

Reserves, risks, reinventions: NOCs in the new era

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National oil companies (NOCs) face a future defined by three key factors: how fast demand for oil declines, how coherent domestic politics are around transition, and how well they can evolve their roles beyond that of oil rent collectors. With the energy transition fraught with uncertainty, NOCs may sharply diverge on their paths forward rather than converging on a single model.

In this paper, we examine the NOCs of Malaysia (Petronas), Indonesia (PT Pertamina Persero 'Pertamina'), and Thailand (PTT PLC 'PTT') and their strategies in the context of the changing energy landscape. These three countries are among those with the fastest growing demand for energy in the next decade. We analyse how their NOCs are addressing their respective energy security concerns and fulfilling their transition needs.

Based on this analysis, we outline a potential pathway a regional company could follow to achieve both objectives. We also unpack financing dynamics. These NOCs have accessed bond markets for their capital needs in the past and, going forward, they have the opportunity to tap the markets for their transition and growth strategies. We review their bonds' trading performance year-to-date and identify some key factors that bondholders should pay attention to in the evolving energy landscape.

We conclude that NOCs with the ability to produce oil at a lower price with lower carbon intensity will gain an advantage over their peers. In addition, those that can diversify into renewables will be more resilient and less vulnerable to geopolitical disruptions. Those unable to diversify risk becoming uncompetitive and exposed to heightened financial and operating risks. This has implications for their host countries given their close financial and policy ties. Meanwhile, as more energy players shift away from fossil fuels, oil and gas prices are likely to become more volatile.

Key takeaways:

- **As NOCs' assets mature, the traditional model of producing oil and gas for export or domestic use is no longer their sole mandate. The combination of higher break-even costs for oil production and geopolitical risks threaten access to fossil fuel supply. This will have credit implications for bondholders.**
- **ASEAN NOCs, catering to their host countries' growing energy needs, have to plan and partner with their respective governments to diversify into multiple sources of energy — including renewables and low-carbon to achieve energy security.**
- **Of the three ASEAN NOCs, Petronas stands as the most advanced in integrating with its country's policy platforms to accelerate renewable investments. It has one of the lowest costs of financing amongst the NOCs but has not yet tapped green financing. The time could be ripe for the company to engage international investors in its energy transition.**

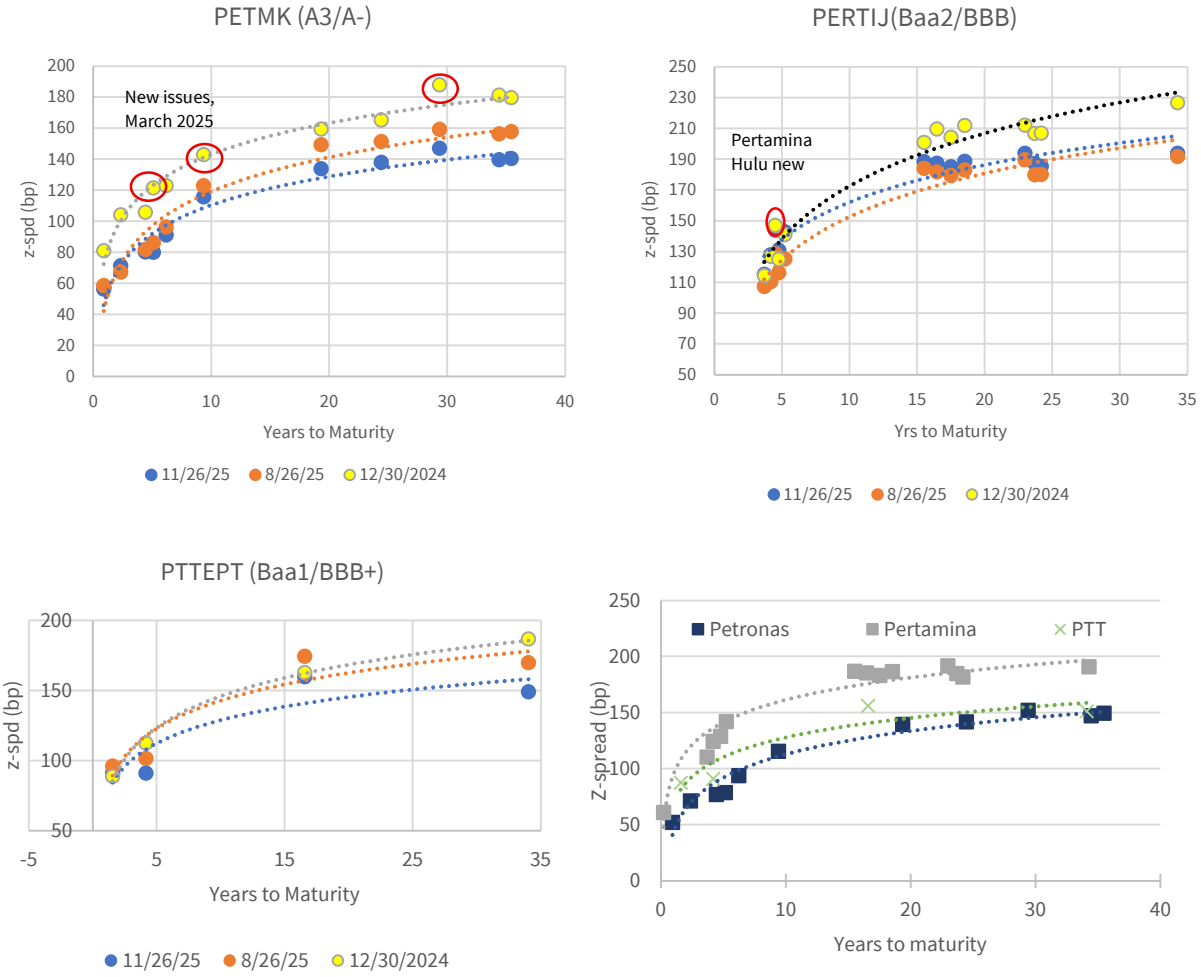
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ASEAN NOC issuer bonds

Here, we examine the USD bonds issued by Petronas, Pertamina, and PTT. These three NOCs benefit from strong financial flexibility and good access to the bond and bank loans market, given their strong financials and government ties. Petronas has been in a net cash position since the previous decade and has the lowest leverage out of the three (and among similarly rated oil peers). It stands out as one of the strongest NOC credits globally.

All three will increase their capital expenditure spending in the next few years. Pertamina will likely need to raise additional funding in the international bond/loan markets. Petronas and PTT are likely to be more opportunistic in their approach.

Figure 1.a-d Petronas (PETMK), Pertamina (PERTIJ), and PTT Exploration (PTTEPT) historical bond curves; PETMK/PERTIJ/PTT curves. Source: Bloomberg Finance L.P., accessed 30 Nov 2025.



Amidst volatile oil prices, the NOCs' bond spreads have tightened across the curve year to date. Across the curve, Petronas bonds have outperformed despite issuing US$4.9 bn of 2031s, 2035s and 2055s bonds in March this year. The 5yr and 30yr part of the curve has outperformed relative to the 10yr segment. This may be driven by Asian investor preferences — with asset managers favouring the short end and insurance companies seeking longer durations — particularly for higher-quality issuers like Petronas.

Table 1. Spread changes as a % of historical spread for various NOCs, Source: Bloomberg Finance L.P., accessed 30 Nov 2025.

YTD Spread change as a % of 12/30/2024 spread (1)

PETMK		PERTIJ		PTT	
3-5yr	-30%	2-5 yr	2%	1-5 yr	-10%
5-10 yr	-22%	10-20 yr	-9%	5-10 yr	NA
20+	-20%	20+	-11%	10+	-14%
KOROIL		**ARAMCO**		**PETBRA**	
1-3 yr	-31%	1-5 yrs	4%	1-5 yr	-24%
3-5 yr	-27%	5-10 yrs	13%	5-10 yr	-12%
		20+	-15%	10-30 yr	-12%

(1) excludes this year's new issues

Table 2. Total outstanding USD bonds in the market for selected NOCs and total size of year to date issuance. Source: Bloomberg Finance L.P., accessed 30 Nov 2025.

Issuer	Total US$ bonds	YTD Issuance
Petronas	16,600	4,900
Pertamina (Incl Hulu/geothermal)	13,155	1,000
PTTEPT (excl refinery/other)	2,325	0
ARAMCO	37,500	8,000
PETBRA	14,190	2,000
ECOPET	13,950	0
CNOOC	7,333	0
KOROIL	11,870	3,300

For the purposes of this paper, PTT is represented by its upstream subsidiary, PTTEPT. PTT's downstream subsidiaries PTT Global Chemicals (PTTGC) and holding company PTTTB have all issued in the international bond markets. PTTGC has issued USD1.1 billion of bonds in the dollar market this year. As shown in Figure 1 and Table 1, Pertamina and PTT's long duration bonds have outperformed their shorter duration counterparts (5-10yr) in terms of credit spreads, with the curve flattening. Pertamina's short-end bonds have underperformed the rest of the curve, and the Pertamina curve as a whole has underperformed (relative to PETMK/PTT). Pertamina subsidiary Pertamina Hulu issued a USD1 billion 5yr bond that drove underperformance in the 5yr part of the Pertamina curve.

Political factors are also impacting spreads. In Indonesia, concerns over fiscal discipline and possible populist spending plans have weighed on investor sentiment, causing the country's sovereign spreads to underperform this year. Pertamina is also facing a scandal involving a number of large corruption cases around crude oil and product procurement with estimated losses of around 285 trillion rupiah (~USD17.6 billion) from inflated cost in imports and misuse of subsidies.[1] Ratings agencies have put Thailand on a negative outlook due to prolonged political concerns, rising fiscal risks, and weak economic growth. PTT ratings are tied to the Thai sovereign. Petronas is also facing rising risks with its relationship with the state of Sarawak and the status of its fiscal arrangement over gas and downstream activities.

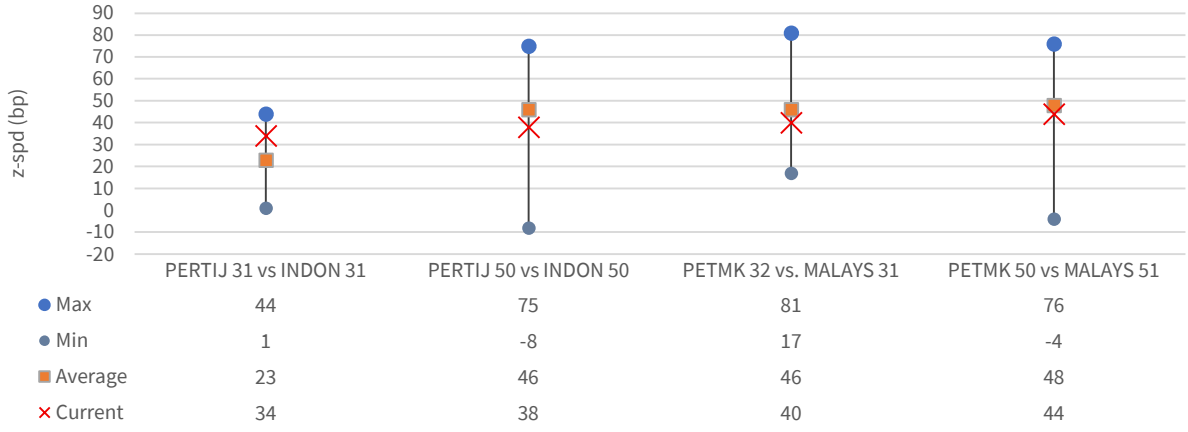
Other technical factors are also a driver of spreads for these NOCs. Away from the ASEAN NOCs, MENA NOCs have been active in the market. Saudi Aramco is one of the most frequent issuers in the global NOC space. Saudi Aramco has seen its bonds struggle to perform this year. Saudi Aramco issued USD6 billion in new 5, 10 and 30yr bonds this year in May and USD2 billion in 5 and 10yr bonds in September, adding 22% to its outstanding USD bonds. As such the 5yr and 10yr part of Aramco's curve has underperformed, as shown in Table 1. The total amount of bonds outstanding in the dollar bond market per issuer also shows the same story in Table 2. Aramco has been actively issuing bonds and is now a large part of the MENA bond market. Both Aramco and Pertamina underperformed year to date, especially in the maturities where their bond issuance was focused.

[1] "Indonesia Detains Trafigura Employee in $17 Billion Graft Case", Bloomberg, 10 Jul 2025.

The credit spreads of Pertamina and Petronas bonds relative to their sovereign bonds are currently trading in line with their historical ranges. However, the Pertamina 5yr is underperforming versus its typical spread over the past two years. Generally, the spread between NOCs and their sovereigns tends to widen during periods of macroeconomic instability.

To sum up, we observe that political factors have an impact on spreads. Although they are relatively contained at present, they could be a source of volatility in the future. In today's tight spread environment, where most sectors are trading close to historical lows with limited dispersion, technical factors like issuance tend to have a greater influence.

Figure 2. Pertamina and Petronas bonds vs respective sovereign bonds in the 5 yr and 30 yr buckets trading ranges from 23 Nov to 25 Nov 2025. Source: Bloomberg Finance L.P., accessed 30 Nov 2025.



Bondholders and potential investors should also consider some emerging risk factors. These include lower and more volatile oil and gas prices, higher break-even costs[2] for fossil extraction, and geopolitical risks that are disruptive to the access and transport of oil and gas. These risks will be analysed further in the next section. Bondholders should question a NOC's overall strategy to diversify and decarbonise their energy sources. These strategies will have a direct impact on its credit spreads and its ratings, as well as those of its host countries.

For NOCs that remain solely focused on expanding their traditional oil and gas businesses, there will be consequences for cashflows going forward. Depending on how oil and gas prices evolve, we expect these NOCs to experience more volatile operating cashflows, driven by their higher production break-even costs. For companies with higher financial leverage, such as PTT and Pertamina, a lower oil and gas price regime will result in lower cashflows, higher debt balances, and higher financial leverage in a shorter time frame. The credit spreads of these companies' bonds will likely react negatively. For bondholders, the volatility of the cashflows and long-term viability of the businesses could make such investments less attractive.

NOCs that use their capital to diversify into more stable sources of long-term revenue, like solar, geothermal energy, and battery technology — and are backed by long-term PPAs — could enjoy greater stability and lower volatility to their revenues and cashflows in the medium term.

[2] Break-even production costs are defined as the minimum price per barrel at which the producer can cover all costs including operating, capital, development, exploration, admin and transport costs with profit being zero at that price.

ASEAN NOC landscape

NOCs traditionally have a mandate to secure and develop national hydrocarbon resources and have a legally defined role in upstream development within their countries. NOCs are usually extensions of the state: they are state-owned or state-controlled entities that manage fossil fuel supplies on behalf of governments. As such they serve both commercial and public policy goals. The NOC-government relationship varies by country, but almost always combines ownership, fiscal dependence, and policy influence. NOCs will continue to have dependency on credit markets to fund their expansion in production and transition strategies. This means bondholders can have influence on and incentivise their transition goals.

Table 3. Overview of key NOC factors for Petronas, Pertamina, and PTT. Source: Company filings.

	Petronas	Pertamina	PTT
Operating strategy	Fully integrated energy company with upstream /downstream oil, gas, LNG, clean energy, chemical and other operations. 40%+ revenues from international.	Fully integrated company in upstream/downstream oil, gas, geothermal, and petrochemicals. Refines, markets, distributes and trades crude oil, natural gas, and refined fuel products.	Vertically integrated with domestic and international operations in E&P, transportation, refining, petrochemicals, wholesale and retail petroleum products distribution.
Daily production	2.45MMboe/d (oil and gas)	1.04MMboe/d (oil and gas)	620-650k bpd (crude)
Oil & gas exploration targets	Production of 2 mmboe/day for 2025-27. **Natural gas/ LNG focus and is 2/3 of hydrocarbon portfolio.** Flexible portfolio player LNG strategy, holds equity stakes in international gas assets.	Production of 914kboe oil /day by 2029 from 560kboe now. Gas: 3470 MMSCFD/day by '29. Capex of USD40 billion for upstream (25-29). **Ramping up oil and gas production rapidly; gas as focus for medium-long term.**	Target 900k boe/d of oil production by '30 vs. 700k boe/d in 2024. **Gas as transitional fuel for next 30-40 yrs, focus on gas/ LNG.** LNG procurement 10MPTA by 30; 15 MPTA by '35. Building LNG Portfolio for scale and flexibility.
Home country crude/refined product needs	Net exporter of crude/both import and exporter on LNG/balanced on refined product	Net importer of both crude and refined oil products	Net importer of both crude and refined oil products
Clean energy targets	**30-40 GW green capacity by 2030** vs. 8.4 GW in 2025 (0.26 GW in Malaysia) 1.2MM tonnes green hydrogen exports by 2030.	**>6 GW of installed clean energy by 2029** vs. 2.8GW in 2025 (727MW geothermal in Indonesia). Capex of USD6.2 billion in next 5 yrs.	**12 GW by 2030**, vs 4.88 GW in 2025 (of which 3.2 GW in Thailand) through GPSC.
Ownership	100% owned by MOF in Malaysia	99% owned by Danantara. 1% golden share by government of Indonesia	51.38% owned by MOF in Thailand.

NOCs are not bound by their conventional oil and gas producing roles. In today's energy landscape, they are charged with developing a diverse energy portfolio that includes both natural gas and renewables. Table 3 provides an overview of the three NOCs' key strategic factors, including their operating approaches and clean energy targets.

They stand in stark contrast with some of the other NOCs, such as Mexico's Pemex and Venezuela's PDVSA, which have suffered from mismanagement, corruption, and extreme fiscal extraction by their home governments, rendering them ill-prepared for the energy transition. Indeed, neither Pemex nor PDVSA have significant plans to diversify their energy mixes or decarbonise their existing operations. In order to mitigate transition risks, both companies would need to focus on a

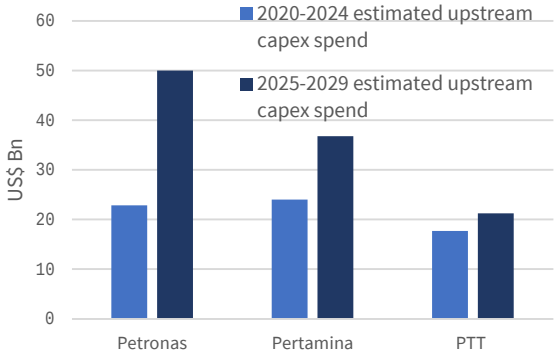
more resilient business model. The alternative would be even greater challenges, leading to knock-on effects on the public finances of Mexico and Venezuela.

ASEAN NOC strategies

Petronas, Pertamina, and PTT provide only part of the crude oil and gas needs of their home countries. All three host nations import crude oil and, to a lesser extent, gas. Their existing domestic oil and gas fields are mature and will be depleted by the next decade. While they have been actively developing new resources overseas or at home to keep production levels in line with the growing needs of their home countries (see production targets in Table 3), due to the increasing complexity of these resources the break-even costs for oil (and gas) production have been increasing. Petronas has a break-even cost of $60-70/ barrel for oil.[3] Pertamina has an estimated break-even production cost of $50, while PTT's is in the $30s[4]. To put this in context, the oil market is forecasted to have a global supply glut from 2025 to 2026, with the World Bank's $60/ barrel price for 2026.[5]

Over the medium- to long-term, all three NOCs are expanding their gas operations, including infrastructure build out. The global LNG market is expected to be at a risk of oversupply by 2026, a situation that could continue until 2030,[6] with the US and Qatar driving continued capacity expansion into 2027. Malaysia, Indonesia, and Thailand are all promoting LNG as a transition fuel in the medium term, a strategy reflected in their NOCs' upstream capital expenditure plans. But this approach carries risks: if they ramp up gas production just as the market becomes oversupplied, they could face unfavourable economic conditions. In addition, their investments in US LNG projects may prove vulnerable as questions grow around their long-term viability.

Figure 3. Estimated upstream capex spend for Petronas, Pertamina, and PTT. Source: Company filings and AFII estimates.



The strategy of finding, developing, and extracting oil and gas may not be viable over the long term for two reasons: 1) higher break-even costs of oil (and gas) production due to the rising share of complex resources and inflation; and 2) risk of geopolitical shocks disrupting production and transport. Geopolitical shocks, like the Russia-Ukraine war, have led to high hydrocarbon prices and governments scrambling to procure alternative sources of fossil energy. On the demand side, there is also evidence of a structural decline for oil as electrification and the energy transition continues. Gas too faces the same pressures, albeit at a slower pace. Geopolitical events and lower demand will create volatility for fossil prices.

In addition, international oil companies (IOCs), which often partner with NOCs for new developments, may no longer be a source of capital for future projects. IOCs have increasingly returned capital to shareholders via stock buybacks and dividends over the past decade at the

[3] "Petronas chief sees US$50 oil price as break-even to sustain investments", The Edge Malaysia, 18 Jun 2025.
[4] AFII estimate
[5] "Oil market glut: surging output and sluggish demand pressure prices", World Bank Blogs, 4 Nov 2025.
[6] "Navigating the U.S. LNG Export Boom Oversupply Challenges", Discovery Alert, 30 Sep 2025.

expense of exploration projects. These allocation decisions mean that some projects may not be providing enough returns to warrant investment.

The shift to investing in renewable energy and other clean energy technology is inevitable. It will allow for increased energy self-sufficiency in these ASEAN countries, where solar and/ or wind are abundant. Petronas, Pertamina, and PTT have been part of the drive to diversify their energy sources into this new segment. All three NOCs play a role in developing renewable energy for their host countries. However, the degree to which they are integrating these renewables into their business strategies, and aligning them with their countries' ambitions, vary.

Some factors that could accelerate renewable energy transition at each NOC and in their host countries include: 1) adequate capex investment in renewable energy production, storage, and infrastructure; 2) integration and collaboration with utilities and grid and transmission operators within the country; 3) long-term offtake structures for the renewable energy with the government and utility or end users (industrial PPAs etc); 4) clear regulatory and financial frameworks; and 5) effective cost of financing for upfront costs.

We summarise some of the renewable and clean energy initiatives of the three NOCs in Table 4. At a systems level, Petronas looks closest to integrating its renewables strategy with its host government's. For one thing, it has a close collaboration with Tenaga (the national utility and grid operator), and is involved in the cross-border renewables initiative (ASEAN Power Grid). For another, it has a specific role within the NETR (National Energy Transition Roadmap) concerning hydrogen, biofuels, hydro-solar and Carbon Capture Storage projects. Petronas is also the most diversified relative to PTT and Pertamina in terms of implementing various renewable strategies and decarbonisation solutions.

Table 4. Factors for integrating NOCs' renewable strategies with national renewable strategy. Source: Company presentations.

	Petronas	Pertamina	PTT
Capital expenditures for renewables	✓ 20% total capex	X <10% of total capex	X ~15% of total capex
Integration with grid operators and utilties	✓✓ Partnerships with Tenaga (utility) for renewable and green hydrogen hubs, CCS, and other clean fuels. Through Gentari connects with cross-border initiative for ASEAN power grid.	✓ Through Pertamina Geothermal Ener-gy (PGE) collaborates on geothermal with PLN. Focus is only on geothermal energy.	✓ PTT jointly explores green hydrogen with EGAT and ACWA power. Pilots smart grid solutions with EGAT and PEA.
Long term offtake agreements/ PPAs	✓ Gentari has long term PPA structures for renewable output in Malaysia and overseas	✓ Sells all geothermal electricity to PLN with 30 yr agreements	✓ GPSC sells power to EGAT or PEA (Provincial Electricity Authority) under 20-25 yr PPAs.
Green financing	X No green financing frameworks, but may have access green project level loans with banks.	✓ PGE has a green financing framework. Issued USD400 million 5-yr green bond in 2023.	✓ GSPC has green bond framework and issued multiple THB green debentures. PTT also issued a 3yr green bond in 2020.

However, only 257MW out of Petronas' 8.4 GW of renewables capacity (under subsidiary Gentari) is located in Malaysia. In order to increase its renewables capacity, Gentari recently partnered with Gamuda Energy to develop 1.5 GW solar with battery storage. The project provides Gentari

with a stable and long-term off-taker. Petronas can be both a leader and partner in such large-scale corporate solar projects, especially given the expected data centre buildout in Malaysia. Data centres are projected to make up for 30% of Malaysia's energy demand by 2030. As of 2024, there were 31 data centre projects requiring up to 4.7GW of power.[7]

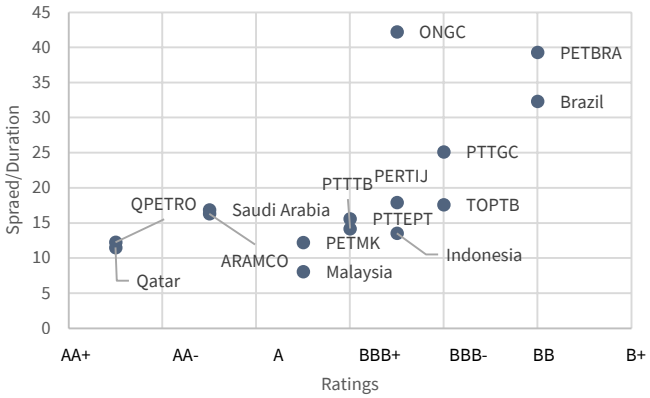
As seen in Table 4 all three NOCs spend a relatively small percentage of total capital expenditures on renewable or new business segments. They would need to ramp up capital allocation significantly in order for renewables to become a meaningful part of their businesses going forward. This is especially true for Pertamina, which has noticeably emphasised upstream oil and gas exploration in the short term.

These NOCs have to take a multi-dimensional approach to achieving energy security. This goes beyond shifting from domestic to international fossil assets or simply transitioning from oil to gas. True energy security means ensuring a reliable, uninterrupted energy supply that is resilient to geopolitical disruptions. It is also about implementing and scaling up low-carbon energy solutions. But advancing and accelerating low-carbon energy is only possible if there are strong fiscal and regulatory frameworks in place. Government policies can designate NOCs as leaders, or partners and investors, in these projects. This requires close coordination between NOCs and their governments on the overarching energy roadmap. **Funding this transition at an effective cost of capital is also crucial for these NOCs. Bondholders and potential investors in these NOCs will play a part and have an opportunity to allocate capital for these purposes.**

Financing low-carbon energy

Petronas has one of the lowest financing costs among the NOCs given its high ratings and perceived creditworthiness. However, it does not yet have a sustainability financing framework in place. Having such a framework would improve cost effectiveness, and potentially entice additional international bond investors looking to participate in energy transition and renewables in the ASEAN region.

Figure 4. NOCs spread/duration versus ratings. Source: Bloomberg Finance L.P., accessed 30 Nov 2025.



Malaysia issued two tranches of sustainability sukuks totalling USD1.3 billion in the USD bond market back in 2021, of which proceeds were used for a number of eligible green and social expenditures. Pertamina Geothermal, PTT, and GPSC (subsidiary of PTT) have issued green bonds in the past to fund their renewable investments in geothermal power, reforestation, and renewable energy

[7] "Tenaga Nasional - Growth Prospects Intact", Kenanga Research, 2 Dec 2024.

projects — including solar and wind respectively. Please refer to Table 5 in the appendix for details of the green bonds.

Conclusions

This analysis presents an overview of three ASEAN NOCs and offers a jumping off point for discuss a pathway for NOCs to address the energy security and transition needs of their countries. The international bond markets have played a role financing NOCs in their missions to expand production in the past. As some NOCs seek to diversify into renewables and expand their gas and LNG production, they may choose to access the bond markets in the near term.

Bondholders should consider each NOC's overall strategy for energy diversification when allocating capital and making investment decisions. Most of the ASEAN NOCs have not tapped labelled debt for financing their renewable strategies. International bond investors would likely find labelled debt for these purposes compelling and sensible, as part of the pathway for NOCs to diversify and attain energy security.

Appendix

Table 5. Credit snapshots of Petronas, Pertamina, and PTT. Source: Bloomberg Finance L.P., accessed 28 Nov 2025.

For Year ended 12/31/2024	Petronas	Pertamina	PTT
Foreign LT Ratings	A2/A/BBB+	Baa2/BBB/BBB	Baa1/BBB+/BBB+
	RM$MM	US$MM	THB MM
Revenues	305,131	75,327	3,090,453
Gross Profit	117,239	10,079	335,134
Operating Income (EBIT)	92,014	6,393	186,028
margin	*30%*	*8%*	*6%*
Net Income	49,104	3,126	90,072
EBITDA	130,994	10,777	364,777
margin	*43%*	*14%*	*12%*
Cash	188,476	15,793	405,139
Capex	51,868	6,612	177,558
Free cash flow	51,243	-1,143	168,745
Dividends	32,000	598	82,234
Net Income Tax	26,348	1,963	67,210
Short term Debt	18,742	674	110,921
Long term Debt	15,267	17,510	814,719
Total debt	34,009	18,185	925,640
Total Equity	506,610	44,081	1,656,877
Debt/EBITDA	0.26x	1.69x	2.54x
Debt/Equity	7%	41%	56%
Net Debt/Equity	-30%	5%	31%

Table 6. Green bonds issued by Pertamina and PTT subsidiaries. Source: Bloomberg Finance L.P., accessed 25 Nov 2025.

ISIN	Ticker	Coupon	Currency	Issuer	Amt (MM)	Maturity	Issue Date	Label
USY7140EAA65	PGEOIJ	5.15	USD	Pertamina Geothermal	400	4/27/2028	4/20/2023	Green
TH0646033702	PTTTB	2.25	THB	PTT PLC	2,000	7/24/2023	7/24/2020	Green
TH6488037602	GPSCTB	3.04	THB	GPSC (PTT subsidiary)	3,000	10/06/2027	10/06/2022	Green
TH648803A601	GPSCTB	3.56	THB	GPSC	1,000	10/06/2030	10/06/2022	Green
TH648803H606	GPSCTB	4.4	THB	GPSC	4,000	10/06/2037	10/06/2022	Green
TH648803C607	GPSCTB	3.75	THB	GPSC	3,000	10/06/2032	10/06/2022	Green
TH6488035606	GPSCTB	2.55	THB	GPSC	1,000	10/06/2025	10/06/2022	Green
TH6488035804	GPSCTB	2.11	THB	GPSC	1,500	07/08/2025	30/06/2020	Green
TH648803A809	GPSCTB	2.94	THB	GPSC	1,000	07/08/2030	30/06/2020	Green
TH648803F808	GPSCTB	3.24	THB	GPSC	2,500	07/08/2035	30/06/2020	Green

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