the policy establishes an official domestic carbon-price reference and creates institutional infrastructure that could support broader coverage later.

Thailand's carbon price remains substantially below the levels observed in the European Union and below the ranges communicated for Singapore by 2030. That gap should not be interpreted as evidence that Thailand will replicate more developed markets quickly. Thailand must balance competitiveness, energy security, household affordability and industrial development. It does, however, imply that domestic companies should prepare for a progressively stronger policy signal over a multiyear horizon.

Thailand's climate targets reinforce this direction given a 2035 objective to reduce net greenhouse-gas emissions to 152mn tCO_2e, equivalent to a 47% reduction relative to the 2019 base, and a net-zero objective for 2050. Achieving those ambitions would require changes in power generation, transport, industrial energy use, agricultural practices and land-use management. It would also require investment at a scale unlikely to be delivered through voluntary carbon credits alone.

The policy pathway therefore matters more than the initial price. Institutional investors should monitor whether Thailand broadens carbon pricing to additional fuels or industrial installations, introduces mandatory emissions reporting, progresses toward an ETS, links domestic credits with compliance obligations or develops sector-specific decarbonization standards. Each development would alter the distribution of costs and opportunities across listed companies.

Thailand's emissions profile places energy at the center of the transition

Thailand's greenhouse-gas profile explains why the energy sector is central to both transition risk and transition opportunity. Electricity generation, transport and industrial energy consumption collectively represent the largest source of national emissions. The implication is unavoidable: Thailand cannot achieve a meaningful reduction in emissions without changing how energy is produced, distributed and consumed.

This does not mean energy shares are automatically the least attractive ESG investments. It means energy companies will have the greatest influence on the national emissions trajectory. Utilities can change their generation mix, invest in storage and strengthen transmission infrastructure. Refiners can improve energy efficiency and adjust product portfolios. Upstream operators can reduce methane leakage and routine flaring. Integrated energy companies can supply renewable power, alternative fuels and carbon-management services to other sectors.

This distinction between exposure and agency is crucial. A company can have high current emissions while also having significant control over how quickly those emissions decline. Conversely, a company can report a smaller footprint but have limited practical ability to reduce it because emissions arise from the chemistry of the production process.

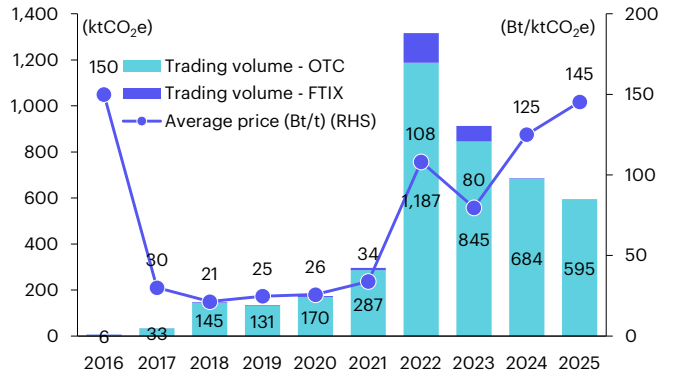
The direction of reported emissions also requires careful interpretation. Rising emissions at GULF, GPSC and BGRIM partly reflect portfolio expansion and the commissioning of new power assets. Reported emissions therefore rise with the scale of operations, even if carbon intensity per unit of electricity improves. Similarly, higher emissions at PTTEP may reflect output growth rather than deteriorating operational efficiency.

Declining emissions can also be ambiguous. Lower reported emissions at SCC, PTTGC and IRPC partly reflect weaker demand, lower utilization or cyclical operating conditions. A reduction caused by subdued production is not equivalent to a structural reduction generated through technology, fuel switching or process redesign. Investors should therefore evaluate absolute emissions together with output-adjusted intensity, utilization rates and changes in asset composition.

Thailand's carbon-credit market is too small to replace operational abatement

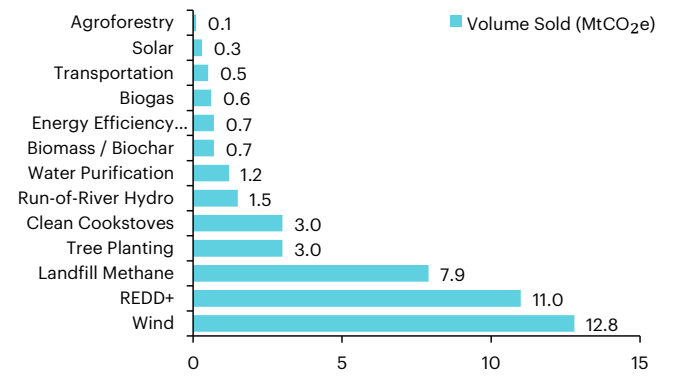
Thailand's voluntary carbon market provides a useful mechanism for financing emissions-reduction projects, but it is not yet large enough to serve as the principal transition solution for major listed emitters. Figure 3: indicates that the average T-VER price recovered to approximately THB145/tCO_2e in 2025, while annual trading volume declined to around 0.6mn tCO_2e from the elevated levels recorded earlier in the decade.

Figure 3: Thailand's carbon credit market



Source: Thailand Greenhouse Gas Management Organization, FTIX

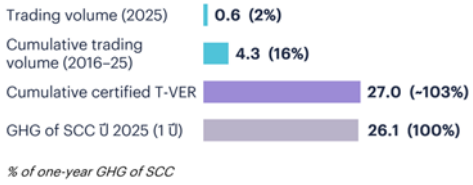
Figure 4: Trading volume by project type (2025)



Source: Thailand Greenhouse Gas Management Organization, FTIX

The imbalance becomes clearer when compared with a single large corporate emitter. Figure 5: compares 2025 trading volume of approximately 0.6mn tons with SCC's 2025 greenhouse-gas footprint of about 26.1mn tCO_2e. Annual Thai market volume was therefore equivalent to only around 2% of one year of SCC emissions. Even cumulative certified T-VER volume of approximately 27mn tons was roughly equivalent to one year of that company's emissions.

Figure 5: SCC's GHG emission vs. trading volume in Thai carbon credit market



Investment implication

1) Carbon market remains too small to replace actual emissions reductions
   a. Total 2025 carbon credit trading volume is equivalent to only ~2% of SCC's annual GHG emissions.
   b. Even the cumulative volume of certified T-VER credits would offset only about one year of SCC's emissions.
2) Carbon credits are a complement, not a substitute, for decarbonization
   a. High-emitting sectors such as cement, petrochemicals, and gas-fired power generation will still require substantial decarbonization capex to achieve meaningful emissions reductions.
   b. These investments should be incorporated into earnings forecasts, cash flow projections, and valuation assessments.

Source: SCC, Thailand Greenhouse Gas Management Organization, InnovestX Investment Strategy & Research

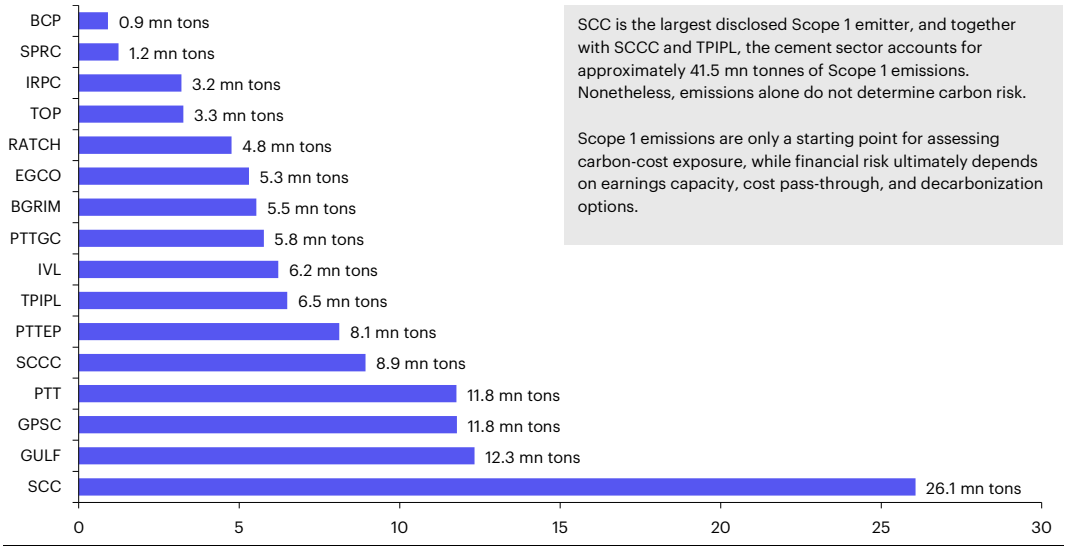
This does not diminish the value of credible carbon credits. Credits can channel capital toward forestry, methane management, renewable energy and community projects. They can also address residual emissions where operational abatement is temporarily unavailable. However, market depth, project quality, additionality and permanence remain critical concerns.

For valuation purposes, offsets should be regarded as a supplementary tool rather than a substitute for real operational change. Companies with high direct emissions will still need transition capital expenditure for efficiency improvements, renewable power, alternative fuels, electrification or carbon capture. A strategy that depends excessively on inexpensive offsets may become less credible as investors and regulators demand higher-quality credits and more direct emissions reduction.

Company emissions are concentrated, but financial risk is not

The reported Scope 1 data in Figure 6: show that direct emissions are concentrated among a relatively small group. SCC leads the group with approximately 26.07mn tCO_2e. GULF, GPSC and PTT follow at approximately 12.33mn, 11.78mn and 11.77mn tons, respectively. SCCC reports approximately 8.93mn tons, while PTTEP reports approximately 8.12mn tons.

Figure 6: Scope 1 emissions among large energy and industrial companies



SCC is the largest disclosed Scope 1 emitter, and together with SCCC and TPIPL, the cement sector accounts for approximately 41.5 mn tonnes of Scope 1 emissions. Nonetheless, emissions alone do not determine carbon risk.

Scope 1 emissions are only a starting point for assessing carbon-cost exposure, while financial risk ultimately depends on earnings capacity, cost pass-through, and decarbonization options.

Source: Company data (2025 ESG disclosures), InnovestX Investment Strategy & Research

The three cement-related companies in the study, SCC, SCCC and TPIPL, together produce roughly 41.5mn tons of disclosed Scope 1 emissions. This is significant because a material portion is associated with process chemistry rather than energy use alone.

Yet direct-emissions ranking is not a financial-risk ranking. A company's exposure depends on its earnings base, degree of regulatory coverage, availability of free allowances or exemptions, cost pass-through and ability to reduce emissions. A high-emitting company with substantial EBITDA and multiple transition pathways may absorb or mitigate carbon costs more effectively than a smaller company with limited earnings and no low-cost abatement options.

This is why carbon cost relative to EBITDA is more informative than absolute carbon cost alone. It is also why a theoretical stress test should be interpreted as a sensitivity measure, not as a forecast.

Carbon-cost sensitivity reveals significant earnings dispersion

We estimate theoretical annual carbon costs by applying carbon prices of US$20/tCO2e and US$50/tCO2e to companies' reported 2025 Scope 1 emissions. The analysis assumes full cost imposition with no free allowances, exemptions, offsets, mitigation measures, or cost pass-through, meaning the resulting figures should be viewed as an upper-bound sensitivity analysis rather than expected cash costs.

The US$20/tCO2e assumption reflects the average carbon price in 2025-26, while US$50/tCO2e represents the midpoint of the projected range over the same period, as shown in Figure 2. Although higher carbon prices could accelerate progress toward net-zero emissions, we believe a broad-based implementation of such elevated carbon costs is unlikely, given the differing stages of economic development across regions.

Figure 7: Stress test of carbon cost as % of EBITDA (US$20/tCO2e and US$50/tCO2e)

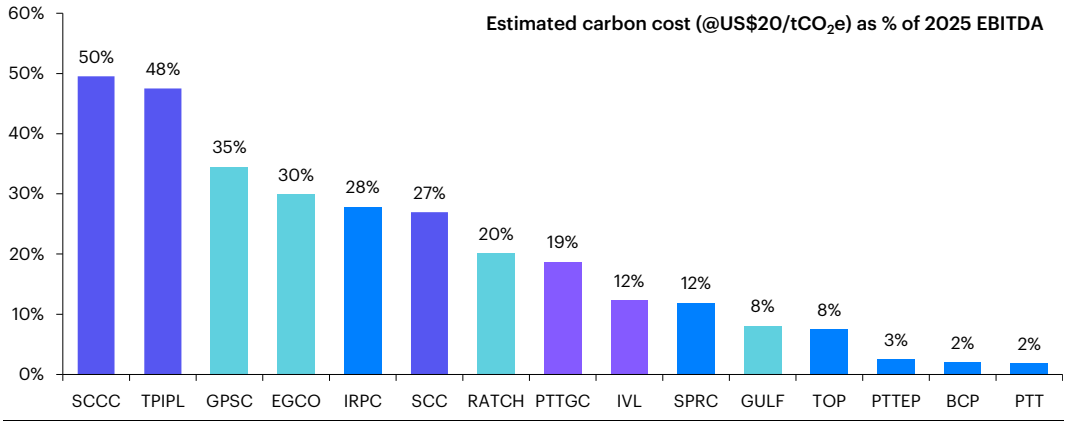
Company	EBITDA (2025) (US$mn)	@US$20/tCO2e	@US$50/tCO2e
SCCC	361	50%	124%
TPIPL	274	48%	119%
GPSC	683	35%	86%
EGCO	354	30%	75%
IRPC	230	28%	70%
SCC	1,935	27%	67%
RATCH	473	20%	50%
PTTGC	616	19%	47%
IVL	1,007	12%	31%
SPRC	208	12%	30%
GULF	3,039	8%	20%
TOP	865	8%	19%
PTTEP	6,483	3%	6%
BCP	886	2%	5%
PTT	12,250	2%	5%

Source: Company data (2025 ESG disclosures), InnovestX Investment Strategy & Research
Note: Based on exchange rate of Bt32.8/US$ and EBITDA in 2025

At US$20/tCO2e, the estimated carbon cost ranges from approximately 2% of 2025 EBITDA for PTT and BCP to 50% for SCCC. TPIPL follows at 48%, while GPSC, EGCO, IRPC and SCC range between 27% and 35%.

At US$50/tCO2e, theoretical carbon cost rises above annual EBITDA for SCCC and TPIPL, reaching approximately 124% and 119%, respectively. The ratio increases to 86% for GPSC, 75% for EGCO, 70% for IRPC and 67% for SCC. At the other end of the range, estimated exposure remains around 5% for PTT and BCP and 6% for PTTEP.

Figure 8: Earnings sensitivity varies significantly by sector



Source: Company data (2025 ESG disclosures), InnovestX Investment Strategy & Research

The exercise demonstrates three important points. First, carbon-price increases would not affect sectors uniformly. Second, cement and selected power producers are potentially more earnings-sensitive than the absolute emissions ranking suggests. Third, large integrated energy businesses can have high gross emissions but relatively manageable exposure when measured against EBITDA.

Nonetheless, the stress test should not be incorporated directly into forecasts. Actual liability would depend on policy design, covered facilities, measurement rules, free allocation, tax deductibility, timing, mitigation and product pricing. Nevertheless, the analysis identifies where additional due diligence is most important. A company showing theoretical carbon costs

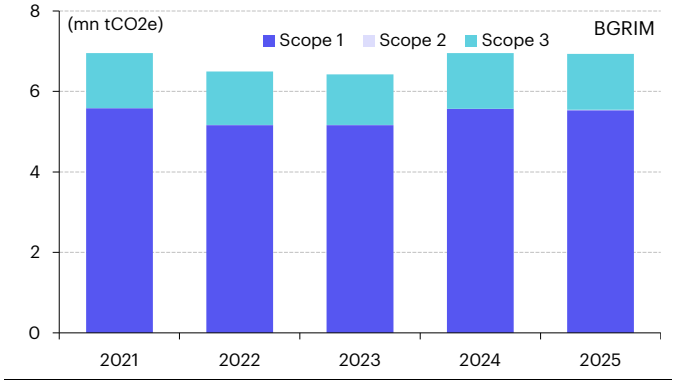
equivalent to half of EBITDA requires a more detailed review of abatement plans and cost recovery than a company whose exposure is in the low single digits.

Utilities: attractive transition path, but asset mix matters

Utilities possess one of the clearest decarbonization pathways among carbon-intensive industries. Power-sector emissions are primarily associated with fuel combustion, which can be reduced through a change in generation mix, improved heat rates, renewable development, storage and demand management. These options are technically more mature than the solutions required for hard-to-abate process emissions.

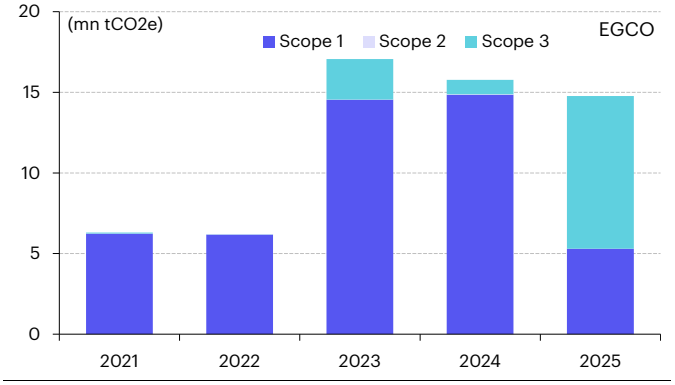
The sector also benefits from electrification. Electric vehicles, industrial electrification, digital infrastructure, data centers and greater use of cooling all increase demand for electricity. If power generation becomes progressively cleaner, utilities can benefit from volume growth while reducing emissions intensity. This alignment between transition investment and business growth supports our constructive long-term view.

Figure 9: GHG emission – BGRIM



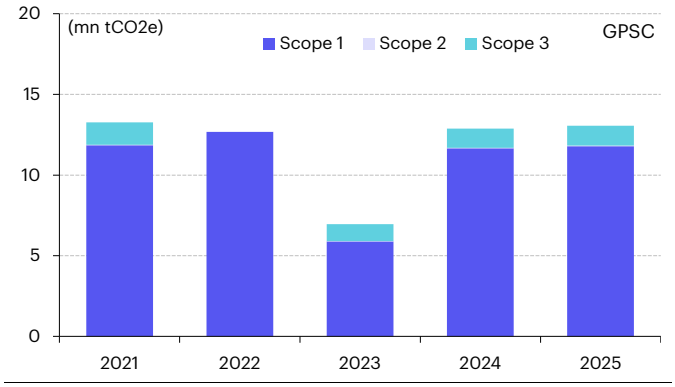
Source: Company, InnovestX Investment Strategy & Research

Figure 10: GHG emission – EGCO



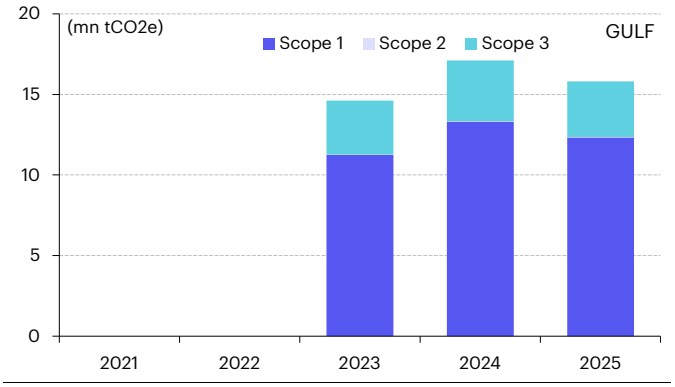
Source: Company, InnovestX Investment Strategy & Research

Figure 11: GHG emission – GPSC



Source: Company, InnovestX Investment Strategy & Research

Figure 12: GHG emission – GULF

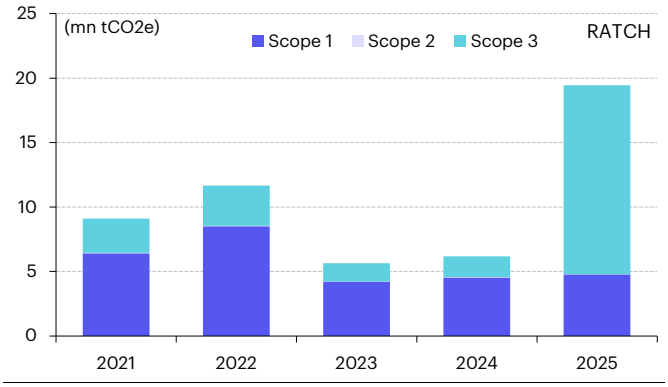


Source: Company, InnovestX Investment Strategy & Research

The sector is not homogeneous. Companies with a high share of fossil-fuel generation remain exposed to carbon-price increases, fuel costs and potential asset impairment. The theoretical scenario shows material carbon-cost-to-EBITDA ratios for GPSC, EGCO and RATCH. This sensitivity underscores the importance of generation mix, contractual pass-through provisions and the pace of renewable investment.

GULF has one of the largest disclosed Scope 1 footprints in the study, partly reflecting rapid expansion. Its carbon cost is nevertheless lower relative to EBITDA than several peers due to its larger earnings base. BGRIM, GPSC, RATCH and EGCO each require separate analysis of power-purchase agreements, fuel pass-through and the proportion of earnings derived from renewable assets.

Figure 13: GHG emission – RATCH



Source: Company, InnovestX Investment Strategy & Research

We prefer utilities that can demonstrate declining carbon intensity per megawatt-hour, transparent transition capital allocation and a credible path to replacing or reducing high-carbon generation. Absolute emissions may increase during periods of capacity growth, but rising emissions should be accompanied by evidence that portfolio carbon intensity is moving downward.

Figure 14: Carbon Cost Exposure vs. Decarbonization Resilience

	High Decarbonization Resilience	Low to Medium Decarbonization Resilience
High Carbon Cost Exposure	**More resilient to the transition** **PTTEP / PTT** CCS Project under development **PTTGC** Circular Economy and CCUS under study	**Greatest decarbonization challenge** **SCC** High process emissions **TPIPL** Cement business is hard-to-abate sector **SCCC** Cement business is hard-to-abate sector
Medium Carbon Cost Exposure	**Better positioned in decarbonization** **GULF** Renewable Energy Expansion **GPSC** Solar, battery storage and clean energy **BGRIM** Increasing renewable energy capacity **TOP** Energy-efficiency initiatives and CCUS evaluation **BCP / RATCH** Continued investment in clean energy projects	**Further developments should be monitored** **IRPC** Circular Economy but limited transition projects **SPRC** Limited disclosure about Transition

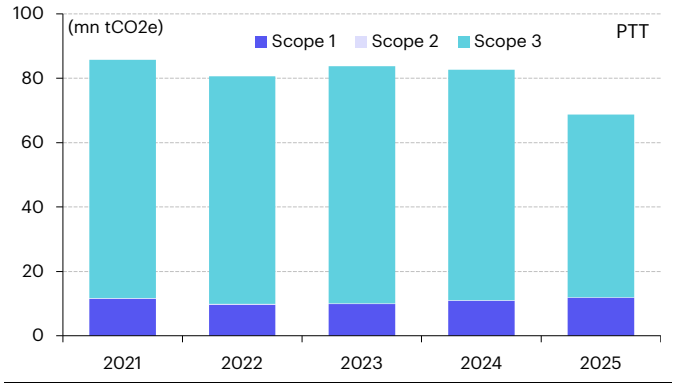
Source: Company data (2025 ESG disclosures), InnovestX Investment Strategy & Research
Note: Assessment is based on Scope 1–3 emissions data, carbon-cost scenarios, carbon cost-to-EBITDA analysis, sector-specific emissions profiles, and companies' Avoid, Reduce, Capture, and Offset initiatives, as well as publicly disclosed emissions-reduction targets.

Diversified energy: carbon exposure offset by strategic optionality

Diversified energy companies remain exposed to climate policy across the value chain. Direct emissions arise from operations, while much larger Scope 3 emissions may result from customer use of fuels. This creates long-term demand and regulatory risk even where direct carbon-cost-to-EBITDA exposure appears manageable.

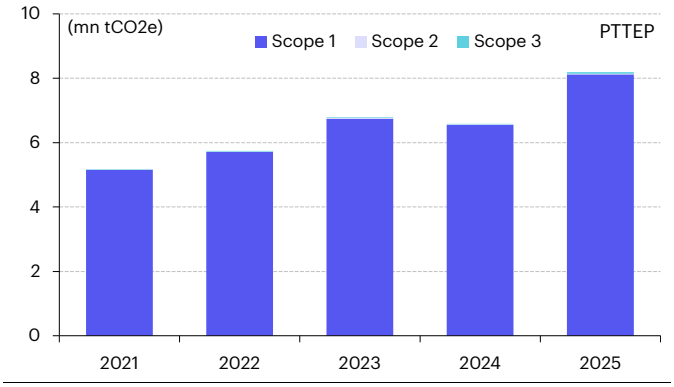
However, diversified energy companies possess strategic advantages that many industrial businesses lack. They control infrastructure, generate substantial operating cash flow, employ large engineering teams and can allocate capital across multiple technologies. Renewable power, carbon capture and storage, biofuels, sustainable aviation fuel, hydrogen and carbon-market services create options to reposition the portfolio over time.

Figure 15: GHG emission – PTT



Source: Company, InnovestX Investment Strategy & Research

Figure 16: GHG emission – PTTEP



Source: Company, InnovestX Investment Strategy & Research

We place PTT and PTTEP in the quadrant characterized by high carbon-cost exposure but stronger decarbonization resilience. PTTEP is developing carbon capture and storage, including the Arthit project, while PTT has the financial and operational capacity to support transition investment across the group.

The central investment question is whether transition spending can earn acceptable returns. Large capital budgets do not automatically create value. Investors should monitor hurdle rates, project economics, partner structures, government support and the degree to which low-carbon investment is incremental rather than a re-labelling of conventional expenditure.

We believe the energy sector's optionality is strategically valuable, but valuation support should depend on evidence of execution. The strongest companies will be those that connect transition capital expenditure to measurable emissions reductions and commercially sustainable earnings.

Upstream energy: methane and operational efficiency drive the risk profile

Upstream oil and gas companies remain exposed to carbon prices, methane regulation, flaring restrictions and potential long-term demand erosion. Scope 1 emissions arise from production facilities, combustion, flaring and fugitive methane. Methane management is especially important because relatively targeted interventions can produce meaningful climate benefits.

PTTEP reports significant direct emissions, but its carbon-cost-to-EBITDA ratio is comparatively low in these scenarios because of a strong earnings base. At US$20/$tCO_2e$, theoretical cost represents approximately 3% of 2025 EBITDA, increasing to approximately 6% at US$50/$tCO_2e$.

This relative resilience does not eliminate transition risk. Upstream valuation remains sensitive to commodity prices, reserve life, field carbon intensity and future demand assumptions. New projects with high emissions intensity may face higher financing costs or weaker strategic value even before a direct carbon charge is applied.

The most relevant indicators include methane intensity, routine flaring, energy use per barrel, CCS execution, portfolio break-evens and the proportion of capital directed toward lower-carbon businesses. We maintain a Market Weight view because strong cash flow offsets direct carbon exposure, but the sector's terminal value remains more uncertain than that of regulated or renewable-oriented utilities.

Refining: efficiency and product mix are the main defenses

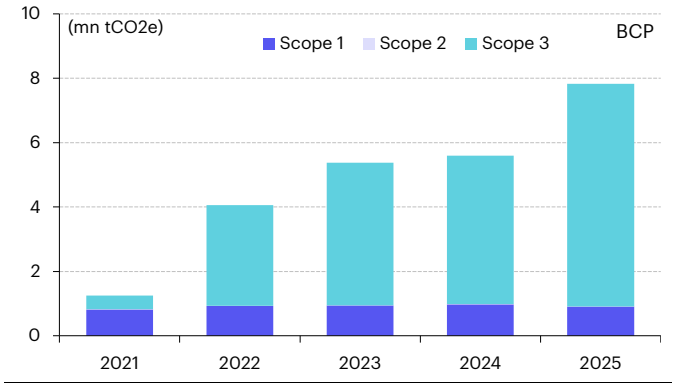
Refineries emit carbon directly through furnaces, boilers, hydrogen production and other energy-intensive processes. They also face indirect risk as transport systems move toward electrification and lower-carbon fuels.

Unlike cement, refineries have several practical levers to reduce direct emissions. Energy-efficiency projects, heat integration, lower-carbon hydrogen, operational optimization and carbon capture can reduce plant-level intensity. Note that improving energy efficiency and optimization at TOP, while BCP is developing lower-carbon fuels and carbon-market activities.

The theoretical carbon-cost analysis suggests substantial dispersion within the group. IRPC shows an estimated cost equal to 28% of 2025 EBITDA at US$20/$tCO_2e$, reflecting both emissions and a comparatively weak earnings base. SPRC and TOP show lower ratios, while BCP is among the least exposed in EBITDA terms.

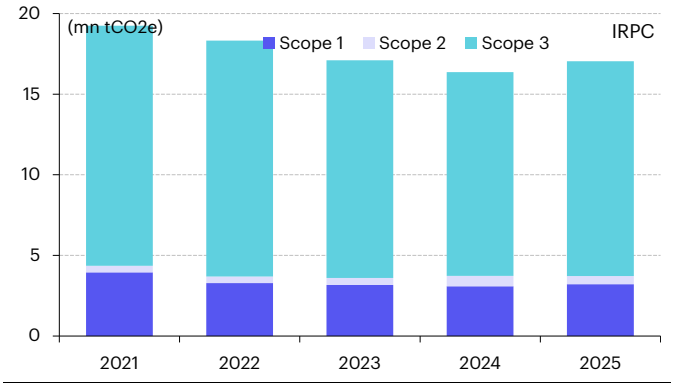
This illustrates the cyclical nature of the risk. Carbon-cost-to-EBITDA can rise sharply when refining margins weaken, even if emissions remain unchanged. Investors should therefore test carbon exposure through the cycle rather than against a single year of earnings.

Figure 17: GHG emission Scope 1 – BCP



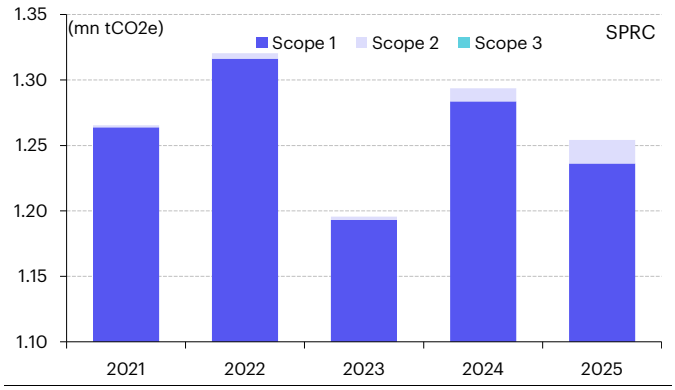
Source: Company, InnovestX Investment Strategy & Research

Figure 18: GHG emission – IRPC



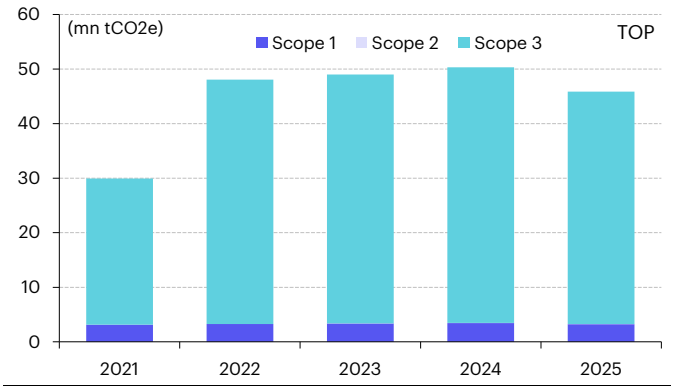
Source: Company, InnovestX Investment Strategy & Research

Figure 19: GHG emission – SPRC



Source: Company, InnovestX Investment Strategy & Research

Figure 20: GHG emission – TOP

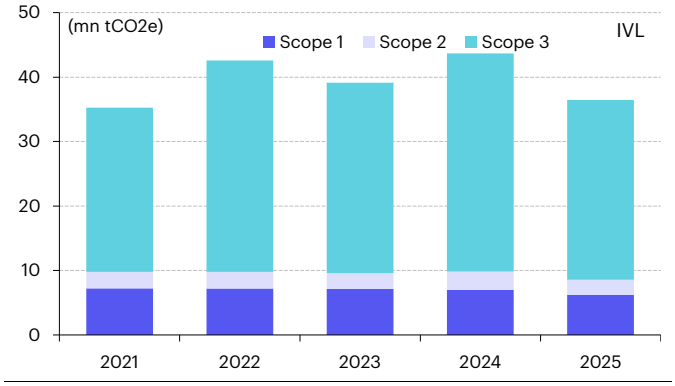


Source: Company, InnovestX Investment Strategy & Research

Petrochemicals: Scope 3 and transition economics complicate the outlook

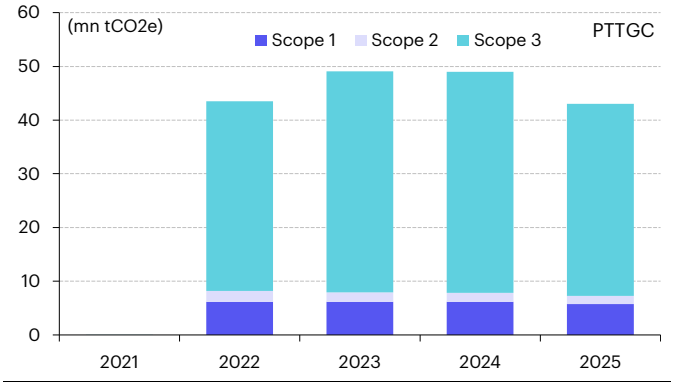
Petrochemical companies face direct emissions from crackers and other energy-intensive processes, together with substantial Scope 3 exposure associated with feedstocks, product use and end-of-life treatment. Regulatory risk is therefore broader than a direct carbon tax alone.

Figure 21: GHG emission – IVL



Source: Company, InnovestX Investment Strategy & Research

Figure 22: GHG emission – PTTGC



Source: Company, InnovestX Investment Strategy & Research

Operational efficiency, cracker electrification, renewable electricity, recycled feedstocks, circular-economy models and carbon capture provide possible mitigation pathways. Yet several technologies remain expensive or require infrastructure not controlled by individual companies. Weak petrochemical margins can further constrain transition spending.

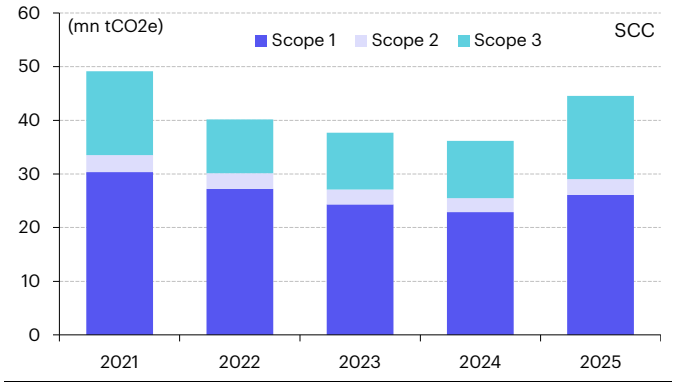
Companies within the petrochemical sector are pursuing various decarbonization pathways, including circular economy initiatives, feedstock recycling, and resource-efficiency programs. Among Thai producers, PTTGC and IRPC have prioritized circularity and recycling as key elements of their emissions-reduction strategies. By contrast, IVL's transition pathway remains more dependent on the commercial scalability of emerging technologies and the substantial capital investment required across its globally diversified asset base.

We expect increasing differentiation across the petrochemical sector as carbon costs become more material. Companies with competitive asset portfolios, stronger balance sheets, access to recycled or bio-based feedstocks, and disciplined decarbonization strategies are likely to outperform structurally higher-cost producers. While multiple pathways exist to reduce emissions intensity, including circularity, feedstock substitution, electrification, and carbon capture, the transition remains capital intensive and economically more challenging than in the utility sector. Accordingly, we maintain Neutral view on the sector from a carbon-risk perspective.

Cement: the most structurally exposed sector

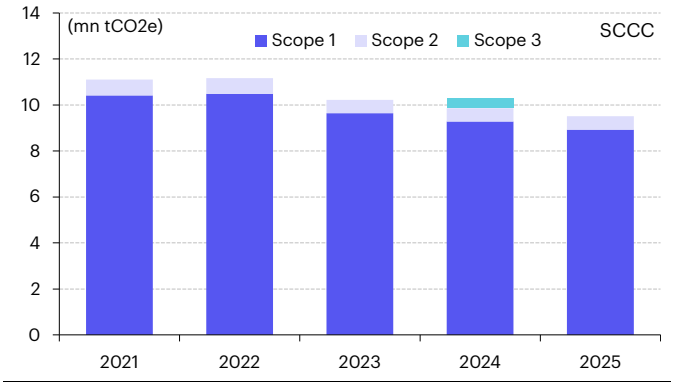
Cement represents the clearest example of why process emissions matter. A substantial share of cement-sector emissions arises from calcination, the chemical conversion of limestone into clinker. These emissions remain even if the plant uses renewable electricity or more efficient equipment.

Figure 23: GHG emission Scope 1 – SCC



Source: Company, InnovestX Investment Strategy & Research

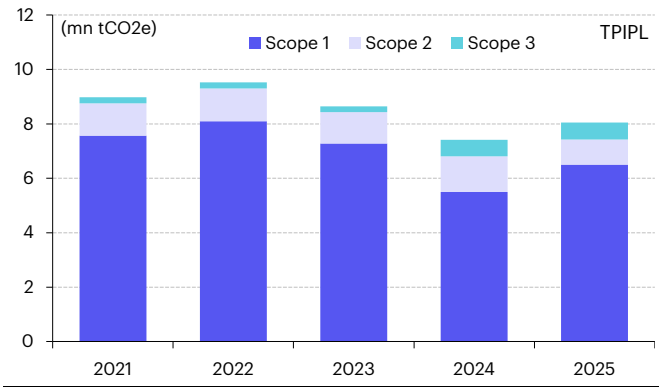
Figure 24: GHG emission – SCCC



Source: Company, InnovestX Investment Strategy & Research

Alternative fuels, lower-clinker cement, supplementary cementitious materials and improved thermal efficiency can reduce emissions. However, deep decarbonization is likely to require carbon capture, utilization and storage. CCUS is capital intensive, requires transport and storage infrastructure and may not achieve commercially attractive returns without policy support or a green premium.

Figure 25: GHG emission – TPIPL



Source: Company, InnovestX Investment Strategy & Research

The sensitivity analysis highlights the scale of potential financial exposure. At US$20/tCO$_2$e, estimated carbon costs represent approximately 50% of 2025 EBITDA for SCCC, 48% for TPIPL and 27% for SCC. At US$50/tCO$_2$e, the estimates rise to 124%, 119% and 67%, respectively.

These values are theoretical ceilings, but they demonstrate that even partial carbon-cost imposition could materially influence margins, investment requirements and valuation. Pass-through will depend on market structure, import competition, construction demand and customer willingness to pay for lower-carbon products.

Global peers illustrate the direction of travel. Heidelberg Materials has advanced full-scale carbon capture at its Brevik cement plant, while Holcim continues to expand lower-carbon cement products. These initiatives establish useful benchmarks but also reinforce the scale of technology and investment required.

We remain Underweight because cement combines high direct emissions, limited low-cost abatement and potentially material earnings sensitivity. Re-rating would require clearer evidence of cost pass-through, commercially funded CCUS or a credible path to lower clinker intensity.

Transition credibility matters more than the target year

Most companies in the mentioned sectors have adopted a 2050 net-zero objective. The convergence on a common target year is positive, but it reduces the usefulness of the target itself as an investment differentiator.

Figure 26: Net Zero target of selected companies



Source: Company data (2025 ESG disclosures)

The critical issue is the pathway. Institutional investors should assess whether a company has defined interim targets, allocated capital, assigned management accountability and demonstrated declining emissions intensity. A distant ambition without a near-term operating plan provides limited protection against carbon-price risk.

Credibility should be assessed through several lenses. The first is the direction of absolute and intensity-adjusted emissions. The second is the proportion of capital expenditure dedicated to projects with measurable transition benefits. The third is management's willingness to retire or avoid high-carbon assets. The fourth is the balance between direct abatement and carbon offsets. The fifth is disclosure quality, including external assurance and clarity over Scope 3 boundaries.

The absence of a fixed net-zero year is not necessarily evidence of poor governance. SCCC and IVL have not specified the same target year as most peers. In some cases, a cautious position may reflect uncertainty over commercially available technology or changing asset portfolios. For investors, a realistic near-term plan can be more valuable than an ambitious target unsupported by capital and execution.

Sector allocation and investment strategy

Our preferred sector allocation reflects the balance between theoretical carbon-cost exposure and decarbonization resilience.

We favor the Utilities and Diversified Energy sectors. Utilities benefit from access to commercially proven abatement technologies and are well positioned to capture growing demand for low-carbon electricity. Within the sector, we prefer companies with visible renewable-energy development pipelines, driving a lower-carbon portfolio mix, and contractual structures that provide earnings stability and return protection. Our top pick is GULF (OUTPERFORM; TP: Bt78). The company's investment strategy is focused on renewable energy and concession-like businesses, supported by long-term contractual arrangements with government counterparties that provide strong cash-flow visibility.

We also favor Diversified Energy, where strong balance sheets, infrastructure expertise, and financial flexibility create strategic optionality throughout the energy transition. We prefer companies that can internally fund transition investments while maintaining capital discipline and focusing on projects with clear commercial returns rather than pursuing transition initiatives primarily for reputational purposes.

Our top pick is PTT (OUTPERFORM; TP: Bt50). PTT continues to pursue energy-transition opportunities while maintaining a balanced approach to profitability and shareholder returns. PTTEP's carbon capture and storage (CCS) initiative is being developed as a pilot platform to support the PTT Group's Net Zero ambitions while assessing the long-term commercial viability of CCS, including opportunities associated with the Eastern CCS Hub in Map Ta Phut Industrial Estate. PTT is also evaluating hydrogen-related opportunities as a potential long-term growth

avenue. However, the commercial attractiveness of CCS remains highly dependent on the future evolution of carbon-pricing frameworks, emissions-trading systems, and climate-related regulations.

For Upstream Energy, we believe direct carbon-cost exposure remains manageable relative to sector profitability. However, methane-emission risk, commodity-price cyclicality, and long-term terminal-value uncertainty remain important investment considerations. PTTEP's CCS project at the Arthit gas field has already reached the final investment decision (FID) stage and is expected to commence commercial operations in 2028. The company is also positioning itself to participate in the Eastern CCS Hub, potentially establishing a carbon-storage service business that leverages its existing E&P expertise and infrastructure.

We maintain a Neutral stance on the Refining and Petrochemicals sector with respect to carbon-cost impacts. While viable decarbonization pathways exist, weak industry fundamentals may constrain the pace of transition-related investment. Relative performance is likely to depend on asset competitiveness, operating efficiency, and management execution.

We are most cautious on the Cement sector. The industry combines significant process emissions with relatively high theoretical carbon-cost-to-EBITDA exposure and remains dependent on costly or still-developing deep-decarbonization technologies. As a result, cement producers appear most vulnerable to a more stringent carbon-pricing environment and face greater challenges in protecting profitability under a higher-carbon-cost regime.

Catalysts and risks

1) Potential positive catalysts include a clearer Thai carbon-pricing roadmap, accelerated renewable permitting, higher demand for private power agreements, greater access to sustainable finance and government support for carbon capture infrastructure. Improved disclosure could itself become a catalyst if it demonstrates that a company's carbon intensity is declining faster than the market assumes.

2) Negative catalysts include a rapid increase in domestic carbon prices, expansion of CBAM or similar measures, tighter customer procurement standards, slower cost pass-through and weaker cyclical earnings that make carbon expenses more significant relative to EBITDA. For utilities and diversified energy, poor returns on low-carbon projects would weaken the investment thesis even if emissions decline.

3) The primary risk to our sector call is that carbon policy develops more slowly than expected, delaying the financial advantages of transition leaders. A second risk is a technological breakthrough that sharply reduces abatement costs for cement or other hard-to-abate sectors. The last is that utilities and energy companies overinvest in transition projects at unattractive returns, converting strategic optionality into capital misallocation.

Conclusion

Carbon pricing is becoming a component of industrial economics and equity valuation. Thailand's current carbon-price signal is modest, but the combination of national climate objectives, growing global carbon coverage and trade-related emissions requirements suggests that carbon exposure will become progressively more relevant.

The analysis supports a differentiated conclusion. Energy companies are large emitters, but they are not automatically the highest risk investments. Many possess strong earnings, financial capacity, operational expertise and multiple commercially viable transition pathways. Their role at the center of the emissions problem also places them at the center of the investment required to solve it.

Appendix I: Understanding Scope 1, Scope 2 and Scope 3 exposure

A robust carbon-risk analysis must distinguish between the three emissions scopes. Scope 1 covers direct emissions from assets owned or controlled by a company, including process emissions, combustion in boilers and furnaces, company vehicles and methane leakage. Scope 2 captures indirect emissions from purchased electricity, heat or steam. Scope 3 encompasses emissions elsewhere in the value chain, including purchased raw materials, logistics, product use and end-of-life treatment.

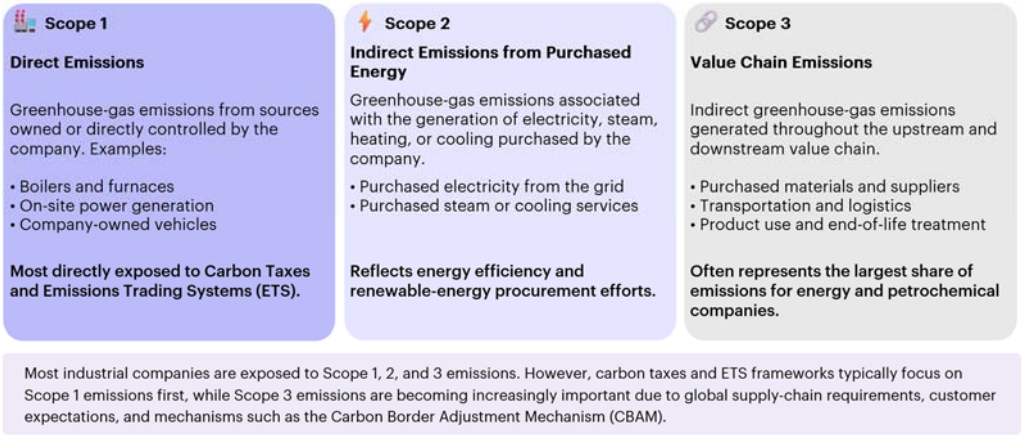
Why the distinction matters. The distinction matters because different policy instruments apply to different scopes. Carbon taxes and emissions-trading systems typically begin with Scope 1 emissions because these are closest to the regulated installation and are comparatively straightforward to measure. Scope 2 exposure is influenced by the carbon intensity of the electricity grid and by the company's ability to procure renewable energy. Scope 3 is more difficult to measure and regulate directly, but it can be economically significant through customer preferences, supplier requirements, product standards and downstream carbon charges.

Sector-specific carbon exposure. For power generators and cement manufacturers, Scope 1 is central because a large share of emissions occurs within the company's own facilities. For refiners, Scope 1 is substantial, but the use of their products creates much larger downstream emissions. For integrated energy and petrochemical companies, Scope 3 can dominate the total footprint because customers ultimately combust or dispose of the products.

Implications for investors. Investors should avoid combining all three scopes into a single figure without considering the business model. Scope 1 is often the most relevant starting point for estimating direct compliance exposure. Scope 2 provides insight into energy efficiency and renewable procurement. Scope 3 is more relevant to demand risk, product substitution and long-term strategic positioning.

Data comparability remains a limitation. Companies may use different organizational boundaries, estimation methods, emission factors and Scope 3 categories. Acquisitions, disposals and restatements can also distort year-on-year comparisons. The most useful analysis therefore combines reported emissions with qualitative review of methodology, assurance practices and changes in reporting boundaries.

Figure 27: GHG Emissions: Scope 1, Scope 2 and Scope 3



Source: Greenhouse Gas Protocol (GHG Protocol Corporate Standard & Corporate Value Chain (Scope 3) Standard)

Figure 28: Valuation summary – Energy (price as of Oct 29, 2026)

	Rating	Price	Target	ETR	P/E (x)			EPS growth (%)			P/BV (x)			ROE (%)			Div. Yield (%)			EV/EBITDA (x)		
		(Bt/Sh)	(Bt/Sh)	(%)	25A	26F	27F	25A	26F	27F	25A	26F	27F	25A	26F	27F	25A	26F	27F	25A	26F	27F
BCP	Outperform	46.75	75.00	73.3	5.1	1.4	3.1	n.m.	264	(54)	1.0	0.7	0.6	15	47	17	2.2	12.8	12.8	4.3	1.0	1.6
IRPC	Neutral	2.66	3.40	36.1	n.m.	3.4	7.0	22	n.m.	(51)	0.8	0.7	0.7	(7)	22	10	0.4	8.3	5.6	14.5	2.4	3.0
OR	Outperform	12.50	16.00	31.2	13.7	14.8	12.7	47	(7)	16	1.3	1.3	1.2	10	9	10	4.8	3.2	4.0	5.8	5.9	5.0
PTT	Outperform	42.25	50.00	24.5	17.7	6.4	9.6	(17)	176	(33)	1.1	1.0	1.0	4	11	7	5.4	6.2	6.4	4.7	2.5	2.9
PTTEP	Outperform	163.50	185.00	19.3	11.2	7.6	7.4	(26)	47	3	1.2	1.1	1.0	11	15	14	5.4	6.1	6.4	2.8	2.8	2.9
SPRC	Outperform	13.60	16.70	31.6	30.1	2.6	6.1	28	1,067	(58)	1.6	1.0	0.9	5	48	16	3.3	8.8	9.6	10.1	1.3	2.4
TOP	Outperform	61.75	85.00	46.1	39.6	2.8	7.1	(59)	1,336	(61)	0.7	0.6	0.5	2	23	8	2.9	8.4	8.1	10.5	2.5	5.4
Average					**19.6**	**5.6**	**7.6**	**(1)**	**480**	**(34)**	**1.1**	**0.9**	**0.9**	**6**	**25**	**12**	**3.5**	**7.7**	**7.6**	**7.5**	**2.6**	**3.3**

Source: InnovestX Investment Strategy & Research

Figure 29: Regional peer comparison – oil refinery

Company	PE (x)			EPS Growth (%)			PBV (x)			ROE (%)			Div. Yield (%)			EV/EBITDA (x)		
	26F	27F	28F	26F	27F	28F	26F	27F	28F	26F	27F	28F	26F	27F	28F	26F	27F	28F
Bharat Petroleum Corp	12.0	9.3	8.0	(54.9)	28.1	16.8	1.2	1.1	1.0	10.8	12.7	14.3	3.6	3.7	4.4	11.1	7.8	152.6
Hindustan Petroleum Corp	20.7	8.7	5.2	(76.5)	138.5	68.2	1.2	1.1	1.0	3.7	14.4	19.4	2.9	3.8	5.0	13.0	8.8	6.3
Indian Oil Corp	7.1	7.6	6.4	(28.1)	(6.6)	19.9	0.8	0.7	0.7	9.8	9.8	10.6	3.9	4.2	5.3	6.7	6.0	4.8
Reliance Industries	18.7	16.9	14.9	7.7	10.5	13.3	1.6	1.5	1.4	8.8	9.0	9.5	0.5	0.6	0.7	9.7	8.8	7.9
S-Oil Corp	4.5	5.5	6.5	1,753.3	(19.0)	(15.9)	1.2	1.1	1.0	30.9	20.1	14.1	4.5	5.0	5.0	3.7	4.6	5.5
SKC Co	n.m	n.m	161.8	65.0	61.6	118.6	2.1	2.2	2.1	(24.6)	(13.4)	3.0	0.0	0.0	0.0	59.7	27.7	18.3
Bangchak Corp	2.2	4.5	4.9	968.3	(50.6)	(7.3)	0.8	0.7	0.6	37.0	15.9	12.4	11.2	7.0	6.1	2.7	3.9	4.2
IRPC	3.3	9.5	11.4	598.8	(65.3)	(16.3)	0.7	0.7	0.6	19.0	5.0	3.6	3.7	2.0	1.7	3.4	6.3	6.7
Star Petroleum Refining	3.2	9.9	12.3	648.6	(67.7)	(18.9)	1.1	1.1	1.1	44.3	14.7	11.1	10.4	6.3	5.4	2.4	4.5	5.8
Thai Oil	3.2	7.8	7.9	214.6	(59.1)	(1.7)	0.7	0.7	0.6	22.2	8.8	8.3	7.7	5.1	5.5	3.6	6.3	6.1
Average	**8.3**	**8.9**	**23.9**	**409.7**	**(3.0)**	**17.7**	**1.1**	**1.1**	**1.0**	**16.2**	**9.7**	**10.6**	**4.8**	**3.8**	**3.9**	**11.6**	**8.5**	**21.8**

Source: Bloomberg Finance L.P

Figure 30: ESG ratings of selected energy companies – oil and gas

Company	SET ESG Ratings	Morningstar Sustainalytics	ESG Book		Moody's ESG Solutions		MSCI		Refinitiv		S&P Global	
		ESG Risk	ESG	Rank	ESG	Rank	ESG	Rank	ESG	Rank	ESG	Rank
BCP	-	Medium	63.45	52 / 93	-	- / -	AA	02 / 71	70.45	39 / 237	80	29 / 173
IRPC	-	Medium	66.40	20 / 93	-	- / -	BBB	31 / 71	76.21	15 / 237	70	43 / 173
OR	AAA	Medium	67.63	09 / 93	-	- / -	AA	02 / 71	67.79	53 / 237	89	3 / 173
PTT	AAA	High	76.84	01 / 93	44	10 / 23	AA	02 / 71	77.08	12 / 237	82	26 / 173
PTTEP	AAA	High	63.97	45 / 93	45	07 / 23	BBB	31 / 71	66.02	68 / 237	62	49 / 173
SPRC	BBB	High	67.34	17 / 93	-	- / -	BBB	31 / 71	60.64	103 / 237	34	88 / 173
TOP	AAA	Severe	74.65	02 / 93	47	06 / 23	BBB	31 / 71	68.74	50 / 237	87	13 / 173

Source: SET (as of June 29, 2026)
Note: ESG Ratings Information by Third Parties
Information from global sustainability performance assessors who are partners of the Stock Exchange of Thailand:
Morningstar Sustainalytics – Sustainability risk assessment: Negligible, Low, Medium, High, Severe
ESG Book – Assessment score: 0–100; Moody's ESG Solutions – Assessment score: 0–100; MSCI – Assessment rating: CCC to AAA; Refinitiv – Assessment score: 0–100; S&P Global – Assessment score: 0–100

Figure 31: ESG summary – Oil & Gas and Petrochemicals

Company	PTT	PTTEP	OR
2025 SET ESG Ratings	AAA	AAA	AAA
2025 CG Rating	5	5	5
Member of DJBIC	Yes	Yes	Yes
Bloomberg ESG (Year)	2024	2024	2024
Financial Materiality Score [1/] (Rank in the sector)	5.34 (7/61)	5.54 (6/61)	7.40 (2/61)
- Environmental Score and Rank	4.73 (12/61)	4.99 (11/61)	8.53 (1/61)
- Social Score and Rank	7.04 (4/61)	6.67 (5/61)	8.43 (2/61)
- Governance Score and Rank	4.80 (11/61)	5.38 (3/61)	4.83 (9/61)
Environmental Issue	▪ PTT aims at limiting PTT Group's greenhouse gas emissions, both scope 1 and scope 2. The long-term target of reducing emission 15% by 2030 compares to 2020 greenhouse gas emissions and achieving Carbon Neutrality by 2040 and Net Zero emissions by 2050 for PTT-owned operations. PTT group was able to achieve target in 2025 with CO2 emission of 46.47mn tons vs. its ≤51mn tons target. ▪ PTT has outlined a shift in business model for the country's target industries, which includes investing in the future of energy, such as renewable energy, energy storage systems and electric vehicles. ▪ PTT also conducts research and studies in Carbon Capture and Storage (CCS) technology and is studying the feasibility of using carbon dioxide for commercial benefits in addition to compensation for greenhouse gas emissions within the PTT Group from reforestation by introducing one million rai of land for the Low Emission Support Scheme (LESS).	▪ PTTEP aims at reducing GHG intensity by 30% by 2030 from the base year in 2020. This will be reduced further to 50% by 2040 and to net zero by 2050. PTTEP was able to reduce GHG by 568k tons of CO2 equivalent. ▪ PTTEP has conducted feasibility studies on carbon capture utilization and storage (CCUS) as one of its strategies on greenhouse gas management. The company has selected Arthit Project as a pilot project for CCS implementation. With the success of this project in the future, CO2 emissions will be reduced by more than 500k tons/year. ▪ PTTEP has continued to develop technologies for minimizing environmental impacts in both existing and new production areas. These include the conservation and restoration of natural resources and marine ecosystems project under "Ocean for Life Strategy" and the technology for supporting energy transition.	▪ OR is committed to the prevention and minimization of environmental impacts across the value chain. It has adopted ISO14001 environmental management system as guidance for LPG, oil, and petroleum terminals, Café Amazon Roasting Plant and Phra Khanong headquarters. There was no violation of environmental regulations and laws reported in 2025. ▪ OR places an emphasis on managing the water used in the company's operations. This includes implementing water reuse and/or water recycling processes. ▪ OR is also committed to reducing the amount of waste produced from its operations to align with the eco-efficiency principle by extending product lifespans and promoting resource efficiency. ▪ OR is working to expand its EV Station PluZ network across PTT stations and other high potential areas to promote the transition toward electricity vehicles. As of Mar 2026, >1,330 EV Stations PluZ were installed.
Social Issue	▪ PTT is committed to driving Thailand through enhanced national energy security and economic growth in parallel with a better quality of life for society and communities. The company supports public policy in alleviating higher energy cost in Thailand. ▪ PTT's performance in safety management with KPI on safety and occupational health for employees and contractors met target with no lost time accidents in 2025 for employees. ▪ PTT's Human Capital Index for 2025 remains on track at 80%, achieving the target. ▪ Long-term consumer behavior on fossil fuel could impact PTT's oil and gas products but PTT has mitigated this risk via its investment in the power business via GPSC and in the EV supply chain, including battery pack assembly business in Thailand.	▪ PTTEP is committed to minimize impact of its operation to the communities. These include its commitment of zero waste to landfill and circular model of E&P operation by reusing at least 50% of main structures. ▪ The Ocean for Life Strategy is aiming at achieving net positive impact of ocean biodiversity and ecosystem while Increase 50% of community income for focused communities and achieve 16,000 conservation networks by 2030. ▪ PTTEP emphasizes and commits to continuously improving SSHE (Safety, Security, Health, and Environment) implementation, so as to achieve its ultimate goal of being a "Zero Incident Organization" where employees and contractors can come to work and return home safely every day.	▪ OR strives to foster a positive work environment in all aspects and conducts annual employee engagement survey. OR's employees took part in the annual survey in 2025, and the employee engagement rate was at 69%, which met the short-term goal for the year. ▪ OR consistently develops products and services to build customer satisfaction with responsibility, integrity, and ethics. It conducts customer and consumer satisfaction surveys on a yearly basis to develop plans and key performance indicators for each business unit for improvement. The customer satisfaction rate was 92% in 2025, slightly lower than the company's target of ≥93%. ▪ OR's CSR process is undertaken within the framework of a sustainability management policy and focuses on eco-friendly operations and responsibility towards all groups of stakeholders, including local communities, in solving problems and developing CSR projects and activities.
Governance Issue	▪ PTT's board of directors consists of 15 directors, 2 non-executive directors (13.33% of the entire board), 12 independent directors, which exceeds half of the board (80% of the entire Board), and an executive director. These include three female members (20% of the entire Board). ▪ PTT was rated "5 star" (Excellent) by the Thai Institute of Directors. ▪ We view PTT's management and governance as satisfactory, reflecting management's expertise and experience in the oil and gas sector, its transparency with stakeholders, and its independent board of directors.	▪ PTTEP's board of directors consists of 15 directors, 6 non-executive directors (40% of the entire board), 8 independent directors (53.33% of the entire Board), and an executive director. These include four female members (26.67% of the entire board). ▪ PTTEP was rated "5 star" (Excellent) by the Thai Institute of Directors for 2025. ▪ We view PTTEP's management and governance as satisfactory, reflecting management's expertise and experience in the oil and gas sector, its transparency with stakeholders, and its independent board of directors.	▪ OR's board of directors consists of 14 directors, which are 8 independent directors (57.14% of the entire board), 5 non-executive directors (35.71%), and an executive director. These include two female members (14.29%). ▪ OR has applied regulations and requirements regarding investment criteria and investment management, along with the investment supervision guidelines for share-holding companies to govern the investments of subsidiaries and associates. ▪ We view OR's management and governance as satisfactory, reflecting management's expertise and experience in the oil retail business, its transparency with stakeholders, and its independent board of directors.

Note: [1/] Scores range between 0-10, with higher scores indicating better management of material issues.
Source: Company data, SET, Thai Institute of Directors, Bloomberg Finance L.P. and InnovestX Investment Strategy & Research

Figure 32: ESG summary – Oil & Gas and Petrochemicals

Company	IRPC	TOP	PTTGC
2025 SET ESG Ratings	--	AAA	AAA
2025 CG Rating	5	5	5
Member of DJBIC	Yes	Yes	Yes
Bloomberg ESG (Year)	2024	2024	2024
Financial Materiality Score [1/] (Rank in the sector)	5.86 (4/61)	6.35 (3/61)	4.88 (2/13)
- Environmental Score and Rank	7.07 (4/61)	6.81 (5/61)	4.71 (2/13)
- Social Score and Rank	5.24 (9/61)	7.37 (3/61)	5.43 (2/13)
- Governance Score and Rank	4.64 (14/61)	4.73 (12/61)	4.65 (1/13)
Environmental Issue	▪ IRPC aims at limiting GHG emissions to 20% of the business-as-usual level by 2030. The company also pledged to achieve Carbon Neutrality by 2050 and Net Zero target by 2060. ▪ IRPC continues to study projects to use more renewable energy, such as floating solar power, as well as the long-term goals of the index for IRPC's energy efficiency (Energy Intensity Index: EII) to reduce and use energy efficiently. ▪ IRPC's floating solar is the largest floating solar power generation project in Southeast Asia. It is expected to reduce greenhouse gas emissions by approximately 9,459 tons of carbon dioxide equivalent per year. The project was granted an award from Thailand Greenhouse Gas Management Organization (TGO).	▪ TOP continued the environmental management in 2025 to align with global pathways towards net zero GHG emissions, targeting carbon neutrality by 2050 and net zero GHG emissions by 2060. ▪ TOP managed to reduce GHG emissions in production processes in 2025 (33,165 tCO_2e from 29 energy efficiency improvement projects.) ▪ There were no complaints raised by local communities about environmental impact in 2024. ▪ TOP was ranked in the 2nd quartile of the Solomon benchmark on energy efficiency across companies in the Asia-Pacific Region. The completion of the Clean Fuel Project in 2028 will improve its competitiveness which is expected to lift its ranking to top quartile.	▪ PTTGC has committed to achieving Net Zero greenhouse gas (GHG) emissions by 2050, with interim targets of 20% reduction in Scope 1 & 2 emissions by 2030 and 50% reduction in Scope 3 emissions by 2050. ▪ It is one of the first organizations in Thailand to implement a "Circular Economy" by raising public awareness of waste management. ▪ PTTGC continues to invest in renewable energy technology and integrate green initiatives into its business operations, aiming at reducing the consumption of fossil fuels. This includes the installation of solar rooftops. The company also enhanced energy efficiency and reduced energy consumption in production process and offices. PTTGC also joins hand with other companies under PTT group to study opportunities in CCUS in Thailand.
Social Issue	▪ Community satisfaction was 81% for 2025, higher than target of 78% with no incident of business interruption caused by community protest. ▪ IRPC intensified the human resource management program to improve employees' capability to help propel the company towards stable and sustainable growth while maintaining IRPC's competitive edge. ▪ Employee engagement was 82% (vs. target of 80%) with total lost time injury frequency rate (LTIFR) of 0.2 cases/million man-hours, slightly higher YoY. ▪ IRPC received the second runner-up award at the Women's Empowerment Principles (WEPs) Awards, hosted by UN Women. The award was given in the category of promoting gender equality through community activities and industrial engagement.	▪ TOP's community engagement rate edged up from 95.71% in 2025, vs. 95.54% in 2024 and still higher than target of ≥90% reflecting continuous CSR programs to improve local community well-being while accommodating the company's journey to net zero emissions in the long term. ▪ TOP maintained its employee occupational health and safety management with a total recordable incident rate (TRIR) of 0.36 case/mn manhours in 2025, a slight increase from 0.17 in 2024, vs. long-term target of ≤0.30 case/mn manhours. Employee engagement fell from 98% in 2024 to 77% in 2024 while turnover fell from 3.51% in 2024 to 2.85% in 2025. ▪ TOP implemented the "Partnership for Life" initiative to support customer services. It leveraged its R&D team to develop new high value products that better respond to customer needs.	▪ PTTGC set up social enterprises with the goal of generating sustainable income for local communities, leveraging strategy via a Circular Economy, mainly the management of waste for delivery as feedstock to its recycled plastic resin factory under the Community Waste Model project in order to promote end-to-end waste management. ▪ PTTGC employed customer recommendations to enhance the efficiency of its customer relationship management. It continuously maintains customer satisfaction at 93%. ▪ PTTGC continued to emphasize improving employee capability while maintaining work-life balance and safety and occupational health with competitive compensation. GC's employee turnover rate was 1.89% in 2025 (vs. 3.62% in 2024) and Lost Time Injury Frequency Rate and Total recordable incident rate was 0 and 0.11 case/ million man-hours, respectively.
Governance Issue	▪ IRPC's board of directors consists of 15 directors, comprising 6 non-executive directors (40% of the entire Board), 8 independent directors (53.33%), and an executive director. These include four female directors (26.67% of the entire board). The number of independent directors is above the regulator's requirement. ▪ IRPC has been rated "Excellent" (5 stars) by the Thai Institute of Directors for 16th consecutive year in 2025. ▪ We view IRPC'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.	▪ TOP's board of directors consists of 15 directors, 5 non-executive directors (33.3% of the entire board), 9 independent directors, which exceeds half of the Board (60% of the entire Board), and an executive director. This includes four female member (26.7% of the entire Board). ▪ The company was rated "Excellent" (5 stars) by the Thai Institute of Directors for the 16th consecutive year in 2025. ▪ We view TOP's management and governance as satisfactory, reflecting management's ability to plan and execute large projects, its experience and expertise, its transparency with stakeholders, and its independent board of directors.	▪ PTTGC's board of directors consists of 13 directors, which are 7 independent directors (53.85% of the entire board), 5 non-executive directors (38.46% of the entire board), and an executive director. There is no female member in the board. ▪ The company has been rated "Excellent" (5 stars) by the Thai Institute of Directors in 2025. ▪ We view PTTGC's management and governance as satisfactory, reflecting management's experience and expertise, its transparency with stakeholders, and its independent board of directors.

Note: [1/] Scores range between 0-10, with higher scores indicating better management of material issues.
Source: Company data, SET, Thai Institute of Directors, Bloomberg Finance L.P. and InnovestX Investment Strategy & Research

Figure 33: ESG summary – Oil & Gas and Petrochemicals

Company	BCP	SPRC	IVL
2025 SET ESG Ratings	--	BBB	AAA
2025 CG Rating	4	5	5
Member of DJBIC	No	No	Yes
Bloomberg ESG (Year)	2024	2024	2024
Financial Materiality Score [1/] (Rank in the sector)	7.44 (1/61)	5.26 (9/61)	5.58 (1/13)
- Environmental Score and Rank	8.34 (2/61)	5.01 (10/61)	5.05 (1/13)
- Social Score and Rank	9.03 (1/61)	6.06 (6/61)	8.08 (1/13)
- Governance Score and Rank	4.72 (13/61)	4.93 (7/61)	4.26 (2/13)
Environmental Issue	▪ BCP has committed to conducting a low-carbon business and leading energy transition with increases in the proportion of green companies to lower carbon emissions. ▪ BCP also founded the Carbon Markets Club to promote carbon credit trading and set a carbon-neutral target by 2030, with GHG emission set to be reduced by 30% and zero GHG emission by 2050. ▪ BCP has successfully achieved its water reduction targets, delivering a significant 59% reduction in municipal and groundwater consumption within the production process relative to the water demand proportion per raw water volume in the base year (2019). ▪ BCP manages 100% of waste from the refinery using the 3Rs (Reduce, Reuse & Recycle) in 2025 meeting the target of zero waste sent to be incinerated. ▪ We have a positive view of BCP's environmental management, which is reflected in its ranking higher than other companies in the same industry.	▪ SPRC cooperated with Chevron, a world leading refiner, to study and establish continuous improvements to improve energy efficiency and reduce greenhouse gas emissions, including the new projects in terms of renewable/clean energy, carbon capture and storage. ▪ SPRC has achieved its target on the Energy Intensity Index and maintains its rank in the first quartile of Solomon EII of Asia Pacific. ▪ In 2025, SPRC reported no case or incident of legal violations or negative environmental impact. ▪ Following the oil spill incident at the single point mooring (SPM) in 2022, SPRC and its partner have invested in the new one to ensure safety operation in the future, with advanced technology, enhancing operational efficiency and reliability, with total investment around US$67.4mn (share cost with PTTGC).	▪ IVL is one of the key players in plastic recycling. It has committed to recycle post-consumer PET bale input by 0.75mn tons/year by 2025 and 1.50mn tons/year by 2030. ▪ IVL pledged to be Net Zero Carbon by 2050-2070 and announced a US$4.7bn investment to increase biomass feedstock to 2.4mn tons by 2030. ▪ New solar energy investments in China and Indonesia provide a combined emissions savings of over 3,300 tCO2e/year. ▪ IVL targets 10% renewable electricity consumption by 2025 and 25% by 2030. ▪ From Feb-11 to Dec-25, IVL reached a significant milestone by recycling 166bn PET bottles. This achievement has resulted in diverting 3.1mn tons of waste from the environment and reducing IVL's carbon footprint by 4mn tons. In 2025, about 362,000 tons of post-consumer PET bottles were directly recycled and 96,500 tons indirectly, equivalent to more than 30.57bn bottles.
Social Issue	▪ BCP has gained trust from the local community with community satisfaction of 91.4% in 2025, vs. target of 90%. The community engagement score is higher from 89% in 2024 to 91% from the refinery community. ▪ Employee engagement score for 2025 was 78%, down from 82% in 2024 but still exceeding the target. BCP continues to emphasize occupational health and safety with zero Lost Time Injury Rate for employees and one for contractors. ▪ Its policies to support community engagement to advance women's rights brought BCP an award from the UN Women Thailand Women's Empowerment Principles Awards (WEPs) (Honorable Mention). This acknowledged organizations that were advancing gender equality and inclusivity in the workplace and promoting and empowering women in business. ▪ BCP's social risk management is at the leading edge compared to the industry average.	▪ SPRC continued to develop and improve the effectiveness of its safety, occupational health, and working environment operations. Nonetheless, in 2025, there was one lost time injury case, which occurred when an employee tripped and fell in the reception area of the office building. The company has already implemented preventive measure. ▪ In 2025, SPRC continued to emphasize sustainable community and social development through four key focus areas: Education; Quality of Life; Environment; and Community Engagement. ▪ Due to the crude oil spill at SPM on January 25, 2022, the company has expanded the area of social responsibility activities and engagement with stakeholders to cover areas affected by such events, thus receiving 82% community engagement score in 2025, vs. target of 80%.	▪ IVL implemented a global Environment, Health and Safety (EHS) and Sustainability Software Management System. ▪ IVL continues to focus on the execution of the Injury and Illness Prevention Program (I2P2), which systematically analyses incident trends and implements controls to reduce the most frequent types. In 2025, total recordable incident rate (TRIR) improved to 0.44, vs. 0.66 in 2024. ▪ The company recorded an overall LTIFR of 0.30 in 2025, down from 0.39 (2024), approaching the goal to achieve an LTIFR of less than 0.5 cases per 200,000 man-hours by 2025. ▪ IVL continues to focus on diversity to allow its team to contribute exciting ideas and unique perspectives for sustainable growth. Diversity highlights for 2025 include women in the workforce (23.63%) and in the board of directors (25%). ▪ IVL continues to educate people on PET's circular and recyclable qualities, and the importance of recycling to prevent PET waste mismanagement.
Governance Issue	▪ BCP's board of directors consists of 15 directors, 4 non-executive directors (26.67% of the entire Board), 10 independent directors, which exceeds half of the Board (66.67% of the entire Board), and an executive director. These include two female members (13.33% of the entire Board). ▪ BCP has been rated "Excellent" (5 stars) by the Thai Institute of Directors for 2025. ▪ We view BCP's management and governance as satisfactory, reflecting management's experience and expertise in the business, its ability to execute strategic plans for energy transition, its transparency with stakeholders, and its independent board of directors.	SPRC's board of directors consists of 9 directors, 4 non-executive directors (44.44% of the entire board), 4 independent directors (44.44% of the entire board), and an executive director. These include 2 female directors (22.22% of the entire board). The company was rated "Excellent" (5 stars) by the Thai Institute of Directors for the seventh consecutive year in 2025. We view SPRC's management and governance as satisfactory, reflecting management's expertise and experience in the oil and gas sector, its transparency with stakeholders, and its independent board of directors.	▪ IVL's board of directors consists of 12 directors, including five independent directors (41.67% of the entire Board), two non-executive directors and five executive directors. These include three female members (25% of the entire Board). ▪ 100% independent directors on the Nomination, Compensation and Corporate Governance (NCCG) Committee. ▪ IVL has been rated "Excellent" (5 stars) by the Thai Institute of Directors for the tenth consecutive year in 2025. ▪ We view IVL's management and governance as satisfactory, reflecting management's ability to plan and execute capacity expansion organically and non-organically, its experience and expertise, its transparency with stakeholders, and its independent board of directors.

Note: [1/] Scores range between 0-10, with higher scores indicating better management of material issues.
Source: Company data, SET, Thai Institute of Directors, Bloomberg Finance L.P. and InnovestX Investment Strategy & Research

Disclaimer

This document has been prepared by the research function of InnovestX Securities Company Limited (the "Company") solely for the purpose of providing general information to investors and shall not be construed as investment advice, an offer to purchase securities, an offer for sale of securities, or a solicitation of any person to subscribe for securities or enter into any securities-related transaction. The information contained herein is derived from publicly available sources generally accessible to investors. The Company makes no representation or warranty as to the accuracy, completeness or adequacy of such information. Any opinions, forecasts, projections, or estimates expressed in this document represent the views of the Company only as of the date appearing herein and are subject to change without notice to public or investors of any such changes.

The Company and The Siam Commercial Bank Public Company Limited ("SCB") are subsidiaries of SCB X Public Company Limited ("SCBX"), whereby SCBX is their major shareholder. Accordingly, the Company and SCB are under the same corporate group.

SCB is acting as Financial Advisor and Underwriter of Trust Units in connection with the initial public offering of units of AWC Lifestyle Property Real Estate Investment Trust. Notwithstanding the foregoing, the research function of the Company operates independently from the business unit providing financial advisory business of SCB and is not under control of such business unit in the preparation of this document.

Trading in futures and options involves a high degree of risk and may result in substantial losses. Accordingly, such products may not be suitable for all investors. Before making any investment decision involving futures and options, investors should carefully consider their financial condition, investment objectives, investment experience, and risk tolerance as it is possible that losses incurred may exceed the amount of the initial investment. Investors are advised to thoroughly review and understand the nature of the products, applicable terms and conditions, and all associated risks before investing. Investors should exercise independent judgment in making investment decisions and, in the event of any doubt, seek professional advice from an investment advisor.

Neither the Company, SCB, nor any of their respective affiliates, directors, executives, officers or employees shall be liable for any damage, loss, expense, or consequence, whether direct or indirect, arising from the use of, or reliance upon, any opinion, analysis, or information contained in this document, including, without limitation, any loss of profit or contractual loss. In addition, the Company, SCB, and/or their affiliates, as well as their respective directors, executives, employees, representatives, or related persons, may have interests in, or relationships with, the issuer referred to in this document or its related persons. Investors should therefore conduct their own independent assessment and exercise their own judgment before making any investment decision.

The Company reserves the right, at its sole discretion, to amend, modify, revise, supplement, or update any information contained in this document from time to time without prior notice.

This document is intended solely for the intended recipient(s). No person may reproduce, modify, distribute, publish, transmit, sell, copy, display, disclose, or otherwise exploit, whether in whole or in part, any information contained in this document for any purpose, including commercial purposes, without the Company's prior written consent.

© Copyright 2026 InnovestX Securities Co., Ltd. All right reserved.

CG Rating 2025 Companies with CG Rating

Companies with Excellent CG Scoring

AAI, AAV, ACE, ADB, ADVANC, AEONTS, AF, AGE, AIRA, AJ, AKP, AKR, ALLA, ALT, AMA, AMARIN, AMATA, AMATAV, AOT, AP, ARIP, ASIAN, ASIMAR, ASK, ASP, ASW, AUCT, AURA, AWC, B, BAFS, BAM, BANPU, BAY, BBGI, BBL, BCH, BCPG, BDMS, BEC, BEM, BEYOND, BGC, BGRIM, BH, BIZ, BJC, BKIH, BLA, BLC, BOL, BPP, BRI, BRR, BSRC, BTG, BTS, BWG, CBG, CENTEL, CFRESH, CGH, CHASE, CHEWA, CHG, CHOW, CIMBT, CIVIL, CK, CKP, CMC, CNT, COLOR, COM7, CPALL, CPAXT, CPF, CPL, CPN, CPW, CRC, CREDIT, DCC, DDD, DELTA, DEMCO, DITTO, DMT, DOHOME, DRT, DUSIT, EASTW, EGCO, EPG, ERW, ETC, ETE, FLOYD, FN, FORTH, FPI, FPT, FSMART, FSX, FTI, GABLE, GC, GCAP, GFC, GFPT, GGC, GLAND, GLOBAL, GPSC, GRAMMY, GULF, GUNKUL, HANA, HARN, HENG, HMPRO, HPT, HTC, ICC, ICHI, III, ILINK, ILM, IND, INET, INSET, INSURE, IP, IRC, IRPC, IT, ITC, ITEL, ITTHI, IVL, J, JAS, JMART, JMT, JTS, KBANK, KCAR, KCC, KCE, KCG, KEX, KJL, KKP, KSL, KTB, KTC, KUMWEL, LH, LHFG, LIT, LOXLEY, LRH, LST, M, MAJOR, MALEE, MBK, MC, MEGA, MFC, MFEC, MGC, MINT, MODERN, MONO, MOONG, MOSHI, MSC, MST, MTC, MTI, NEP, NER, NKI, NOBLE, NRF*, NV, NVD, NYT, OCC, ONEE, OR, ORI, ORN, OSP, PAP, PB, PCC, PCSGH, PDJ, PG, PHOL, PIMO, PJW, PL, PLANB, PLAT, PLUS, PM, PMC, PORT, PPP, PPS, PQS, PR9, PRG, PRM, PRTR, PSH, PSL, PSP, PTC, PTG, PTT, PTTEP, PTTGC, Q-CON, QH, QTC, RABBIT, RATCH, RBF, ROCTEC, RS, RT, S, S&J, SA, SAAM, SABINA, SAK, SAMART, SAMTEL, SAT, SAV, SAWAD, SC, SCAP, SCB, SCC, SCCC, SCG, SCGD, SCGP, SCM, SDC, SE, SEAFCO, SEAOIL, SELIC, SENA, SENX, SFLEX, SGC, SGF, SGP, SHR, SICT, SIRI, SIS, SITHAI, SJWD, SKR, SKY, SMPC, SNC, SNNP, SNP, SO, SONIC, SPALI, SPC, SPCG, SPI, SPRC, SR, SSF, SSP, SSSC, STA, STARM, STECON, STGT, STI, SUC, SUN, SUSCO, SUTHA, SVOA, SYMC, SYNEX, SYNTEC, TACC, TAN, TASCO, TBN, TCAP, TCMC, TEAMG, TEGH, TEKA, TFG, TFMAMA, TGE, TGH, THANA, THANI, THCOM, THIP, THRE, THREL, TIPH, TISCO, TKS, TKT, TLI, TM, TMD, TMILL, TMT, TNDT, TNITY, TNL, TOA, TOG, TOP, TPAC, TPBI, TQM, TRUBB, TRUE, TSC, TSTE, TSTH, TTA, TTB, TTCL, TTW, TU, TVDH, TVH, TVO, TWPC, UAC, UBE, UBIS, UP, UPF, UPOIC, UV, VGI, VIBHA, VIH, VNG, WACOAL, WGE, WHA, WHAUP, WICE, WINMED, WINNER, WP, WPH, ZEN

Companies with Very Good CG Scoring

2S, A5, ABM, ACG, ADD, AE, AH*, AIT, ALUCON, AMC, ANAN, APCO, APCS, ATP30, BA, BBIK, BC, BCP, BE8, BIG, BPS, BR, BSBM, BTC, BTW, BVG, BYD*, CFARM, CH, CIG, CM, CMAN, CMO*, COCOCO, COMAN*, CPI, CRD, CSC, DEXON, DTCENT, EAST, EKH, ESTAR, EURO, EVER, FE, FVC, GEL, HUMAN, ICN, IFS, JDF, JPARK, JSP, JUBILE, K, KGI*, KTIS, KTMS, KUN, LALIN, LANNA, LEO, LHK, LPN*, MAGURO, MATCH, MBAX, M-CHAI, MCOT, METCO, MICRO, MVP*, NC, NCH, NCL, NDR, NEO, NL, NSL, NTSC, NTV, OKJ, PATO, PDG, PEACE, PEER, PREB, PRI, PRIME, PRIN, PRINC*, PROUD, PSG, PSTC, PT, QLT, RCL, READY, RPH, SAMCO, SANKO, SAPPE, SCI, SCN, SECURE, SFT, SINO, SKE, SMT, SPA, SPVI, SRS, SUPER, SVI*, SWC, TAE, TFM, TIDLOR*, TIPCO, TITLE, TK, TKN*, TMC, TMI, TNP, TNR, TPA, TPCS, TPIPL*, TPIPP, TPS, TQR, TRP, TRT, TURTLE, TVT, UBA, UREKA, VCOM, VRANDA, WARRIX, WAVE*, WIN, XO, XPG, XYZ, ZIGA

Companies with Good CG Scoring

AHC, AIE, AMANAH, AMR, ANI, APURE, ARIN, ARROW, ASIA, ASN, AYUD, BIOTEC, BIS, BJCHI, BLAND, CAZ, CEN, CHAO, CHARAN*, CHAYO, CHIC, CHOTI, CI, CITY, CSP, CSS, CWT, DIMET*, DOD, DPAINT, DV8, EA*, EASON, ECF*, EFORL, FNS, FTE, GBX, GPI, GTB, GYT, IMH, IRCP, ITNS, IVF, JCK, KBS, KISS, KK, KWC, KWM, L&E, LDC, LEE, MCA, MEB, MEDEZE, MENA, MILL*, MITSIB, MK, MPJ, NAM, NATION, NCAP, NEX, NOVA, NPK, OGC, PACO, PANEL, PCE, PHG, PICO*, PIN, PIS, PLANET, POLY, PRAKIT, PRAPAT, PROEN, PROS, PTECH, PYLON, RAM, RJH, RML, ROCK, RPC, SAFE, SALEE, SE-ED, SIAM, SINGER, SISB, SK, SKN, SMD100, SNPS, SORKON, SPREME, SST, STANLY, STC, STPI, STX, SVR, SVT, TAKUNI, TATG, TFI, THG*, TMAN, TOPP, TPLAS, TPOLY, TRC*, TRU, TSE, TSR*, UKEM, UOBKH, VARO, VL, WFX, WIIK, WORK, YUASA, ZAA

Corporate Governance Report

The material contained in this publication is for general information only and is not intended as advice on any of the matters discussed herein. Readers and others should perform their own independent analysis as to the accuracy or completeness or legality of such information. The Thai Institute of Directors, its officers, the authors and editor make no representation or warranty as to the accuracy, completeness or legality of any of the information contained herein. By accepting this document, each recipient agrees that the Thai Institute of Directors Association, its officers, the authors and editor shall not have any liability for any information contained in, or for any omission from, this publication.
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.
* บริษัทหรือกรรมการหรือผู้บริหารของบริษัทที่มีข่าวด้านการกำกับดูแลกิจการที่ส่งผลให้ถูกลดผลสำรวจลง 1 ช่วงคะแนน เช่น การกระทำผิดเกี่ยวกับหลักทรัพย์ การทุจริต คอร์รัปชัน เป็นต้น ซึ่งการใช้ข้อมูล CGR ควรตระหนักถึงข่าว ดังกล่าวประกอบด้วย
* บริษัทหรือกรรมการหรือผู้บริหารของบริษัทที่มีข่าวด้านการกำกับดูแลกิจการ เช่น กรณีที่มีการฝ่าฝืนหรือละเลยการปฏิบัติตามกฎหมาย ข้อบังคับ ระเบียบ ประกาศ ค าสั่ง มติคณะกรรมการ หรือข้อตกลงการจดทะเบียนหลักทรัพย์กับ

Anti-corruption Progress Indicator

Certified (ได้รับการรับรอง)

2S, AAI, ACE, 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, BPS, BRI, BRR, BSBM, BTC, BTG, BTS, BWG, CAZ, CBG, CEN, CENTEL, CFRESH, CGH, CHASE, CHEWA, CHOTI, CHOW, CI, CIG, CIMBT, CM, CMC, COM7, CPALL, CPAXT, CPF, CPI, CPL, CPN, CPW, CRC, CREDIT, CSC, CV, DCC, DELTA, DEMCO, DEXON, DIMET, DMT, DOHOME, DRT, DUSIT, EASTW, ECF, EGCO, EP, EPG, ERW, ETC, ETE, FNS, FPI, FPT, FSMART, FSX, FTE, GBX, GC, GCAP, GEL, GFPT, GGC, GLOBAL, GPI, GPSC, GUNKUL, HANA, HARN, HEALTH, HENG, HMPRO, HTC, ICC, ICHI, ICN, IFS, III, ILINK, ILM, INET, INOX, INSURE, IRPC, ITC, ITEL, IVL, JAS, JMART, JR, JTS, K, KASET, KBANK, KCAR, KCE, KGEN, KGI, KKP, KSL, KTB, KTC, L&E, LANNA, LH, LHFG, LHK, LPN, LRH, M, MAJOR, MALEE, MATCH, MBAX, MBK, MC, MCOT, MEGA, MENA, META, MFC, MFEC, MINT, MODERN, MONO, MOONG, MSC, MST, MTC, MTI, NATION, NCAP, NEP, NER, NKI, NOBLE, NRF, OCC, OGC, OR, ORI, OSP, PAP, PATO, PB, PCSGH, PDG, PDJ, PG, PHOL, PIMO, PK, PL, PLANB, PLANET, PLAT, PLUS, PM, PMC, PPP, PPPM, PPS, PQS, PR9, PREB, PRG, PRIME, PRINC, PRM, PROS, PRTR, 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, SCGD, SCGP, SCM, SCN, SEAOIL, SE-ED, SELIC, SENA, SENX, SFLEX, SGC, SGP, SIRI, SIS, SITHAI, SJWD, SKR, SMIT, SMPC, SNC, SNNP, SNP, SORKON, SPACK, SPALI, SPC, SPI, SPRC, SRICHA, SSF, SSP, SSSC, SST, STA, STARM, STGT, STOWER, SUSCO, SVI, SVOA, SVT, SYMC, SYNTEC, TAE, TAKUNI, TASCO, TCAP, TCMC, TEGH, TFG, TFI, TFMAMA, TGE, TGH, THANI, THCOM, THIP, THRE, THREL, TIPCO, TIPH, TISCO, TKN, TKS, TKT, TMD, TMILL, TMT, TNITY, TNL, TNP, TNR, TOG, TOP, TOPP, TPA, TPAC, TPCS, TPLAS, TRT, TRU, TRUE, TSC, TSI, TSTE, TSTH, TTA, TTB, TTCL, TU, TURTLE, TVDH, TVO, TWPC, UBE, UBIS, UEC, UKEM, UPF, UV, VCOM, VGI, VIBHA, VIH, WACOAL, WHA, WHAUP, WICE, WIIK, WPH, XO, YUASA, ZEN, ZIGA

Declared (ประกาศเจตนารมณ์)

AMARIN, ANI, APCO, ASAP, ASEFA, AUCT, AURA, B52, BKIH, CHG, DITTO, EA, EAST, EMC, ESTAR, EVER, FLOYD, GABLE, GFC, GREEN, GULF, HL, HUMAN, IP, IT, J, JDF, JMT, KCC, KJL, LDC, LIT, M-CHAI, MEDEZE, MGC, MJD, MOSHI, NSL, NTSC, PCC, PCE, PLE, PROEN, PROUD, PTC, S, SANKO, SAWAD, SCAP, SFT, SHR, SINGER, SINO, SKE, SKY, SOLAR, SONIC, SUPER, TBN, TEAMG, TMC, TMI, TPP, TQM, UOBKH, UP, UREKA, VL, VNG, WARRIX, WELL, WIN, WP

N/A

88TH, A, A5, AAV, ABM, ACAP, ACC, ACG, ADD, ADVICE, AEONTS, AFC, AGE, AHC, AIT, AJA, AKR, AKS, ALLA, ALPHAX, ALT, ALUCON, AMARC, AMC, AMR, ANAN, AOT, APO, APP, APURE, AQUA, ARIN, ARIP, ARROW, ASIA, ASIMAR, ASN, ATLAS, ATP30, AU, BA, BBIK, BC, BCT, BDMS, BEAUTY, BEM, BGT, BH, BIG, BIOTEC, BIS, BIZ, BJC, BJCHI, BKA, BKD, BKGI, BLAND, BLC, BLESS, BLISS, BM, BOL, BR, BROCK, BSM, BTNC, BTW, BUI, BVG, BYD, 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, DTCI, DV8, EASON, EFORL, EKH, EMPIRE, ETL, EURO, F&D, FANCY, FE, FM, FMT, FN, FORTH, FTI, FVC, GENCO, GJS, GLAND, GLORY, GRAMMY, GRAND, GSTEEL, GTB, GTV, GYT, HANN, HFT, HPT, HTECH, HYDRO, I2, IDG, IHL, IIG, IMH, IND, INGRS, INSET, IRC, IRCP, IROYAL, ITD, ITNS, ITTHI, IVF, JAK, JCK, JCT, JPARK, JSP, JUBILE, KAMART, KBS, KC, KCG, KCM, KDH, KIAT, KISS, KK, KKC, KLINIQ, KOOL, KTIS, KTMS, KUMWEL, KUN, KWC, KWI, KWM, KYE, LALIN, LEE, LEO, LOXLEY, LPH, LST, LTMH, LTS, MADAME, MAGURO, MANRIN, MASTEC, MASTER, MATI, MCA, MCS, MDX, MEB, METCO, MGI, MGT, MICRO, MIDA, MILL, MITSIB, MK, ML, MMM, MORE, MOTHER, MPJ, MRDIYT, MTW, MUD, MVP, NAM, NAT, NC, NCH, NCL, NCP, NDR, NEO, NETBAY, NEW, NEWS, NEX, NFC, NKT, NL, NNCL, NOVA, NPK, NTF, NTV, NUT, NV, NVD, NWR, NYT, OHTL, OKJ, ONEE, ONSENS, ORN, PACO, PAF, PANEL, PEACE, PEER, PERM, PF, PHAT, PHG, PICO, PIN, PIS, PJW, PLT, PMTA, POLY, PORT, PPM, PRAKIT, PRAPAT, PRECHA, PRI, PRIN, PSGC, PSP, PTL, QDC, QTCG, RAM, RCL, READY, RICHY, RJH, ROCK, ROCTEC, ROH, ROJNA, RP, RPC, RPH, RSP, RT, S11, SAF, SAFE, SALEE, SAM, SAMART, SAMCO, SAMTEL, SAUCE, SAV, SAWANG, SCI, SCL, SCP, SDC, SE, SEAFCO, SECURE, SEI, SGF, SHANG, SIAM, SICT, SIMAT, SISB, SK, SKIN, SKN, SLP, SMART, SMD100, SMO, SMT, SNPS, SO, SPA, SPCG, SPG, SPREME, SPVI, SQ, SR, SRS, STANLY, STC, STECH, STECON, STELLA, STI, STP, STPI, STX, SUC, SUN, SUTHA, SVR, SWC, SYNEX, TACC, TAN, TAPAC, TATG, TC, TCC, TCJ, TCOAT, TEAM, TEKA, TERA, TFM, TGPRO, TH, THAI, THANA, THE, THG, THMUI, TIDLOR, TIGER, TITLE, TK, TKC, TL, TLI, TM, TMAN, TMW, TNDT, TNH, TNPC, TOA, TPBI, TPCH, TPIPL, TPIPP, TPL, TPOLY, TPS, TQR, TR, TRC, TRITN, TRP, TRUBB, TRV, TSE, TSR, TTI, TTT, TTW, TURBO, TVH, TVT, TWP, TWZ, TYCN, UAC, UBA, UMI, UMS, UNIQ, UNIX, UPOIC, UTP, UVAN, VARO, VPO, VRANDA, VS, WASH, WAVE, WFX, WGE, WINDOW, WINMED, WINNER, WORK, WSOL, XBIO, XPG, XYZ, 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 May 2, 2025) are categorised into: companies that have declared their intention to join CAC, and companies certified by CAC.