

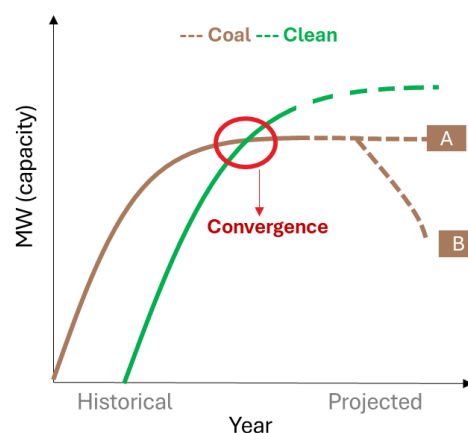
## 5. Appendix

### 5.1 ESI framework for assessing transition credibility

Transition credibility is assessed across three high-level scenarios:

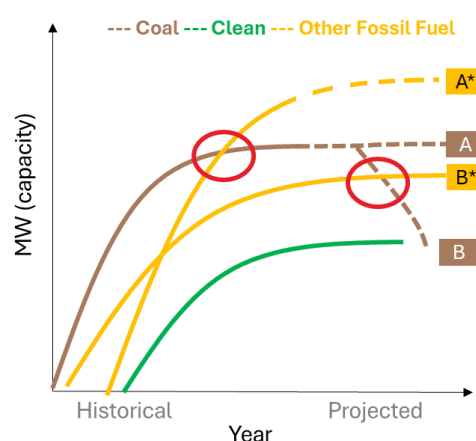
#### 1. Genuine transition

- Share of coal: Stable (A) or declining (B)
- Action: Expansion of clean fuels is sufficient to displace coal dominance and drive an evolving generation mix towards low-carbon sources
- **Convergence with a future crossover point = Genuine transition.** Company demonstrates credible structural shift away from coal



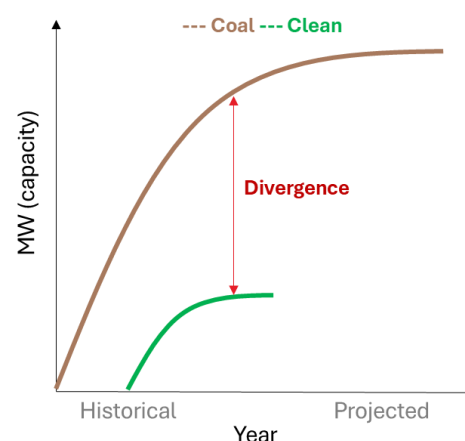
#### 2. Managed fossil fuel substitution

- Share of coal: Stable (A) or declining (B)
- Action: Expansion of clean fuels is partial. Company primarily expands or relies on other fossil fuels (A\* or B\*), or invests in “clean coal” technologies that extend the life of coal plants
- Assessment: Strategic intent and operational actions are partially aligned, reflecting a managed substitution of fossil fuels rather than full decarbonisation



#### 3. Weak or cosmetic transition

- **Share of coal:** Increasing
- **Action:** Expansion of clean fuels is insufficient to offset coal dominance, or coal life extension strategies outweigh decarbonisation efforts, preventing meaningful evolution of generation mix
- **Divergence = Weak transition:** Coal growth or life extension outpaces deployment of clean fuels, and green initiatives may be largely symbolic



A credible transition away from coal requires both a reduction in coal capacity or share and a tangible, strategic investment in cleaner energy. Companies that primarily replace coal with other fossil fuels, such as natural gas, or rely on “clean coal” technologies to extend coal plant life may be managing fossil fuel substitution rather than pursuing a full decarbonisation pathway. The concepts of convergence and divergence provide a useful framework for evaluating whether a company’s transition is structural and credible or largely cosmetic.

## 5.2 Renewable energy reporting of 10 selected utilities

Company	How RE is Reported	RE Arm/Subsidiary
Adani Group	Combined reporting across group (Adani Power + Adani Green Energy Limited)	Adani Green Energy Limited (AGEL)
National Thermal Power Corporation (NTPC) Limited	Via subsidiary, consolidated at group level	NTPC Green Energy Limited (NGEL)
Tata Power		Tata Power Renewable Energy Limited (TPREL)
JSW Energy		JSW Neo Energy
Reliance Power		Unclear
Korea Electric Power Corporation (KEPCO)		Korea Hydro & Nuclear Power (KHNP) <i>(broader low-carbon portfolio, not purely renewables)</i>
JERA		JERA Nex/JERA Nex BP (global RE business)
Electric Power Development Co Ltd (J-Power)		Unclear
Perusahaan Listrik Negara (PLN)		PLN Nusantara Power (generation + renewables expansion)
Tenaga Nasional Berhad (TNB)		TNB Renewables Sdn Bhd

Source: ESI compilation based on available company disclosures

For the purpose of this report, “Adani Group” refers specifically to coal-based business Adani Power and renewables business Adani Green Energy. Adani Power is referenced for coal-related assessments, while Adani Green Energy is used for all renewables assessments. Adani Green Energy Limited is the group’s renewables arm and is not a subsidiary of Adani Power. The other nine companies typically report their renewables and coal exposure at consolidated group level in investor disclosures because of their subsidiary status within the group structure.

### 5.3 ESI’s corporate transition assessment

**Table 1. ESI’s Country Transition Assessment Methodology**

Main Weightage	Sub-weightage	No.	Indicators
75%	<b>Coal Assessment</b>		
	10%	1.1	Proportion of installed capacity (2025) (%)
		1.2	Historical CAGR (2019-2025) (%)
		1.3	Target CAGR (2025-2030) (%)
	<b>Coal Capacity Trajectory Score</b>		
	45%	1.4	Coal phase-out target
		<b>Coal Phase-out Credibility Score</b>	
	45%	1.5	How traditional coal generation will be displaced beyond 2030
		1.6	Role of coal in future power system
		<b>Coal Displacement Strategy Score</b>	
25%	<b>Renewable Energy Assessment</b>		
	10%	2.1	Proportion of installed capacity (2025) (%)
		2.2	Historical CAGR (2019-2025) (%)
		2.3	Target CAGR (2025-2030) (%)
	<b>Renewable Energy Trajectory Score</b>		
	45%	2.4	Is RE capacity expected to exceed coal capacity by 2030?
		2.5	RE targets beyond 2030
		2.6	Track record (credibility modifier)
		2.7	Historical clean vs coal growth (2019-2025)
		2.8	Projected clean vs coal growth (2025-2030)
	<b>Renewable Energy Credibility Score</b>		
	45%	2.9	Projected capex over next 1-10 years
		3.0	RE share in total capex (%)
<b>Investment &amp; Commitment Score</b>			

Source: ESI based on available company disclosures

Note: The current scoring thresholds are calibrated based on the existing sample to maximise differentiation across companies. As more companies are incorporated, the distribution of coal and renewables capacities may shift, necessitating an adjustment of the thresholds to preserve the discriminatory power and ensure that scores reflect relative transition performance accurately. CAGR = cumulative annual growth rate

### ESI’s corporate transition assessment bands

**Table 2. ESI’s Corporate Transition Assessment Bands and Definitions**

Performance	Definition
<b>High</b>	<ul style="list-style-type: none"> <li>No new coal expansion or clear, credible phase-out timeline</li> <li>Expecting renewables capacity to overtake coal by 2030</li> <li>Relying more on renewables to displace coal</li> <li>Clear targets, strong capex commitment and high transparency to renewables</li> </ul>
<b>Upper Moderate</b>	<ul style="list-style-type: none"> <li>No new coal expansion or clear, credible phase-out timeline</li> <li>Relying more on gas or nuclear power, than on renewables, to displace coal</li> <li>Expecting renewables capacity to overtake coal by 2030</li> <li>Clear targets with moderate capex allocation to renewables</li> </ul>
<b>Moderate</b>	<ul style="list-style-type: none"> <li>No coal expansion, but phase-out strategy is weak or partial</li> <li>Relying more on gas or nuclear power, than on renewables, to displace coal</li> <li>May still have more coal capacity than renewables by 2030</li> </ul>

	<ul style="list-style-type: none"> <li>Limited clarity on renewables targets</li> </ul>
<b>Lower Moderate</b>	<ul style="list-style-type: none"> <li>Expanding coal capacity but at a slower pace, and expecting renewables to surpass it by 2030 or lacking coal phase-out plans</li> <li>Clear targets with high capex allocation to renewables</li> </ul> <p style="text-align: center;"><b>OR</b></p> <ul style="list-style-type: none"> <li>No coal expansion, but planning to prolong life of coal plant (e.g., clean coal technology) or to phase out coal partially</li> <li>Slow or inconsistent renewables growth</li> </ul>
<b>Low</b>	<ul style="list-style-type: none"> <li>Expanding coal with no credible phase-out</li> <li>Expecting coal to exceed renewables beyond 2030</li> <li>Limited or no renewables progress</li> <li>Weak or unclear targets and low commitment to transition investment</li> </ul>

Source: ESI

## ESI's corporate transition assessment analysis

**Table 3. Detailed Assessment of Overall Transition Assessment**

Company	Transition Credibility	Coal Assessment (75%)	Renewable Energy Assessment (25%)
<b>Tata Power</b>	<b>High</b>	<ul style="list-style-type: none"> <li>No coal expansion as at 2025</li> <li>Plan to phase out coal by 2045</li> <li>May displace coal generation over time with RE</li> </ul>	<ul style="list-style-type: none"> <li>By 2030, RE capacity &gt; coal</li> <li>Clear RE target, capex disclosure and healthy share of capex to RE</li> </ul>
<b>TNB</b>	<b>Upper Mod</b>	<ul style="list-style-type: none"> <li>No coal expansion</li> <li>Plan to phase out coal by 2044 + clear interim targets</li> <li>May displace coal generation over time with gas or nuclear power, not RE</li> </ul>	<ul style="list-style-type: none"> <li>By 2030, RE capacity &gt; coal</li> <li>Clear RE target, capex disclosure and modest share of capex to RE</li> </ul>
<b>KEPCO</b>	<b>Mod</b>	<ul style="list-style-type: none"> <li><b>No coal expansion</b> but weak coal phase-out plan</li> <li>May displace coal generation over time with gas or nuclear power, not RE</li> </ul>	<ul style="list-style-type: none"> <li>By 2030, coal capacity &gt; RE</li> <li>No clear RE target</li> <li>High capex disclosure but weak RE allocation</li> </ul>
<b>JERA</b>	<b>Lower Mod</b>	<ul style="list-style-type: none"> <li><b>No coal expansion</b> but weak coal phase-out plan</li> <li>Significant plans and investment in "clean coal" technologies extending life of existing coal plants</li> </ul>	<ul style="list-style-type: none"> <li>By 2030, coal capacity &gt; RE</li> <li>Moderate RE growth with less focus on domestic transition</li> <li>Global RE target and partial capex disclosure</li> </ul>
<b>J-Power</b>		<ul style="list-style-type: none"> <li><b>No coal expansion</b> but weak coal phase-out plan</li> <li>Significant plans and investment in "clean coal" technologies extending life of existing coal plants</li> </ul>	<ul style="list-style-type: none"> <li>Limited RE growth apart from legacy hydro assets</li> <li>No clear RE target and partial capex disclosure</li> </ul>
<b>Adani Group</b>		<ul style="list-style-type: none"> <li><b>Expanding coal capacity</b> but at a slower pace while expecting RE to surpass it by 2030</li> </ul>	<ul style="list-style-type: none"> <li>By 2030, RE capacity &gt; coal</li> <li>Clear RE target, capex disclosure and healthy share of capex to RE</li> </ul>

<b>JSW Energy</b>	<ul style="list-style-type: none"> <li>▪ <b>Expanding coal capacity</b> but at a slower pace while expecting RE to surpass it by 2030</li> </ul>	<ul style="list-style-type: none"> <li>▪ By 2030, RE capacity &gt; coal</li> <li>▪ Clear RE target but partial capex disclosure</li> </ul>
<b>NTPC</b>	<ul style="list-style-type: none"> <li>▪ Expanding coal capacity and expecting it to exceed RE capacity by 2030</li> </ul>	<ul style="list-style-type: none"> <li>▪ By 2030, coal capacity &gt; RE</li> <li>▪ Clear RE target but partial capex disclosure</li> </ul>
<b>PLN</b>	<p><b>Low</b></p> <ul style="list-style-type: none"> <li>▪ Expanding coal capacity and expecting it to exceed RE capacity by 2030</li> </ul>	<ul style="list-style-type: none"> <li>▪ By 2030, coal capacity &gt; RE</li> <li>▪ Some planned RE growth but coal and gas expansion is higher</li> <li>▪ Partial capex disclosure through RUPTL</li> </ul>
<b>Reliance</b>	<ul style="list-style-type: none"> <li>▪ Expanding coal capacity and expecting it to exceed RE capacity by 2030</li> </ul>	<ul style="list-style-type: none"> <li>▪ No track record of developing RE</li> </ul>

Source: ESI analysis and consolidation

## 5.4 ESI's market context assessment

**Table 4. ESI's Market Context Assessment Methodology**

Main Weightage	Sub-Weightage	No.	Indicators
75%	<b>Coal Assessment</b>		
	10%	1.1	Coal generation 2025 (%)
		1.2	Coal generation trend (2010-2025)
	<b>Coal Generation Trajectory Score</b>		
	60%	1.2	Coal phase-out target
		1.3	Coal displacement strategy
	<b>Coal Phase-out Credibility Score</b>		
	30%	1.4	Coal expansion restrictions
		1.5	Coal fleet size. <i>Relative size of operating coal capacity (global rank)</i>
		1.6	Coal pipeline. <i>Future coal capacity (planned + under construction, global rank)</i>
<b>Coal Exposure across policy, current and future plans</b>			
25%	<b>Renewable Energy Assessment</b>		
	10%	2.1	RE generation 2025 (%)
		2.2	RE trend (2010-2025)
		2.3	Estimated incremental generation growth (2025-2030)
	<b>Renewable Energy Trajectory Score</b>		
	60%	2.4	RE barrier/fossil fuel incentive
		2.5	RE development & grid readiness
	<b>Renewable Energy Barrier Score</b>		
	30%	2.9	<i>RISE</i> Governance score
		3.0	<i>RISE</i> Electricity sector framework
<b>Renewable Energy Policy Framework Score</b>			

Sources: ESI; Bloomberg Global Coal Countdown; Ember Energy; ESMAP's RISE Renewable Energy selected indicators and other sources

## ESI's market context bands

**Table 5. Bands and Definitions**

Performance	Definition
<b>High</b>	<ul style="list-style-type: none"> <li>• Clear, credible phase-out timeline with no new coal expansion</li> <li>• Relying more on RE to displace coal</li> <li>• Clear targets to develop RE</li> </ul>
<b>Upper Moderate</b>	<ul style="list-style-type: none"> <li>• Clear, credible phase-out timeline with no new coal expansion</li> <li>• Relying more on gas or nuclear power, than on RE, to displace coal</li> <li>• Expecting RE capacity to overtake coal by 2030</li> <li>• Clear targets to develop RE</li> </ul>
<b>Moderate</b>	<ul style="list-style-type: none"> <li>• No coal expansion, but planning to prolong life of coal plants (e.g., "clean coal" technology) or to phase out coal partially</li> <li>• Slow or inconsistent RE growth</li> <li>• Relying more on gas or nuclear power, than on RE, to displace coal</li> </ul>

<b>Lower Moderate</b>	<ul style="list-style-type: none"> <li>Expanding coal capacity but at a slower pace, while expecting RE to surpass it by 2030 or having no coal phase-out plans</li> <li>Clear targets with high capex allocation to RE</li> </ul>
<b>Low</b>	<ul style="list-style-type: none"> <li>Ongoing coal expansion with no credible phase-out</li> <li>Limited or no RE progress</li> </ul>

Source: ESI

## ESI's market context analysis

**Table 6. Limited Desktop Study of Country Operating Environment**

Country	Coal Market Context (75%)	Renewable Energy Market Context (25%)
<b>Malaysia</b>	<ul style="list-style-type: none"> <li>Aims for <a href="#">complete retirement</a> of coal-fired power plants by 2044 as part of country strategy to reach net-zero emissions by 2050</li> <li>Has implemented Imbalance Cost Pass-Through (<a href="#">ICPT Mechanism</a>) since 2015 to allow Tenaga Nasional Berhad (TNB) to pass on increased fuel costs, specifically from imported coal and natural gas, to government or consumers, maintaining neutrality in TNB's financial position</li> <li>Provides large government subsidies for fossil fuels, accounting for up to <a href="#">4% of GDP</a> and 20% of government expenditure, dwarfing public investment in RE. By comparison, Germany and Italy each spend about 1% of GDP subsidising RE</li> </ul>	<ul style="list-style-type: none"> <li>RE generation is <a href="#">heavily concentrated</a> in Sabah and Sarawak, with only 8% in Peninsular Malaysia</li> <li>Has outlined plans for <a href="#">grid upgrades</a> and storage, but no detailed development pathways</li> <li>To retain natural gas as key part of country's energy mix under <a href="#">National Energy Transition Roadmap (NETR)</a></li> </ul>
<b>South Korea</b>	<ul style="list-style-type: none"> <li>Joined <a href="#">Powering Past Coal Alliance</a> (PPCA) in November 2025</li> <li>Plans to <a href="#">phase out 40 of 61</a> coal plants by 2040, with 12 ageing plants (expiring 2037-2038) to be converted to hydrogen or ammonia-based generation</li> <li><a href="#">KEPCO's financial constraints</a>, grid monopoly and government-controlled tariffs hinder grid development</li> <li><a href="#">Higher PPA prices</a> over KEPCO's lower industrial tariffs also discourage direct adoption, leading customers to rely on Renewable Energy Certificates (RECs) instead of expanding RE generation</li> </ul>	<ul style="list-style-type: none"> <li>Low RE capacity as KEPCO's centralised system limits market access and grid integration. <a href="#">Targets 100GW of renewables by 2030</a></li> <li>Prioritises <a href="#">nuclear expansion</a> over RE through government policy</li> </ul>

<p><b>Japan</b></p>	<ul style="list-style-type: none"> <li>To phase out inefficient coal plants by 2030, which makes up only <a href="#">22% of coal fleet</a></li> <li>Providing financial support via <a href="#">Contract for Difference (CfD)</a> to cover cost gap of low-carbon hydrogen or ammonia production with fossil fuels while retaining coal-fired power plants</li> </ul>	<ul style="list-style-type: none"> <li>Aims to achieve carbon neutrality by 2050</li> <li>High solar capacity per land area and <a href="#">limited flat land</a> (34%)</li> <li>Limited RE capacity, with <a href="#">grid challenges</a> such as east-west frequency split and weak <a href="#">interregional transmission</a></li> <li>By law, utilities must <a href="#">source 44%</a> of their total electricity from non-fossil fuel sources by 2030</li> </ul>
<p><b>India</b></p>	<ul style="list-style-type: none"> <li>Plans to grow coal from 210GW currently to 307GW by <a href="#">2035</a> and to 420GW by <a href="#">2047</a></li> <li>Increasing GST on coal and lignite to 18% from 5%, but simultaneous removal of Rs 400 per tonne GST Compensation Cess <a href="#">offsets the increase</a></li> <li><a href="#">Cross-subsidy pricing</a> mechanism ultimately weakening financial health of electricity grid</li> </ul>	<ul style="list-style-type: none"> <li>Targets non-fossil fuel capacity of <a href="#">500GW by 2030</a> and net-zero emissions by 2070</li> <li><a href="#">Strong RE growth</a> and targets, but grid constraints and DISCOM financial issues limit country's ability to integrate RE fully</li> </ul>
<p><b>Indonesia</b></p>	<ul style="list-style-type: none"> <li>Expects coal to grow by <a href="#">6.2GW</a> under 2025-2034 RUPTL</li> <li>Uses <a href="#">Domestic Market Obligation (DMO)</a> to cap coal prices for state utility PLN at USD70/tonne, often significantly below market rate</li> <li>Subjects renewable PPAs to <a href="#">tariff ceiling</a> on the price at which they can sell electricity to PLN, making it less competitive</li> <li><a href="#">Captive coal plant expansion</a></li> </ul>	<ul style="list-style-type: none"> <li>Limited RE capacity. Plans 42.8GW under 2025-2034 RUPTL but <a href="#">track record is weak</a></li> <li>Expecting RE to reach about <a href="#">21% by 2030</a>, while projecting coal generation to peak in 2037 at <a href="#">62.7% above current levels</a></li> <li><a href="#">Power system</a> continues to prioritise coal and natural gas, while fragmented island grids and infrastructure that still relies heavily on diesel generators hamper large-scale RE integration.</li> <li>Indonesia pushes energy transition with <a href="#">100GW solar plan</a> and hydrogen</li> </ul>

Source: ESI consolidation based on various sources

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