

Asia's coal-fired utilities: Putting transition credibility to the test

Targets for more renewables, less coal reflect strategic adaptation but cannot fully justify green or transition claims

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Executive Summary

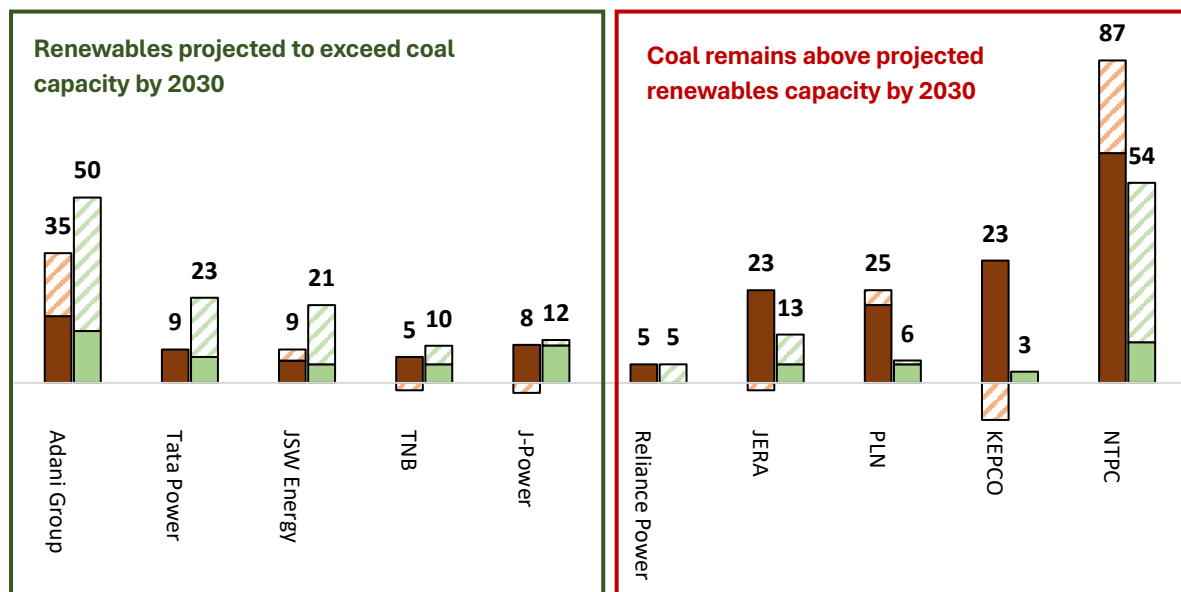
Asia's clean energy transition was already hard to read. Geopolitical noise is making it even harder.

Across the region, power utilities are pursuing renewable energy build-outs and net-zero targets, yet many continue to expand or extend coal-fired generation and other fossil fuel assets, highlighting the gap between ambition and execution.

This discordant state of affairs is about to get messier. Japan, India and South Korea have boosted coal generation temporarily to address immediate energy needs, in the light of oil and gas supply disruptions from the US-Iran war.^{1,2,3} While such measures may be necessary in the near term, the more logical path in the longer run still points to structural decarbonisation driven by improving renewables and storage economics as rising carbon and financing costs increase the relative cost of coal-fired power.

For investors, they stand to face a more complex risk profile that requires them to balance visible progress in low-carbon investment against continued exposure to coal and other fossil fuels within long-term portfolios.

10 Asian Utilities' Projected Coal and Renewables Capacity by 2030 (GW)



■ Coal Capacity (2025) □ Coal Capacity Target (2030) ■ Renewables Capacity (2025) □ Renewables Capacity Target (2030)

Source: ESI consolidation and assumption from respective company disclosures. Note: For companies with coal or renewables projections extending beyond 2030, a linear trend is applied up to 2030 to estimate development through that year.

¹ Macau Business. [Japan to boost coal-fired power as Mideast war causes energy turmoil](#). March 2026

² Reuters. [India to boost coal use for summer power as Mideast crisis hits LNG supplies](#). March 2026

³ Reuters. [South Korea to lift coal cap, boost nuclear output amid Iran crisis, ruling party says](#). March 2026

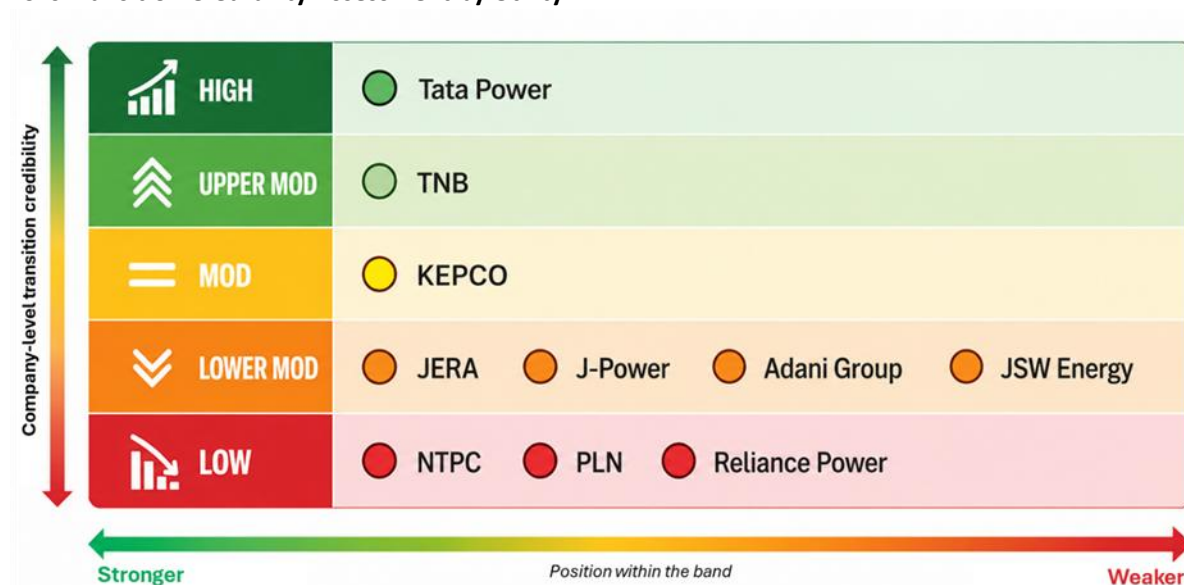
ESI analysis: 10 major power utilities in Asia

This inaugural flagship report by the Energy Shift Institute seeks to cut through the noise and assess 10 major power companies across India, Indonesia, Japan, Malaysia and South Korea that are peers of one another. The analysis focuses on whether their transition strategies are structurally reducing coal dependence or simply adding renewables to portfolios still laden with fossil fuels.

The report assesses transition credibility through three connected questions:

1. Is the company reducing coal dependence?
2. Is it building a cleaner portfolio that can replace coal credibly over time?
3. *A standalone layer of analysis:* Does the company have the financial capacity and conducive operating environment to execute that shift?

ESI's Transition Credibility Assessment by Utility



Source: ESI assessment based on respective company disclosures. Note: Appendix [Section 5.3 provides ESI's Corporate Transition Assessment](#) methodology.

The findings show wide divergence in transition quality:

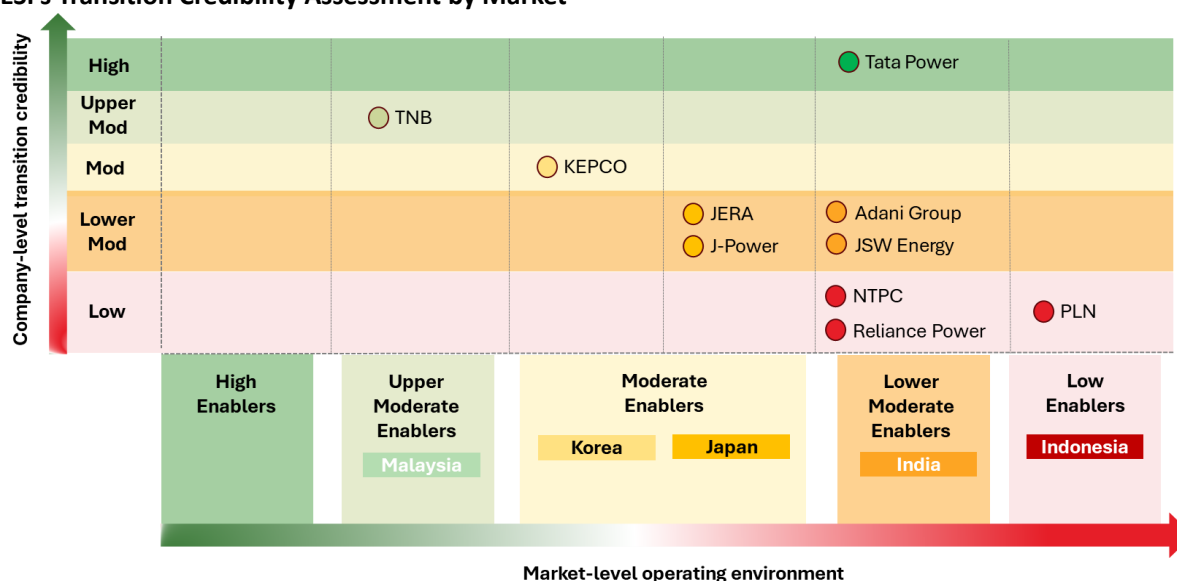
Coal remains deeply entrenched across much of the group. Eight of the 10 companies are found to have moderate to low credibility as they continue to rely heavily on coal by expanding capacity or extending the operational life of existing plants, undermining transition or renewables development credibility.

Clear leaders and laggards are emerging. Tata Power of India stands out as the only company to have halted coal expansion while steadily expanding renewables and targeting a transition away from its coal portfolio by 2045. Malaysia's Tenaga Nasional Berhad (TNB) shows similar strategies, but continued gas expansion means it is not yet a clear transition leader. In contrast, Indian firm National Thermal Power Corporation (NTPC) and Perusahaan Listrik Negara (PLN) of Indonesia prioritise coal expansion over renewables, while Reliance Power of India lags further behind with limited visibility and a persistently coal-heavy profile.

Utilities are making gas and “clean coal” key bridging strategies. TNB, Korea Electric Power Corporation (KEPCO), and Japanese players JERA and Electric Power Development (J-Power) are reducing some coal exposure, but mainly by shifting to gas, nuclear or so-called “clean coal technologies” such as co-firing, rather than by scaling renewables. These strategies risk locking in continued fossil fuel dependence.

Renewables are growing but remain insufficient to drive genuine transition outcomes. While renewables capacity is increasing across most companies, it does not displace coal materially. In many cases, including PLN and Indian firms Adani Group, JSW Energy and NTPC, coal expansion continues alongside renewables, making clean additions largely incremental rather than transformative because coal plants are typically used at far higher rates than renewables. As a result, coal is likely to remain the dominant source of actual electricity generation at these companies even where renewable capacity nears parity with coal.

ESI’s Transition Credibility Assessment by Market



Source: ESI assessment. Note: [Section 5.4 provides ESI’s Country Transition Assessment methodology](#) based on limited desktop study.

Market context explains operating conditions but does not justify underperformance. Some companies are structurally constrained by country and policy environments, while others broadly track their domestic limits. Yet others lag despite relatively enabling conditions. In India, for example, Tata Power has outperformed its peers Adani Group, JSW Energy, and Reliance Power, demonstrating that strategic positioning can diverge meaningfully even under shared constraints.

State-owned enterprises KEPCO, NTPC, PLN and TNB operate under policy-driven mandates, but those boundaries should not preclude stronger strategic positioning. A key measure of credibility is not whether a company can transcend its country constraints, but whether it is making stronger choices despite external circumstances.

The 10 utilities require large planned capital expenditure to deliver their transition and renewables strategies, making them heavily reliant on external financing. As a result, companies that continue to expand or extend coal operations while simultaneously seeking transition capital should face greater investor scrutiny because of their potential for locking in long-term transition exposure rather than reducing it.

Therefore, **it is critical to distinguish between cosmetic rebranding and genuine transition strategies.**

Planned renewable build-outs and coal phase-downs targets may reflect strategic adaptation but should not be treated as sufficient evidence of transition. When combined with new coal capacity, a continued reliance on gas or coal life-extension technologies such as ammonia co-firing, companies exhibit an overall murky direction.

Ambiguous signals can lead to mispriced transition risk. Markets may reward headline climate commitments or renewables expansion even when the companies cling on tightly to fossil fuel assets.

The result is misallocated capital. Growing demand for green or transition financing ironically channels funds towards companies with weaker underlying fundamentals rather than those making more meaningful structural change.

Across the 10 utilities, renewables ambitions and/or coal phase-down plans are evident, but meaningful portfolio transformation remains limited. The key question is not whether a transition plan exists, but whether it is credible across corporate strategy, market conditions and financial capacity.

Investors who can accurately identify and allocate capital to true transition leaders are likely to benefit from stronger long-term growth, enhanced operational resilience and first-mover advantages in a decarbonising energy system.

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Introduction

Asia's coal utilities: Putting transition credibility to the test

Energy challenges in the region illustrate the need for a pragmatic and resilient transition strategy. While temporary reliance on existing coal-fired power may be necessary to support energy security and grid stability in some countries, long-term dependence on fossil fuels and imported energy creates the very geopolitical vulnerability causing the recent energy crisis. Structural diversification away from fossil fuels is more economically efficient and the smarter energy resilience play.

The economics are driven by the improving cost competitiveness of renewable energy, declining storage costs and increasing exposure to carbon pricing, financing and regulatory constraints, all of which raise the marginal cost of coal-fired generation relative to cleaner alternatives.^{4,5}

Diversification into renewables is already evident in some corporate strategies. However, coal and other fossil fuels continue to play a role in long-term planning even as companies accelerate renewables or other low-carbon investments.

- In March 2026, Adani Green Energy commissioned 510.1 megawatts (MW) of renewable energy capacity at its Khavda site in Gujarat state, increasing its total operational renewables capacity to 17.9 gigawatts (GW).⁶ However, the year before, Adani Power under the same corporate group had announced plans to construct India's largest privately funded coal-fired power plant in a decade.⁷
- In March 2025, Tata Power outlined plans to develop 7GW of new green energy projects, reinforcing its renewables expansion strategy.⁸ Yet, the following month, it discussed expanding coal capacity at a northern Indian power plant, potentially marking its first coal expansion in six years.⁹
- Japan's largest coal power generator has pledged to close inefficient coal plants by 2030,¹⁰ but has also secured long-term subsidy for 20% ammonia co-firing with coal at its Hekinan No 4 unit¹¹ – a pathway intended to lower emissions while preserving coal assets.

These examples illustrate the central challenge that the Energy Shift Institute is addressing. Planned renewables build-outs, partial coal phase-down and alternative fuel pathways may all indicate strategic adaptation. However, when paired with new coal capacity, open-ended gas reliance or coal life-extension technologies such as ammonia co-firing, the overall direction becomes murky.

Interpreting mixed signals in the energy transition

Mixed signals arising from clean energy expansion alongside continued fossil fuel investment make it harder to assess whether companies are genuinely making a transition or simply diversifying. The result is a market in which clean energy expansion and fossil fuel persistence can coexist within the

⁴ International Renewable Energy Agency. [Renewable power generation costs in 2024](#). July 2025

⁵ BloombergNEF. [Battery storage costs hit record lows as costs of other clean power technologies increased](#). February 2026

⁶ PV Tech. [Ceigall inks two PPAs, Adani completes 300MW of PV, Coal India backs 875MW project](#). March 2026

⁷ Reuters. [Adani to build India's biggest privately funded coal power plant in a decade](#). August 2025

⁸ Reuters. [India's Tata Power unit exploring \\$5.6 billion clean energy investment in Andhra state](#). March 2025

⁹ Reuters. [India's Tata Power eyes first coal capacity expansion in six years](#). April 2025

¹⁰ Reuters. [Japan's JERA to shut inefficient coal-fired power plants by 2030](#). October 2020

¹¹ Reuters. [JERA on track for 20% ammonia co-firing at Hekinan coal power plant in FY29](#). January 2026

same company, often without clear differentiation in the narratives put to investors. Therein lies the problems:

- **Transition risk can be mispriced.**¹² Markets may reward headline climate commitments or renewables expansion even when the companies remain heavily exposed to fossil fuel assets. This reflects that investors do not always distinguish clearly between renewables and coal-linked parts of a business, and may therefore not direct capital towards the companies that are truly leading the transition.
- **Capital may be misallocated.** Growing demand for green or transition financing can channel funds towards companies with weaker transition fundamentals, rather than to those making meaningful structural changes.¹³

Over time, these misalignments introduce financial risk at company level. Assets such as coal and gas-fired units, which could appear economically viable in some markets today, may become vulnerable as climate policies tighten, more economical low-carbon technologies evolve, and energy systems decarbonise faster than expected.

The risk can be amplified during geopolitical instability, which could portray coal as a stable energy source when in practice, fossil fuels, unlike renewables, remain exposed to supply chain disruptions and resulting impacts on transport costs.

For investors, the ability to see whether companies are engaging in cosmetic rebranding or a genuine transition and strategic positioning can either compound risk or amplify long-term value

1. Scope of transition assessment

1.1 Introduction

The concept of “transition” is inherently context-dependent, varying across methodologies, stakeholder perspectives and regulatory frameworks. This report does not treat transition as a simple binary outcome of green versus non-green. Instead, Energy Shift considers a transition as more credible when it reduces coal materially over time, predominantly in favour of low-carbon or renewable sources.

A transition is treated as weaker when coal continues to expand, when coal reduction covers only a small portion of the fleet, or when coal is replaced by pathways that preserve long-term fossil fuel dependence.¹⁴

Energy Shift examines a company’s transition credibility across four key pillars:

- Credibility of the coal phase-out strategy: Robustness, transparency and timelines of planned reductions.
- Energy sources replacing coal: Extent of adopting cleaner fuels and other low-carbon options.
- Development of renewable energy: Renewables expansion against coal, target ambition and track record.

¹² ScienceDirect. [Climate transition risk, profitability and stock prices](#). October 2022

¹³ ESG Today. [Transition bond issuance to double in 2026: Moody’s](#). January 2026

¹⁴ Appendix [Section 5.3](#) provides ESI’s Corporate Transition Assessment methodology.

- Related capital expenditure: Investment commitments to renewable or low-carbon energy, if disclosed.

This report aims to identify companies genuinely advancing the transition away from coal, distinguishing credible leaders from those whose strategies remain heavily reliant on coal or lack meaningful ambition.

1.2 Overview of company selection

Energy Shift assesses 10 power generation companies across South Asia, East Asia and Southeast Asia. The sample is broadly comparable due to several factors (Table 1):

- **Systematically important and supported by government.** The sample comprises a mix of state-owned enterprises (SOEs) and private-sector companies that are strategically important or deeply linked to domestic energy systems. Their critical contribution to energy supply and the energy transition makes them “too important to fail” and raises the likelihood of government support during financial stress.
- **Materially relevant to coal displacement.** All the companies operate large-scale power generation assets, mostly dominated by coal-fired capacity, making them directly relevant to assessing coal displacement strategies.
- **Renewable energy ambition.** All the companies have announced plans to expand renewables capacity, indicating potential to reduce reliance on coal and contribute meaningfully to decarbonisation targets. The scale, pace and credibility of these ambitions vary.

Table 1. Overview of Selected Asian Power Utilities

Company Names	SOE	Coal Capacity (GW)	Country
National Thermal Power Corporation (NTPC)	✓	61.5	India
Adani Group ¹⁵		17.5	
Tata Power		8.9	
JSW Energy		5.7	
Reliance Power		5.1	
Korea Electric Power Corporation (KEPCO)	✓	32.6	Korea
JERA		24.6	Japan
Electric Power Development (J-Power)		10.3	
Perusahaan Listrik Negara (PLN)	✓	24.6	Indonesia
Tenaga Nasional Berhad (TNB)	✓	6.8	Malaysia

Source: ESI consolidation from respective company and rating agency disclosures

¹⁵ Appendix [Section 5.2](#) provides details on the renewables reporting of selected power companies.

2. Persistence of coal in near-term strategies

Key Takeaways: Coal assessment

Across the sample, coal capacity trends show an uneven transition. Some companies are reducing coal exposure, while others maintain or expand capacity, indicating coal’s continued role in near-term energy strategies. Thus, transition claims such as coal phase-out plans, carbon neutrality targets and planned renewables growth should not be treated as sufficient evidence of transition, especially if coal capacity is still rising.

A coal phase-out announcement or target alone is not a signal of credible transition. Credibility depends on the scale of coal fleet coverage and a clear, time-bound pathway. Companies with full retirement plans and no new coal expansion are more likely to reduce coal dependence over time. In contrast, partial phase-outs, typically covering less than 30% of the fleet and focused on older plants, largely reflect continuation rather than structural change.

The type of replacement is also critical. **Not all coal displacement is equal.** Replacing coal with renewables, or in some cases nuclear power, reflects deeper portfolio rebalancing and stronger decarbonisation than shifting to gas or extending coal through co-firing and retrofit strategies.

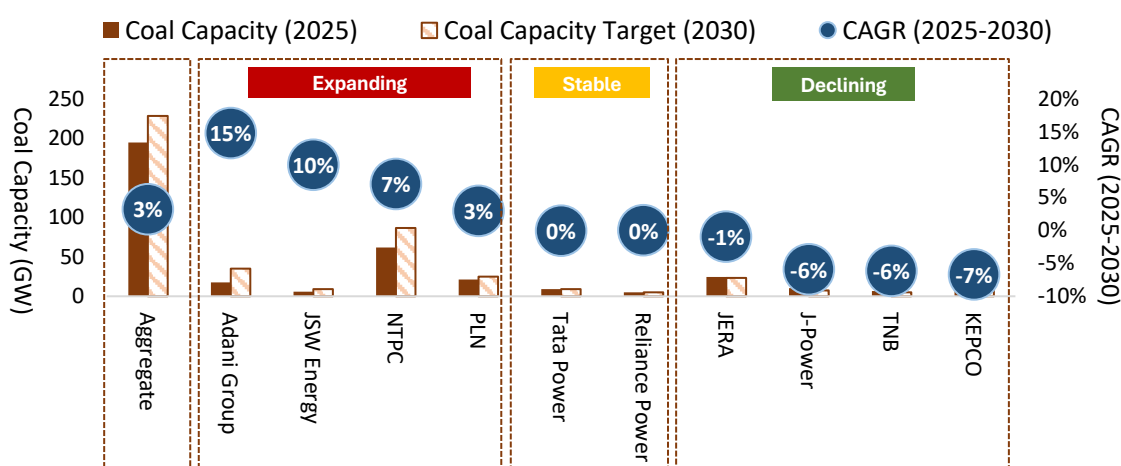
Companies that combine credible coal retirement with substantial low-carbon investment are better positioned to reduce transition risk, while continued coal reliance or fossil fuel-based substitutes increase the risk of carbon lock-in.

2.1 Coal capacity trajectory

The way coal capacity develops serves as both a historical benchmark and a forward-looking indicator of transition credibility. Changes in planned capacity reveal whether coal is being structurally displaced or reinforced within generation portfolios. The key is directional intent. It captures early signals of transition through installed capacity rather than realised outcomes in terms of actual power generation.

Across the companies, coal capacity is projected to increase from 194GW in 2025 to 228GW by 2030, indicating that coal remains embedded in the near term. However, this aggregate trend masks significant divergence (Figure 1).

Figure 1. Historical and Projected Coal Capacity



Source: ESI consolidation from respective company disclosures. Note: For companies with coal projections extending beyond 2030, a linear trend is applied up to 2030 to estimate development through that year. CAGR = cumulative annual growth rate

Coal expansion is the clearest negative transition signal. The Adani Group,¹⁶ NTPC,^{17,18} PLN¹⁹ and JSW Energy²⁰ continue to expand coal capacity, indicating that coal remains central to growth strategies rather than being managed as a declining legacy asset.

Stable coal capacity is a more positive signal. Reliance Power²¹ and Tata Power show broadly flat coal trajectories, a signal which is less negative than expansion but still falls short of structural coal displacement. In Tata Power’s case, coal capacity was steady from 2019 to 2025, and only last year was the idea of an incremental expansion at an existing plant floated.²² As at May 2026, total coal capacity was unchanged,²³ positioning Tata more positively than outright coal expanders.

Coal reduction is a positive signal but varies in credibility and depth. KEPCO,²⁴ JERA,²⁵ J-Power²⁶ and TNB²⁷ are moving towards less coal, which is directionally positive. The strength of this signal depends on how deep and sustained the reductions are, since gradual retirements may still leave coal as a significant part of the generation mix for a long time.

Not all reductions carry the same weight. And their outcomes are not inherently meaningful unless they are material, time-bound and backed by credible replacement pathways.

Transition claims such as coal phase-out plans, carbon neutrality targets or planned renewables growth should not be treated as sufficient evidence of transition if coal capacity is still rising

Transition claims such as coal phase-out plans, carbon neutrality targets or planned renewables growth should not be treated as sufficient evidence of transition if coal capacity is still rising, which would delay portfolio rebalancing, compete for capital and grid access, and lock in future emissions.

2.2 Variations in phase-out quality

The existence of a phase-out plan does not in itself indicate transition credibility. More relevant conditions are whether the plan includes time-bound retirement targets with interim milestones to track progress, the extent of fleet coverage, and clear links to replacement with renewables that reduces coal dependence materially over time.

¹⁶ Adani Energy Solutions Limited. [Investor Presentation](#). November 2025

¹⁷ The Economic Times – Energyworld. [NTPC to add 30GW coal capacity by FY32, eyes entry into power distribution, green hydrogen, and battery storage](#). April 2025

¹⁸ NTPC. [Annual Report 2024-2025](#). Accessed May 2026

¹⁹ Centre for Research on Energy and Clean Air. [Indonesia’s RUPTL 2025-2034: Fossils first, renewables later](#). September 2025

²⁰ JSW Energy. [Integrated Annual Report 2025](#). Accessed April 2026

²¹ Reliance Power. [Annual Report 2024-2025](#). Accessed May 2026

²² Reuters. [India’s Tata Power eyes first coal capacity expansion in six years](#). April 2025

²³ The Tata Power Company Limited. [Financial Results – Q3 FY26](#). February 2026

²⁴ KEPCO. [KEPCO Investor Presentation 2024](#). March 2025

²⁵ JERA. [FY2025 Second Quarter Consolidated Financial Results](#). October 2025

²⁶ J-Power. [J-Power Group Integrated Report 2025](#). October 2025

²⁷ TNB. [Integrated Annual Report 2024](#) and [Integrated Annual Report 2025](#). Accessed May 2026

Figure 2. Coal Phase-out Credibility

High	Clear and full coal phase-out plan	● TNB ● Tata Power
Mod	> 50% coal phase-out plan₂	
	< 50% coal phase-out plan₂	● KEPCO ● JERA ● J-Power
Low	Coal capacity stable	● Reliance Power
	Coal capacity expanding	● PLN ● NTPC ● JSW Energy ● Adani Group

Source: ESI assessment based on respective company disclosures

Strong, though limited, phase-out signals. TNB provides the clearest and most structured coal phase-out pathway as it plans to halve coal-based capacity by 2035 and achieve a fully coal-free portfolio by 2050.²⁷ Tata Power also scores well, though lower than TNB, with plans to transform its thermal portfolio by 2045 subject to contractual obligations and the useful life of plants, which makes the signal directionally positive but less definitive than a firm retirement schedule.²³

Partial phase-downs (<50% of coal fleet). JERA, J-Power and KEPCO are retiring only a portion of their coal fleets, typically targeting older or less efficient plants, which account for 13% to 30% of capacity. While directionally positive, these actions do not represent a full exit from coal, especially as remaining assets may continue operating with retrofits such as carbon capture and storage (CCS) or coal co-firing with ammonia or hydrogen.^{24,25,26}

Weak phase-out credibility. Based on publicly available data at the time of publication, Reliance Power has no clear coal phase-out targets and is therefore expected to maintain its coal plants.²¹ NTPC, the Adani Group, JSW Energy and PLN are expanding coal capacity aggressively. Even though JSW Energy and PLN have disclosed zero-carbon targets,^{28,29} their new or extended coal contracts indicate low phase-out credibility.

A coal phase-out strategy alone is not a signal of credible transition, because the scale of coal fleet coverage and a clear time-bound pathway also matter

Over and above a coal phase-out strategy, transition credibility also depends on the scale of coal fleet coverage and a clear, time-bound pathway. Retiring selected ageing or inefficient plants is not a managed coal exit as it leaves the core dependence on coal intact.

2.3 Displacement strategies

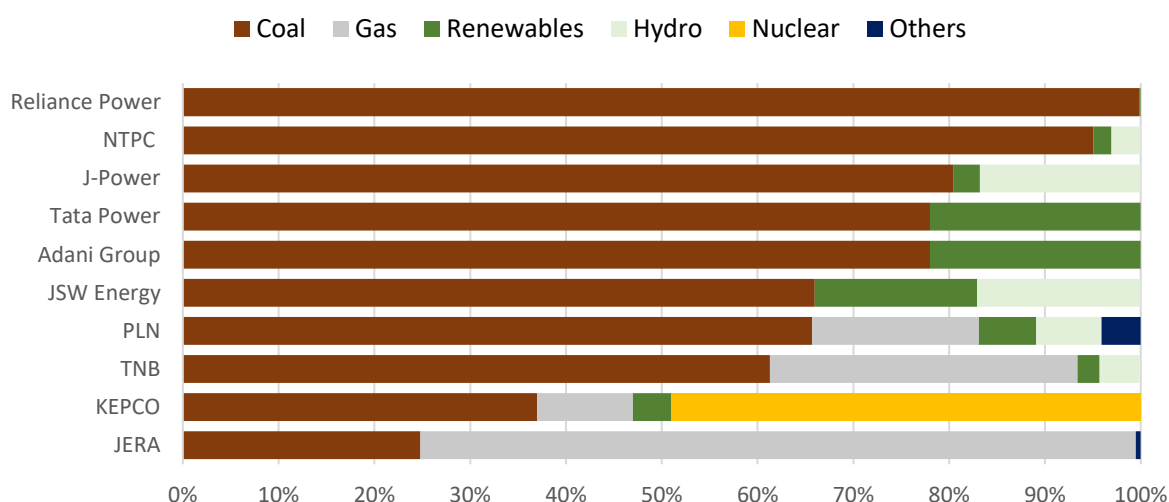
What replaces coal matters as much as lowering its usage. The transition value of coal reduction depends on the type of alternative generation that grows in its place in the generation mix.

Across the selected companies, planned additions in renewables, nuclear power and/or gas are increasing. However, eight of them still rely on coal for 60% or more of generation. JERA is distinct in deriving 25% of its electricity from coal and 75% from gas, while KEPCO gets 37% from coal and 49% from nuclear power (Figure 3).

²⁸ JSW Group. [Sustainability in action: JSW Energy's Ratnagiri transformative projects](#). Accessed April 2026

²⁹ Ember Energy. [Indonesia phasing out coal by 2040 requires ramping up renewables](#). December 2024

Figure 3. Current Power Generation by Fuel Type



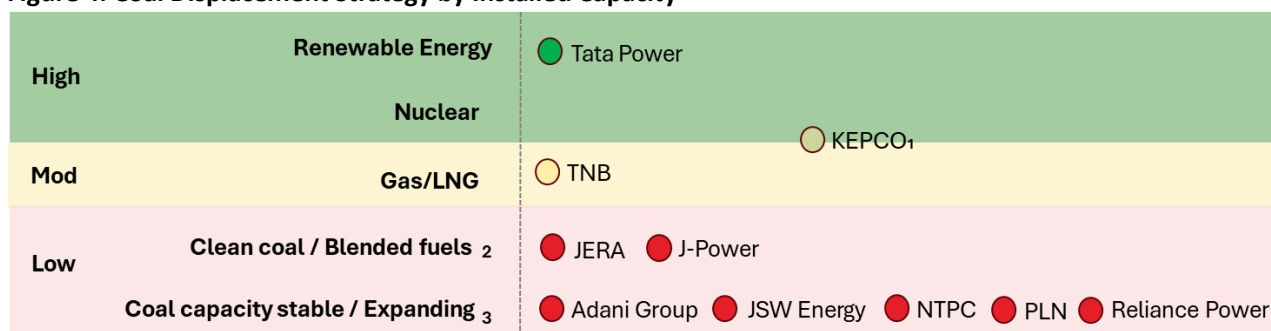
Source: ESI assessment based on latest available company disclosures. Note: The assessment consolidates generation data for Adani Power and Adani Green to reflect the Adani Group’s total generation profile. J-Power and JERA data is limited to domestic generation due to disclosure constraints. Where required, reasonable estimates have been used to ensure comparability across companies.

This assessment uses planned capacity as a forward-looking indicator of potential coal displacement. Companies that intend to replace coal with renewables or nuclear power demonstrate stronger decarbonisation credibility.

By contrast, substitution with gas or other fossil fuel-based sources, or coal co-firing with ammonia, delivers limited emission reductions and can prolong carbon lock-in, even if it is an improvement over coal.^{30,31} The fact that coal remains in the fuel mix makes it only slightly better than doubling down on coal capacity. Decarbonisation credibility is weak compared with proven low-carbon alternatives such as renewable and nuclear replacements.

The findings in Figure 4 are grouped based on the primary replacement strategy for coal:

Figure 4. Coal Displacement Strategy by Installed Capacity



Source: ESI assessment based on respective company disclosures. Notes: 1. While KEPCO plans to adopt “clean coal” technologies or alternative blended fuels, its strategies for nuclear power and natural gas are more extensive and at a more advanced stage of development. 2. JERA and J-Power are actively exploring “clean coal” technologies, including CCS and the integrated gasification combined cycle (IGCC), alongside alternative blended fuels such as ammonia and hydrogen. 3. Except for Reliance Power, most of these companies continue expanding both coal and renewables, diluting their transition credibility.

³⁰ S&P Global. [The role of gas in the energy transition](#). March 2024

³¹ ScienceDirect. [Co-combustion of ammonia in coal-fired power plants in ASEAN](#). March 2026

Renewables-led replacement. Tata Power stands out as the clearest example of a credible renewables-led transition, with substantial capacity expansion from 16% in 2015 to 44% in 2025 and no meaningful coal expansion in the last six years.²³

Gas and “clean coal” weaken transition signals. KEPCO and TNB rely significantly on gas as a transition fuel, thereby maintaining long-term dependence on fossil fuels.^{32,33} In KEPCO’s case, gas and nascent “clean coal” plans are partly offset by rising nuclear capacity, which is directionally preferable to coal expansion.²⁴ While this suggests a more balanced portfolio shift than many peers, gas remains a major long-term pillar, so KEPCO is not a straightforward clean transition case.

JERA and J-Power focus on retrofitting coal plants with technologies such as carbon capture and fuel co-firing. While these approaches may reduce emission intensity, they extend the life of coal assets rather than replace them with clearly clean alternatives.^{34,35,36}

Not all coal displacement is equal. Replacing coal with renewables or nuclear power reflects a more credible transition than shifting to gas or extending coal through co-firing and retrofit strategies

Coal expansion still dominates in several companies. In some cases, coal capacity growth continues to outpace renewables, particularly for NTPC and PLN. Even where renewables targets exceed coal additions, as in the Adani Group and JSW Energy, the simultaneous expansion of both pathways suggests a weakening of the overall pace and credibility of decarbonisation.

Limited transition. Reliance Power has no meaningful historical track record in renewables development, indicating continued reliance on coal and limited decarbonisation progress.

Coal displacement assessment is one of the more important distinctions in the study. The pathways chosen by the respective firms reflect very different levels of transition depth, ambition and risk. Treating all of these as equivalent would flatten very different strategic choices into a single category and obscure material differences in long-term portfolio risk.

Therefore, not all coal displacement is equal. Replacing coal with renewables or nuclear power reflects a more credible transition than shifting to gas or extending coal through co-firing and retrofit strategies.

³² TNB. [Analyst Briefing 3Q FY2024](#). November 2024

³³ RHB. [Tenaga Nasional](#). January 2026

³⁴ As at 2026, ammonia and hydrogen co-firing remain at an early stage of development as climate solutions, while CCS is more mature but not yet widely deployed as a large-scale alternative to fossil fuels. Research suggests that all these technologies are costly, and deep emission reductions would likely require either the early retirement of coal plants or significant emission cuts in other economic sectors.

³⁵ IEEFA. [Blue hydrogen: Not clean, not low carbon, not a solution](#). September 2023

³⁶ BloombergNEF. [Japan’s costly ammonia coal co-firing strategy](#). September 2022

3. Renewables growth is real but not always constant

Key Takeaways: Renewable energy assessment

The renewable energy landscape shows clear divergence in both ambition and execution. Some companies are scaling renewables capacity rapidly with demonstrable delivery, while others are relying on weak targets or adding renewables without reducing coal dependence materially.

Planned renewables growth indicates ambition, but the positioning of renewables versus coal by 2030 is a more critical measure of transition credibility. **If coal is not being constrained, renewables growth reflects intention and investment ambition, not structural change in the energy mix.**

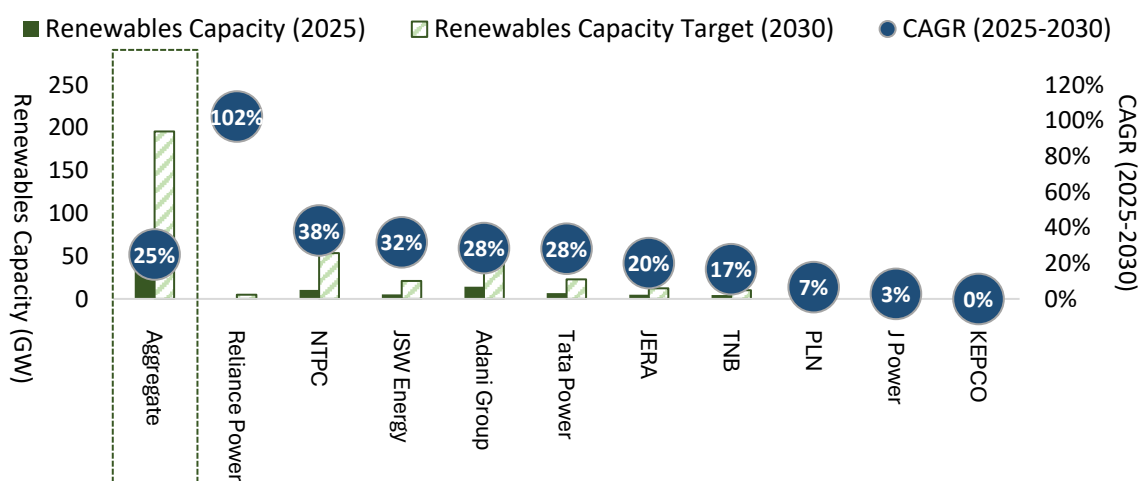
Renewables credibility is strongest where clear targets, execution and capital allocation reinforce one another. From this perspective, the market signal is more nuanced than headline narratives of clean energy suggest. Transition credibility depends on whether renewables growth is substantial, rapid and supported by committed capital sufficient to shift the coal-renewables balance.

Importantly, investors who focus solely on “green” portfolios at project level – rather than entity level – may miss the broader picture. Companies with coal expansion or heavy coal exposure carry significant transition risk even when their renewables business appear strong.

3.1 2025-2030 outlook: Renewable energy scale-up

From 2025 to 2030, the nine out of 10 companies are targeting significant expansion in renewables capacity, with trajectories varying widely depending on strategic priorities and starting positions. Total capacity is expected to increase from 64GW in 2025 to 196GW by 2030, implying a 25% CAGR. While this projection signals a meaningful sector-wide shift, the aggregate trend masks substantial divergence in both ambition and execution (Figure 5).

Figure 5. Historical and Projected Renewables Capacity



Source: ESI consolidation from respective company disclosures. Note: For companies with renewables projections extending beyond 2030, a linear trend is applied up to 2030 to estimate development through that year.

Stronger renewable growth profiles. NTPC, JSW Energy, Adani Group and Tata Power stand out with large-scale renewable expansion plans, projecting 28-38% CAGR in renewables capacity. This is a meaningful positive signal. However, in the case of NTPC, JSW Energy and Adani, strong renewables growth coexists with coal expansion, which complicates the overall transition or green picture.

Moderate growth reflects incremental rather than transformative change. TNB and JERA are expanding renewables at a steadier pace, reflecting deliberate portfolio rebalancing rather than rapid transformation. Their continued reliance on gas and/or liquefied natural gas (LNG) indicates that renewables are coming on stream as part of a broader, mixed energy strategy rather than replacing fossil fuels outright.

Weak growth and low baselines limit credibility. PLN and J-Power show limited renewables momentum, while KEPCO lacks clear forward targets. Reliance Power appears as an outlier with very high growth rates, but this is driven by a very low starting base and does not yet demonstrate proven execution at scale. Overall, credible transition signals depend not just on growth rates, but also on scale, consistency and displacement of fossil fuel capacity.

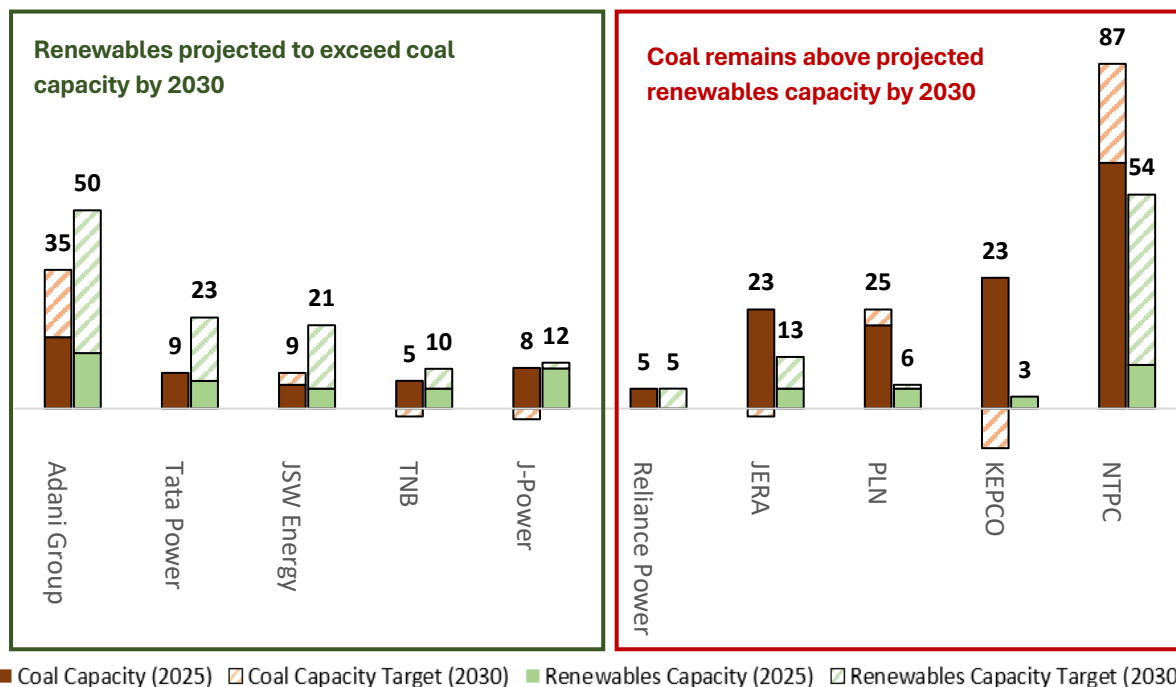
While headline growth appears strong, it does not automatically indicate a strong transition, especially where coal is expanding simultaneously

Overall, while headline growth appears strong, credibility varies significantly. Strong growth does not automatically indicate a strong transition, especially where coal is expanding simultaneously. Companies that scale low-carbon capacity from an existing base through large additions provide stronger transition signals.

3.2 Renewables versus coal positioning by 2030

Planned renewables growth indicates ambition, but **the positioning of renewables versus coal by 2030 is a more critical measure of transition credibility.** This determines whether renewables are displacing coal or merely supplementing it (Figure 6).

Figure 6. Projected Coal and Renewables Capacity by 2030 (GW)



Source: ESI consolidation and assumption from respective company disclosures. Note: For companies with coal or renewables projections extending beyond 2030, a linear trend is applied up to 2030 to estimate development through that year. JERA and J-Power data includes both domestic and international capacity; however, the overall trend remains consistent even when considering domestic capacity alone.

Renewables to surpass coal in capacity by 2030. The Adani Group, Tata Power and JSW Energy are projected to have more renewables capacity than coal by substantial margins. This would position them to rebalance portfolios away from coal, reduce reliance on thermal generation and support a more diversified energy mix. However, given the Adani Group and JSW energy’s coal capacity is still expanding from 2025 to 2030, this signal is diluted as it limits actual displacement. Coal plants typically operate at higher usage than renewables, meaning they would likely continue to dominate actual generation even where capacity gaps narrow.³⁷

TNB and J-Power³⁸ show a similar directional trend, but with a smaller gap between renewables and coal and a lack of plans for coal expansion. Their positioning suggests a more gradual and more contained renewables-led transition.

Coal still dominant by 2030. JERA, PLN, KEPCO and NTPC remain dominated by coal. Capacity of the fossil fuel significantly exceeds renewables, whose additions appear incremental rather than transformative.

If coal is not being constrained, renewables growth shows only intention and investment ambition, not real structural change in the energy mix

Near parity. Reliance Power sits at near parity between coal and renewables by 2030. While this indicates some level of transition, the absence of a clear shift towards renewables suggests limited structural change, especially given its low starting base.

Even where renewables exceed coal capacity, rising coal expansion and higher coal usage mean coal can still dominate actual generation and emissions, limiting real displacement.

3.3 Renewable energy installation: Ambition versus delivery

Renewable energy targets are a common credibility test. But ambition alone does not indicate transition credibility. **The more relevant question is whether those targets are supported by delivery progress, a historical track record and some mechanism of accountability.**

Energy Shift has tested exactly these criteria, and finds that track-record credibility varies materially across the companies.

Table 2. ESI Analysis of RE Target Ambition, Delivery and Track Record

Company	Stated Target	Delivery Status	Credibility Signal
Adani Group	50GW by 2030	<ul style="list-style-type: none"> ▪ Commissioned 29% ▪ Revised target upward after earlier misses ▪ Target RE capacity 2025: 25GW ▪ Actual RE capacity 2025: 14.3GW (45%) 	Stronger
Tata Power	23GW by 2030	<ul style="list-style-type: none"> ▪ Commissioned 29% ▪ Missed earlier targets but shows continued delivery ▪ Target RE capacity 2025: 60% ▪ Actual RE capacity 2025: 42% 	Stronger
JSW Energy	20.8GW by 2030	<ul style="list-style-type: none"> ▪ Commissioned 25% ▪ Missed earlier targets but shows continued evidence of commitment 	Stronger

³⁷ SSRN. [Can utilities grow out of coal? A coal displacement screen for emerging Asia](#). April 2026

³⁸ While J-Power’s renewables capacity is expected to exceed coal over time, this is driven more by retirements of ageing coal plants than by strong renewables expansion, which are limited from 2025 to 2030. Hydropower has long been a core part of its asset base, but overall generation remains largely dependent on coal.

		<ul style="list-style-type: none"> Target RE capacity 2025: 70% Actual RE capacity 2025: 48% 	
TNB	10GW by 2030 and 14.3GW by 2050	<ul style="list-style-type: none"> Commissioned 46% Missed earlier targets but shows interim delivery and improved commitment Target RE capacity 2025: 8.3GW Actual RE capacity 2025: 4.6GW (27%) 	Stronger
NTPC	60GW by 2032	<ul style="list-style-type: none"> Limited commissioned capacity of 18% Keeps much of pipeline in back end Actual RE capacity 2025: 13% 	Mixed
JERA	20GW by 2035	<ul style="list-style-type: none"> Commissioned 17% No clear interim milestones No clear linkage to domestic transition Actual RE capacity 2025: 3% 	Weak
J-Power	No concrete capacity target. To raise domestic annual power generation by 4 billion kilowatts (kW)	<ul style="list-style-type: none"> Limited RE expansion excluding legacy hydro assets. Lacks forward plan Actual RE capacity 2025 (incl legacy hydro): 35% Actual RE capacity 2025 (excl legacy hydro): 7% 	Weak
KEPCO	No concrete capacity target. Removed earlier target of 37GW by 2030	<ul style="list-style-type: none"> No clear interim delivery Lacks forward plan Actual RE capacity 2025: 4% 	Weak
PLN	<ul style="list-style-type: none"> No concrete company-level target 8.7GW by 2034 target assumption based on RUPTL execution 	<ul style="list-style-type: none"> No clear interim delivery Limited company-level delivery visibility RUPTL: PLN executes only 10% planned RE capacity, leaving remainder as planned independent power producer (IPP) capacity¹ Actual RE capacity 2025: 9% 	Weak
Reliance Power	4.9GW by 2030	<ul style="list-style-type: none"> Commissioned 2% No history of renewables delivery Actual RE capacity 2025: 3% 	Weak

Source: ESI consolidation from respective company disclosures. Note: 1. Based on ESI assumptions. RE = renewable energy; RUPTL = Rencana Usaha Penyediaan Tenaga Listrik or Electricity Supply Business Plan

Strong credibility requires both targets and delivery. The Adani Group, Tata Power, JSW Energy and TNB demonstrate stronger credibility by combining clear renewables targets with tangible progress. While some have revised or missed earlier goals, the presence of commissioned capacity and continued investment supports confidence in their ability to deliver.

Ambition without execution weakens confidence. NTPC presents a mixed case. While there is some evidence of interim development, a significant portion of its planned capacity remains in the back end, limiting visibility. Reliance Power and JERA demonstrate weaker credibility overall due to limited commissioned capacity, a lack of clear interim milestones and an insufficient track record in renewables development.

Companies that combine clear, measurable targets with demonstrated progress and iterative improvement exhibit a more credible signal than those with vague ambitions, withdrawn targets or little evidence of execution

Lack of clarity undermines transition signals. At J-Power, KEPCO and PLN, the absence of clear targets or defined execution pathways weakens credibility significantly. Without measurable goals or visible progress, renewables ambitions risk appearing aspirational rather than actionable.

Companies that combine clear, measurable targets with demonstrated progress and iterative improvement send a more credible signal than those with vague ambitions, withdrawn targets or little evidence of execution.

3.4 Capex commitment and allocation

Renewables ambition becomes more credible when backed by visible capital allocation. Capex is where strategy moves beyond targets and into execution.

A company may articulate a strong renewables story, but if it does not direct capital clearly towards that shift, the transition signal remains weak and raises a financial concern.

Companies with unclear capital allocation, poor execution and disclosure or persistent coal growth should face greater scrutiny over whether transition capital is supporting genuine rebalancing of the portfolio or leaving ambitious targets largely aspirational.

Across the utilities, capex disclosure and renewables allocation vary significantly.

Table 3. Analysis of Projected Capex Disclosure and Commitments Towards RE

Company	Projected Capex	Annualised Capex in USD bn	Defined Share of Projected Capex Allocated to RE Development
Tata Power	Rs 1.25 lakh crore in FY2026-2030	2.75	65%
Adani Group	USD21 bn in FY2026-2030 by Adani Green in RE USD22 bn in FY2026-2032 by Adani Power in coal	7.34	57%
TNB	RM42.8 billion in FY2025-2027	3.57	32%
KEPCO	KRW24.2 tn in FY2026	16.21	5%
JERA	JPY5 tn in FY2024-2035	1.26	33% but it is not a clear allocation
J-Power	JPY705 bn in FY2024-2026	1.48	37% but it is not a clear allocation
NTPC	Rs 7 lakh crore FY2026-2032	11.0	Undisclosed
JSW Energy	Rs 130,000 crore in FY2026-2030	2.86	Undisclosed
PLN	PLN = IDR1,401 tn FY 2025-2034 Note: RUPTL = USD188 bn in FY2025-2034	PLN = 8.92 RUPTL = 18.80	PLN: Undisclosed RUPTL: 52%
Reliance Power	Undisclosed	Undisclosed	Undisclosed

Source: ESI consolidation from all sources linked in the table. Note: 1 crore = INR10 million (1,00,00,000), 1 lakh crore = INR1 trillion (1,00,000 crore). RE = renewable energy

Strong capex signals reflect genuine capital prioritisation in favour of renewables. Tata Power and the Adani Group show high credibility, with the majority share of capex directed towards

renewables. TNB also demonstrates meaningful commitment, although its lower allocation share suggests a more balanced and less aggressive shift compared to peers.

Partial disclosure with some renewables allocation. KEPCO stands out for its very low renewables capex share, indicating continued prioritisation of non-renewables investments.

JERA and J-Power show partial renewables allocation, but lack clarity on how they ring-fence capital for transition activities, limiting confidence in execution.

NTPC and JSW Energy appear to have meaningful capex scale, but weaker visibility of the share clearly allocated to renewables. While the capex scale is meaningful, the absence of a clearer breakdown reduces confidence and makes it harder to assess alignment between stated ambition and financial commitment.

Minimal or framework-based disclosure requires careful interpretation. PLN relies heavily on broader national planning frameworks rather than clearly defined company-level capex commitments, making headline allocations to renewables less indicative of actual investment direction.

Limited capex transparency weakens the credibility of renewables development and may, over time, constrain investor confidence and access to transition capital as comparability and verifiability become important

Reliance Power remains the weakest case, with minimal disclosure and no clear capex commitment to support its stated transition direction.

Overall, the analysis underscores the need for credible transition to require not only large capex commitments but also clear, transparent and renewables-focused allocation. Companies that combine clearer disclosure with meaningful renewables allocation provide a stronger signal than those with high aggregate capex but weak alignment, partial visibility or limited disclosure.

In the latter case, weak transparency can constrain their ability to indicate transition progress credibly to capital providers. Over time, this may increase perceived risk, reduce investor confidence in allocation claims, and limit access to transition-focused capital or raise its cost, particularly as investors place greater weight on verifiable, comparable disclosure.

Overall assessment: Renewables credibility is not just about growth and ambition

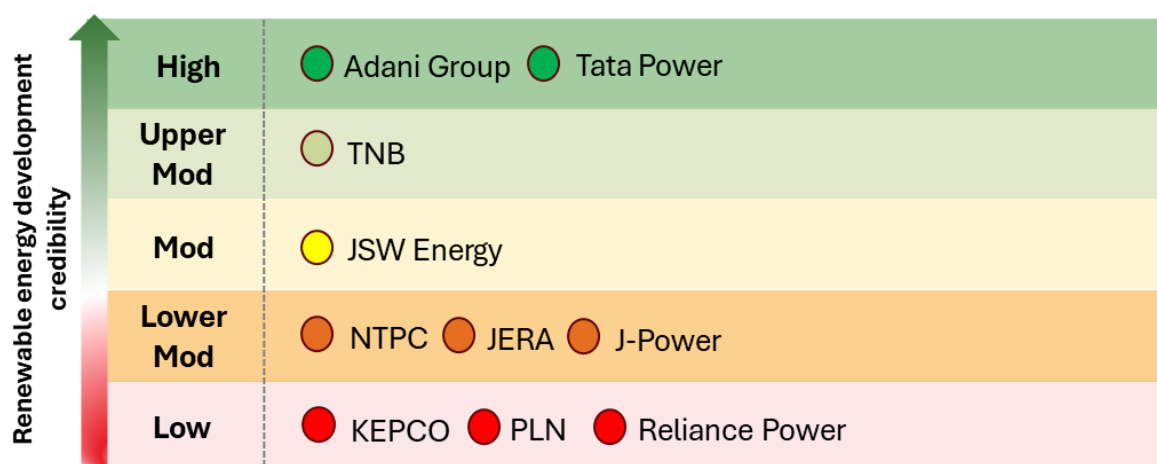
Investors should not judge renewables development by scale or ambition alone.

Energy Shift’s assessment puts the energy transition credibility of 10 utilities through three related tests:

- Whether renewables are beginning to overtake coal in the future portfolio ([Section 3.2](#))
- Whether targets are supported by delivery and track records ([Section 3.3](#))
- Whether capital allocation is directed clearly towards that shift ([Section 3.4](#))

The test results separate the companies into five tiers that reflect the strength of their renewables transition credibility (Figure 7):

Figure 7. Credibility of RE Development



Source: ESI assessment based on respective company disclosures

High credibility is defined by clear targets, execution and clear capital allocation. Tata Power and the Adani Group present the strongest cases,

where renewables expansion is not marginal but central to strategy. Both combine large-scale deployment with visible capital allocation and execution progress. However, group-level interpretation is more nuanced for Adani, where ongoing coal expansion in Adani Power partially offsets strong renewables credentials from Adani Green.

Renewables credibility is strongest where clear targets, execution and capital allocation reinforce one another

Moderate credibility reflects progress but with fundamental constraints. TNB sits in an upper-moderate tier due to clear renewables targets and relatively credible execution signals, though long-term dependence on gas weakens the depth of transition. JSW Energy also shows meaningful renewables positioning, but weaker disclosure on capital allocation lowers confidence in the durability of its transition trajectory.

Lower credibility arises from coal dominance, weak alignment or unclear execution. NTPC and JERA are constrained by continued coal dominance and insufficient portfolio rebalancing. J-Power's transition is driven more by retirement of ageing coal plants and a legacy hydropower base than by strong new renewables expansion. At the weakest end, KEPCO, PLN and Reliance Power show limited visibility, weak capex alignment or insufficient execution history.

Renewables credibility is strongest where clear target, execution and capital allocation reinforce one another. When one of these pillars is missing, particularly capital discipline or delivery evidence, renewables targets risk reflecting ambition rather than structural transformation.

4. What mixed signals ultimately mean in Asia power utility transition

Key Takeaways: Overall transition credibility assessment

Eight of the 10 companies are found to be moderate to low performers because of their continued heavy reliance on coal, by either expanding coal capacity or extending the operational life of existing plants.

- **Tata Power** demonstrates a clearly credible low-carbon pathway, while **TNB** shows stronger progress but with a more moderate trajectory due to continued reliance on gas.
- **KEPCO, JERA** and **J-Power** sit in a transitional category, having halted coal expansion but showing limited displacement by renewables, at the same time continuing to extend the life of coal assets.
- The **Adani Group** and **JSW Energy** reflect a dual-track approach in which renewables growth is meaningful but offset by continued coal exposure. **NTPC, PLN** and **Reliance Power** remain coal-dominant and continue to expand coal capacity, outpacing their planned growth in renewables.

Large capex requirements for renewables and transition strategies make the utilities heavily reliant on external financing, so transition progress is tied closely to capital access. The current transition narratives in Asia can mask underlying coal dependence and lead investors to overestimate their credibility.

The murky state of affairs warrants more rigorous due diligence at company and market level before investment decisions are made. Over time, weaker transition credibility should raise financing costs and limit access to capital as investors distinguish between cosmetic rebranding and genuine transition.

Up to this point, the research evaluates the credibility of transition away from coal among power companies by integrating two dimensions of change: whether the utility is materially reducing coal dependence, and whether it is credibly building the cleaner portfolio meant to replace coal.

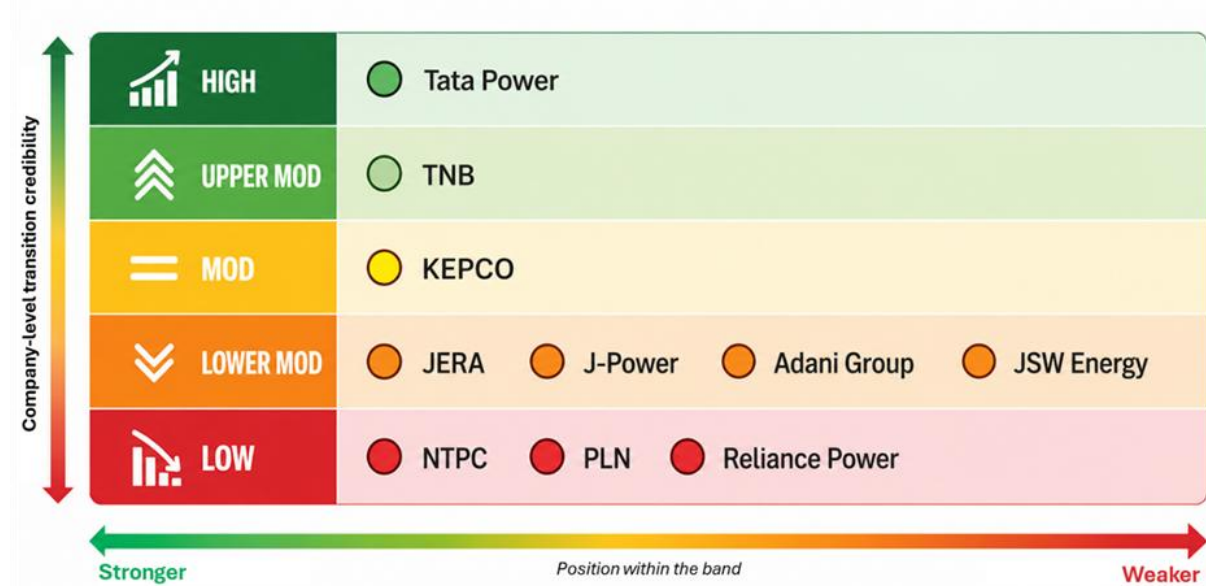
These two dimensions do not carry equal weight in Energy Shift’s assessment. Coal-related factors account for the larger share of this assessment because legacy coal assets are the primary determinant of transition credibility and long-term financial vulnerability. A company may be scaling renewables quickly, but if coal continues to expand, remains dominant or is preserved through life-extension pathways, the overall transition signal is weak. Renewables growth matters, but it cannot on its own outweigh continued coal dependence.

For that reason, the assessment places 75% emphasis on the coal trajectory ([Section 2.1](#)), coal phase-out quality ([Section 2.2](#)) and displacement strategy ([Section 2.3](#)) instead of evaluating renewables ambition alone. Renewables development is still central, but it is tested through a more demanding lens: whether renewables are changing the portfolio structure ([Section 3.2](#)), whether the targets are credible ([Section 3.3](#)), and whether capital allocation supports delivery ([Section 3.4](#)).

This chapter collates the assessments in [Section 2](#) and [Section 3](#) for a more cohesive picture of the transition assessment.

Figure 8 presents a high-level snapshot of the combined transition assessment, while **Error! Reference source not found.** in the appendix provides a detailed breakdown of company-level performance across all metrics.

Figure 8. Company-level Transition Credibility Assessment



Source: ESI assessment based on respective company disclosures

Clear leaders and laggards are emerging.

Tata Power stands out as the only company demonstrating a fully integrated transition strategy, underpinned by a clear coal phase-out

Coal dependence remains deeply entrenched, creating portfolio-level risk. Renewables momentum exists but remains insufficiently meaningful to drive genuine transition outcomes

pathway, strong renewables expansion, consistent capital allocation towards clean energy, and no coal capacity expansion over the past six years. At the other end, NTPC and PLN continue to expand coal, with renewables growth lagging and scant evidence of meaningful capital reallocation to support a shift. Reliance Power shows limited visibility and an insufficient execution track record while maintaining a coal-heavy capacity profile.

Coal dependence remains deeply entrenched, leaving underlying portfolio risk largely unchanged.

Eight of the 10 companies continue to rely heavily on coal, either through ongoing capacity expansion or by extending the operational life of existing plants, and are deemed moderate to low performers. This entrenched dependence indicates that transition risk may not yet be fully reflected in market valuations.

As policy, financing conditions and investor expectations tighten, these companies could face more pressure through higher capital costs, stranded asset risks and reduced access to funding.

Gas and “clean coal” technologies have emerged as dominant bridging strategies, particularly among TNB, KEPCO, JERA and J-Power. While these companies have halted coal expansion, the shift away from coal is not being driven primarily by renewables but rather by increased reliance on gas, and in some cases nuclear and “clean coal” technologies.

This substitution effect reduces carbon intensity in the short term but risks locking in fossil fuel dependency and delaying deeper decarbonisation, especially in the absence of clear long-term renewables scaling strategies.

Renewables momentum exists but remains insufficiently meaningful to drive genuine transition outcomes. Across most companies, renewables capacity is increasing, but it is insufficient to materially displace coal or reshape the overall generation mix yet.

For example, all the Indian utilities except Tata Power continue to expand coal alongside renewables, making clean additions largely incremental rather than substitutive. Similarly, KEPCO, JERA and J-Power show marginal coal reduction offset by continued reliance on gas, nuclear and/or “clean coal” pathways. Even stronger names such as TNB are constrained by ongoing dependence on gas. As a result, despite visible targets, renewables build-outs across the utilities remain insufficient to deliver a renewables-led transition.

4.1 Country environment: When markets constrain transition – or not

Company-level transition credibility does not exist in a vacuum. The 10 companies operate across five Asian markets – India, Indonesia, Japan, Malaysia and South Korea – where policy design, fuel dependence, market structure and infrastructure readiness shape the pace of decarbonisation materially.

In some markets, renewables deployment remains structurally constrained by continued fossil fuel support, slow procurement systems, weak grid integration, and land and permitting challenges. In others, policy signals and economics are increasingly supportive of renewables, yet coal expansion and underinvestment in clean energy persist.

The purpose of this section is not to shift responsibility from companies to countries. It is to help distinguish between three key different realities that may look similar from the outside:

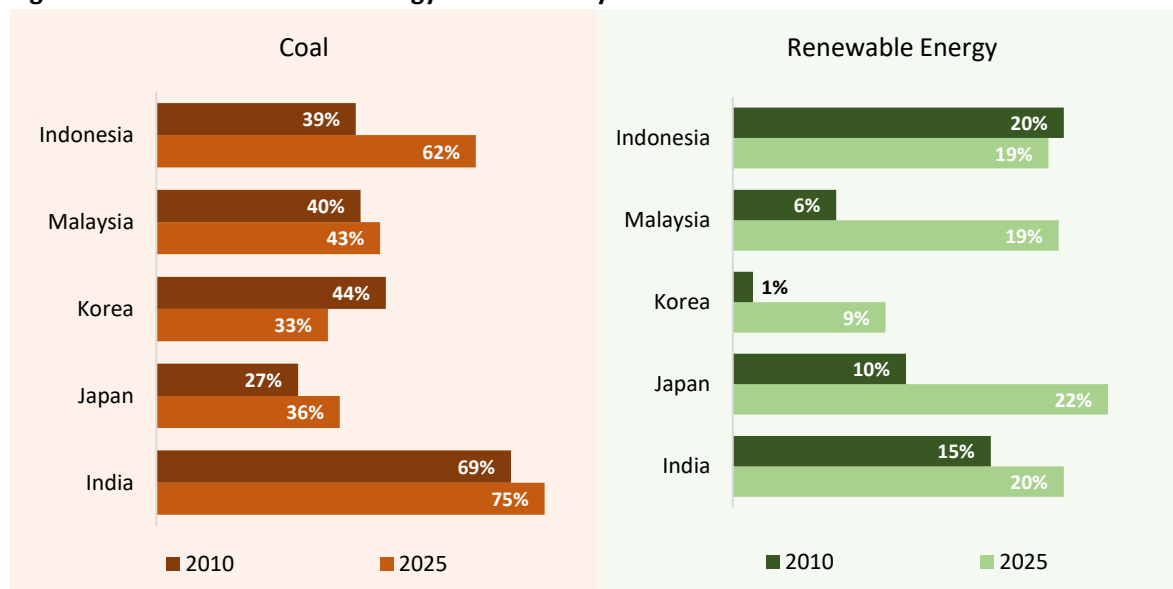
- Companies whose transition is constrained materially by the country’s operating environment.
- Companies that broadly track the limits of their market without clearly outperforming them.
- Companies that appear to lag despite a more enabling or improving domestic transition context.

Overview: Coal and Renewable Energy generation in market context

This assessment focuses on five Asian power markets where coal remains dominant and transition dynamics are most constrained. Renewables growth is progressing but has not yet translated into meaningful coal displacement. Coal continues to be deeply embedded in power systems through direct generation dependence, grid limitations, long-dated asset lives, regulated procurement structures, land constraints, high financing costs for renewables, or continued policy and financial support for coal and gas thermal power, such as fossil fuel subsidies.

The generation breakdown in 2025 shows limited progress towards substitution (Figure 9). At the same time, the degree of constraint varies across markets (Appendix **Error! Reference source not found.**).

Figure 9. Coal and Renewable Energy Generation by Market



Source: Bloomberg Global Coal Countdown, accessed March 2026

Compared with global transition leaders such as Denmark or Germany, where the coal phase-out is advanced and renewables are already displacing fossil fuels, these markets lag in transition credibility.³⁹ Such persistent constraints result in overall moderate-to-low transition credibility at country level (Table 4).

Table 4. ESI Analysis of Country Operating Environment and Relevance to Corporate Behaviour

Country Transition Environment	Country	Operating Environment for Coal-to-Clean Transition at National Level	ESI Expectations of Company Impact
Upper Moderate	Malaysia	More directionally supportive of coal reduction, though still gas-dependent; grid constraints may limit renewables integration	The more supportive transition environment makes stronger coal reduction and renewable execution for TNB compared to regional peers
Moderate	South Korea	Moderately enabling environment but policy implementation inconsistent; grid constraints may limit renewables integration	KEPCO faces constraints, but its weak renewable ambition and momentum suggest a more conservative company posture than country conditions alone would require
Moderate	Japan	Moderately enabling due to structured transition framework, but strong support for fossil fuel-adjacent pathways reflect inconsistency; grid constraints may limit renewables integration	Japan's transition framework allows pathways that reduce coal dependence incrementally, but this does not necessarily translate into deep decarbonisation at the company level for J-Power and JERA's

³⁹ Bloomberg. [Global coal countdown](#). February 2026

Lower Moderate	India	Strong renewables momentum, but coal still central to planning and grid constraints may limit renewables integration	Tata Power shows India’s market allows room for more credible transition strategies. That makes the weaker performance of Adani Group, JSW Energy, NTPC and Reliance Power harder to attribute solely to market constraints
Low	Indonesia	Highly constrained environment with coal expansion still under way, particularly off-grid or captive coal; grid constraints may limit renewables integration	Market context matters significantly for PLN, whose continued coal expansion indicates weak strategic direction

Source: ESI analysis based on limited desktop study (Appendix Error! Reference source not found.)

What this means for company transition credibility

Transition credibility is a relative measure shaped by the interaction between market conditions and company strategy. Companies that outperform their operating environment can be seen as transition leaders of higher conviction. By contrast, those that lag in otherwise supportive markets may indicate credibility risks and warrant closer scrutiny.

Across the markets assessed, several patterns emerge.

In more supportive environments such as Malaysia, where coal reduction is directionally encouraged despite ongoing gas dependence and grid constraints, transition pathways are more achievable. In this context, TNB is well positioned to deliver on its transition within the country policy framework.

The key question is not whether the company can fully overcome the limits of its market, but whether it is making stronger choices within those limits

In the moderately enabling markets of Japan and South Korea, structural frameworks for transition exist but are implemented inconsistently, while grid limitations persist. These factors shape – but do not fully determine – company transition outcomes. The financial constraints and limited renewables ambition of KEPCO, alongside the partial coal phase-down and modest renewables progress of J-Power and JERA, point to gaps in strategic prioritisation that market conditions alone cannot explain.

India presents a mixed case. While renewables momentum is strong, coal remains central to system planning and grid constraints continue to limit integration. Private-sector companies that outperform these constraints reflect stronger strategic positioning; this is the case for Tata Power, compared to its peers, the Adani Group, JSW Energy, NTPC and Reliance Power.

In environments with less support, such as Indonesia, where coal expansion – particularly captive and off-grid – remains ongoing, structural barriers are more pronounced. For state-owned entities such as PLN, market context plays a significant role in shaping outcomes. Yet even accounting for these constraints, continued coal expansion and weak renewables execution indicate limited strategic direction.⁴⁰

Policy alignment and country constraints can sometimes be used to justify transition pathways that are less ambitious than companies may be capable of pursuing

⁴⁰ ScienceDirect. [To reform or not reform? Competing energy transition perspectives on Indonesia’s monopoly electricity supplier Perusahaan Listrik Negara \(PLN\)](#). December 2024

Overall, a credible corporate transition requires both corporate ambition and supportive public policy. While country constraints help explain company behaviour in some markets, they do not fully justify continued coal expansion where cleaner alternatives are increasingly cost-competitive.

State-owned enterprises PLN, TNB, NTPC and KEPCO, and to some extent their private-sector counterparts JERA and J-Power, often operate under policy-driven mandates that influence their transition pathways. However, this policy alignment and country constraints can sometimes be used to justify transition pathways that are less ambitious than companies may be capable of pursuing. It is important to distinguish between policy-driven activity and genuine strategic execution.⁴¹

The key question is therefore not whether the company can fully overcome the limits of its market, but whether it is making stronger choices within those limits.

4.2 Financing capacity: Can utilities support the transition they promise?

A credible transition depends on adequate and sustained financing, not just strategy. In capital-intensive sectors such as power generation, financial strength rests on internal cash flow, balance sheet structure and leverage capacity. These factors determine whether a utility can fund its transition organically, through external financing, or with government or parent company support.

For many of the companies in this sample, transition financing is complicated by legacy asset portfolios, high leverage and competing capital demands. The key question is whether current balance sheets can support transition investments without undermining financial flexibility.

Internal funding

Energy Shift assesses the 10 utilities' internal funding (Figure 10) by comparing the available funds to one year of planned capex (Table 3).

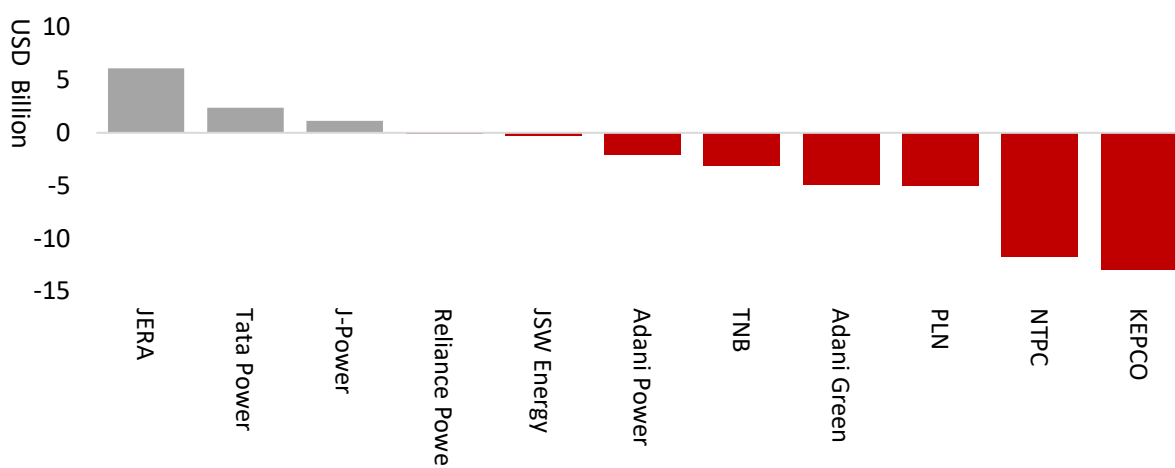
JERA, Tata Power and J-Power are found to show the strongest internal funding positions, while the other seven will probably face a funding shortfall in the short term.

Large capex requirements for renewables and transition strategies make utilities heavily reliant on external financing, so transition progress hinges on capital access

Renewables development and transition projects require substantial upfront capital, making it unlikely that companies can rely solely on internal cash generation. External debt financing will therefore be essential.

⁴¹ World Economic Forum. [How state-owned enterprises can play a vital role in meeting global net zero targets.](#) February 2026

Figure 10. Internal Funding Assessment – Funding Surplus or Shortfall

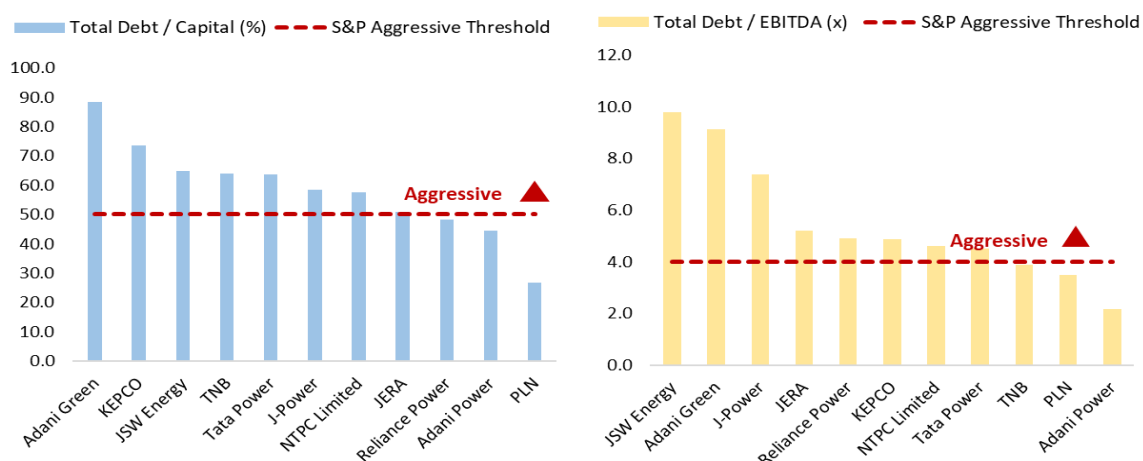


Sources: FactSet; ESI calculations. Note: Based on available filings and reported data as at March 2025 and December 2024-2025 reporting periods. Total internal funding refers to free cash flow and proceeds from debt issuance, representing cash available on the balance sheet after accounting for all operating and financing activities. Adani Power and Adani Green are reported separately. ESI did not aggregate, to avoid masking differing performance and risk profiles.

Balance sheet headroom

To assess the financial resilience and capacity to execute transition strategies, Energy Shift evaluates balance sheet headroom using leverage and debt coverage ratios, benchmarked against S&P’s aggressive thresholds: (1) Total Debt/EBITDA >4.0x (2) Total Debt/Capital >50% ⁴² (Figure 11).

Figure 11. Leverage (Total Debt/Capital) and Debt Coverage (Total Debt/EBITDA)



Sources: FactSet; ESI consolidation. Note: Based on available filings and reported data as at March 2025 and December 2024-2025 reporting periods.

Highly aggressive. JSW Energy (9.8x, 64.8%), Adani Green (9.1x, 88.4%), J-Power (7.4x, 58.5%), KEPCO (4.9x, 73.4%), NTPC (4.6x, 57.6%) and Tata Power (4.5x, 63.7%) exceed both thresholds. High leverage is typical in the power sector, but this also limits borrowing headroom and heightens exposure to refinancing risks, which can slow transition investment.

⁴² S&P Global. [Methodology: Business Risk/Financial Risk Matrix Expanded](#). September 2012

Aggressive. JERA (5.2x, 50.9%), TNB (3.9x, 63.9%) and Reliance Power (4.9x, 48.1%) fall in this band. These companies have leverage levels that exceed at least one threshold and may need careful management to fund transition projects without compromising credit quality.

Near aggressive levels but below thresholds. Only Adani Power (2.2x, 44.4%) and PLN (3.5x, 26.6%) fall below both thresholds, suggesting more conservative leverage positions. Their balance sheets are relatively flexible, suggesting more headroom to raise additional funding if needed.

Companies can still raise debt above aggressive levels, but at a higher cost and risk, especially when coal exposure persists

Companies can continue to raise debt even above aggressive thresholds, but at a cost through higher borrowing rates, greater refinancing risk and potential credit rating downgrades. These constraints become more acute when funding gaps widen, coal exposure persists,⁴³ or transition capex must compete with legacy asset needs.

For those already highly leveraged, additional debt becomes expensive, making equity raises, concessional financing or government support more practical alternatives. The pace of transition will depend not just on access to capital but also on how favourable the financing terms are.

Support from parent company and government

Beyond internal funding and leverage, many companies benefit from their parent group or government backing, which can help offset financial constraints.

- State-owned enterprises (NTPC, KEPCO, PLN, TNB) benefit from country backing, which provides access to low-cost financing and policy support, partially mitigating the constraints of high leverage.
- Non-SOEs (Adani Group, JSW Energy, Reliance Power) benefit from diversified parent structures, access to capital markets and related-party guarantees. Their strategic importance in national energy and decarbonisation agendas also increases the likelihood of policy or financial support during stress periods.

Such backing allows even highly leveraged entities or those with funding shortfalls to maintain a degree of financial flexibility and pursue transition initiatives. However, reliance on parental or government support does not remove exposure to market, interest rate or operational risks. Investors should monitor leverage levels and refinancing schedules closely.

Overall financial capacity assessment

The utilities show a structurally high dependence on external funding, which is common in the power sector but will become more critical as transition investment grows. This is why financial capacity must be assessed alongside transition credibility.

Companies that continue to expand or extend coal operations while seeking transition capital should face greater investor scrutiny because they risk preserving long-term transition exposure rather than reduce it. In contrast, companies that combine stronger financial capacity with measured coal reduction, credible renewables delivery and better capital alignment are more likely to sustain investor confidence and attract transition finance on favourable terms.

⁴³ S&P Global Ratings. [Energy transition: Thermal coal will remain important in Asia-Pacific](#). July 2022

4.3 Putting it altogether: Final company transition credibility assessment

This report assesses transition credibility through three connected questions:

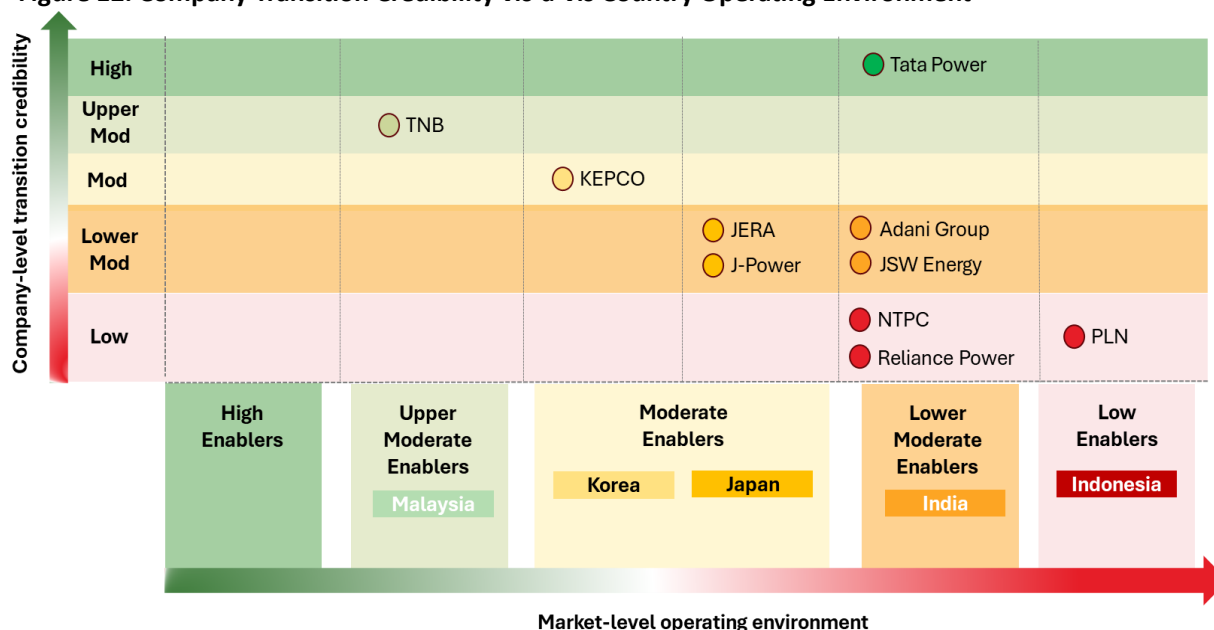
4. Is the company reducing coal dependence?
5. Is it building a cleaner portfolio that can replace coal credibly over time?
6. *A standalone layer of analysis:* Does the company have the financial capacity, capital discipline and operating environment to execute that shift?

Taken together, the transition quality across the 10 companies is highly differentiated. A small number are beginning to show more coherent signs of portfolio rebalancing.

Several remain mixed, with cleaner additions offset by gas dependence, partial coal phase-downs or coal-preserving technologies. Yet others continue to expand coal in ways that weaken transition credibility materially regardless of renewables ambition.

Reliance on coal remains widespread: eight of the 10 still have significant exposure, through either ongoing operations or efforts to extend the life of existing assets. Financing structures further shape the pace of transition. All the utilities depend heavily on external funding, and even those with relatively strong internal cash generation may require multi-year capital that exceeds current cash flows. This constraint can slow both the speed and scale of decarbonisation efforts. Support from the government and parent company may offset potential funding gaps partially and help sustain their transition pathways.

Figure 12. Company Transition Credibility vis-à-vis Country Operating Environment



Source: ESI analysis and consolidation

Tata Power stands out as the strongest overall transition case of the 10 utilities. It combines earlier coal restraint with a clear scale-up of renewables, credible delivery momentum and visible capital commitments to renewables. This progress is notable in the Indian context, where coal remains viable economically and institutionally. Tata Power is effectively outperforming its market conditions. For investors, it appears to be the utility with the highest conviction in making the transition, provided it does not return to major coal expansion.

TNB also ranks well, albeit with more qualifications. Its coal phase-down is clearer than most peers, and renewables are projected to exceed coal by 2030. Malaysia's policy framework supports this direction, though fossil fuel subsidies and continued reliance on natural gas constrain deeper decarbonisation. These factors place TNB among Asia's stronger transition cases but it is not yet a clean transition leader.

KEPCO is reducing coal, but mainly through nuclear and gas power rather than a stronger renewables push. High leverage further limits flexibility, though strong country backing ensures stable financing. South Korea's broader energy transition is state-directed and cautious, with policies favouring gas and nuclear power over large-scale renewables deployment. Structural constraints in the grid and tariff system continue to deter private investment, slowing diversification of the energy mix. As a result, KEPCO's transition pathway remains aligned closely with country priorities, showing limited momentum towards a more renewables-heavy system.

JERA and J-Power represent more constrained transition cases within developed Asia. Both plan to reduce coal exposure, but execution remains anchored in retrofits and fossil fuel-adjacent technologies such as hydrogen and ammonia co-firing. This reflects Japan's national policy of preserving energy security through low-carbon hydrogen and ammonia production, rather than committing to full coal retirement. The policy framework provides stability but it also reinforces transition pathways that stop short of genuine deep decarbonisation. Overall, JERA and J-Power come across as cautious adapters rather than credible transition leaders.

The Adani Group, JSW Energy and NTPC present more conflicting issues. Adani and NTPC are scaling renewables significantly but continue to expand coal. JSW Energy is doing the same, but this sits less comfortably alongside its stated ambition to achieve carbon neutrality by 2050, which therefore weakens its transition credibility.

India's market conditions do not fully excuse their coal expansion because the operating environment already provides genuine room for renewables-led growth. For investors, all three companies are not outright laggards and may still offer exposure to large-scale renewables growth, but that does not mean each company's corporate group as a whole is moving credibly away from coal.

PLN faces tighter country constraints than most peers, and that context is important. It shows little evidence of outperforming within those limits. Coal expansion remains embedded in national planning under the RUPTL, while low-cost domestic supply obligations and renewables tariff caps continue to dampen private investment incentives. Within this environment, PLN has yet to demonstrate meaningful progress in reducing coal reliance or materially accelerating renewables deployment.

Reliance Power is the weakest performer of the 10. It lacks a defined transition pathway, renewables investment momentum, or visible capital reallocation away from coal. In a market such as India, where renewables potential is strong and policy frameworks are improving, the utility's lethargy reflects underperformance rather than external constraints.

Across the 10 utilities, renewables ambition is clear, but portfolio transformation remains limited.

For investors, three distinctions matter.

1. **Corporate strategy: Renewables exposure vs genuine transition.** Expanding renewables capacity is positive but does not automatically mean that a company's overall portfolio is making the transition. Across most of the utilities, renewables additions remain incremental

rather than substitutive as coal expansion or fossil fuel reliance continues alongside new capacity, limiting the emergence of a truly renewables-led transition.

2. **Market: Constraint vs strategic choice.** Some companies operate within tight country or market boundaries that slow transition progress, such as regulated tariffs, grid constraints or policy delays. However, these markets no longer restrict renewables growth, with improving economics, policy momentum and investor interest increasingly supporting cleaner energy. This enabling environment creates room for company differentiation and helps explain the growing divergence in strategic choices within the same market – for example, Tata Power outperforming its Indian peers.

While market constraints remain important, they no longer fully justify continued or major coal expansion where cleaner energy technologies are growing commercially viable. Country policy alignment can blur transition signals, masking poor commercial decisions as structural constraints.

3. **Financial support: Plans vs execution.** Ambitious transition plans and headline targets are common, but their credibility depends on financial resilience and execution capacity. High leverage, weak internal cash flow or limited policy support can make even well-designed strategies difficult to deliver. Investors should therefore assess whether the capital structure, funding access, policy environment and balance sheet strength are sufficient to execute the intended transition pathway.

The real question is not whether a transition plan exists, but whether it is credible across corporate strategy, market conditions and financial capacity.

Conclusion

The Asian transition landscape is uneven and often contradictory. While most of the 10 utilities present transition strategies and highlight renewables expansion, coal remains deeply embedded in their portfolios, with continued capacity growth or extension of the life of existing assets.

This state of affairs underscores a central disconnect: the presence of coal phase-out plans or renewables development does not necessarily translate into meaningful change in the generation mix or strategic direction.

A handful of companies are beginning to differentiate themselves through more decisive action. Tata Power and TNB demonstrate stronger strategic choices, while the Adani Group, JSW Energy, NTPC and PLN continue to prioritise coal alongside incremental renewables growth.

At the same time, the growing reliance of KEPCO, JERA and J-Power on gas and “clean coal” technologies as transition pathways raises questions about the depth of change under way. While these strategies may reduce emission intensity in the short term, they risk prolonging fossil fuel dependence and crowding out the role of renewables.

Given the scale of planned capex, these companies are likely to rely heavily on external financing, raising the bar for investor decision-making. Current transition narratives can obscure continued coal exposure, increasing the risks of mispricing and capital misallocation.

Investors must exercise greater scrutiny to distinguish between companies pursuing a genuine transition and those relying on partial or cosmetic shifts.

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