

# Transition or Illusion?

## What Capital Flows Reveal About Net Zero Credibility

**Morningstar Sustainalytics**  
June 8, 2026

**Contents**

- 3 More Money, More Carbon
- 4 Talk, Targets, and Guardrails
- 7 From Discovery to Delivery
- 8 If It's Not Funded, It's Not Real
- 9 Not a Transition Gap; It's a Scale Failure
- 11 Uneven Capital, Uneven Transition
- 13 No Capex. No Credibility
- 15 Appendix

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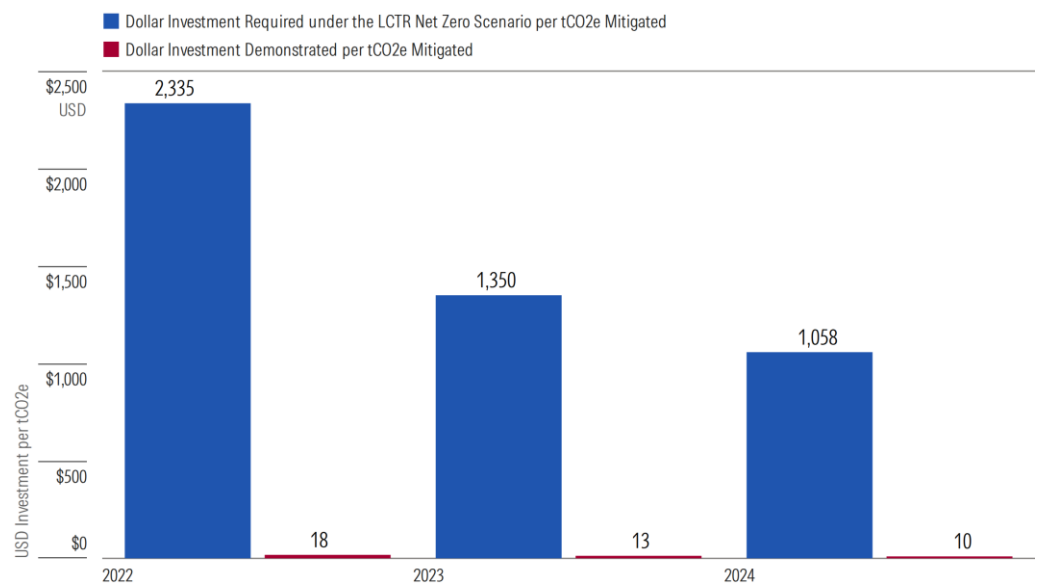
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**Key Highlights**

- ▶ Capex is a clear signal of low carbon transition credibility. Capex determines real world outcomes, making it a clear indicator of future emissions, transition risk and long-term value creation. Morningstar Sustainalytics' Low Carbon Transition Ratings (LCTR) explicitly anchor transition assessment in capital allocation.
- ▶ Current capex allocation is structurally misaligned. GHG emissions reductions are not stabilizing or declining fast enough to meet below 2°C scenarios, indicating capex deployment is not aligned with net zero pathways. Current corporate LCTR trajectories imply 2.6°C warming by 2050, well above goals set in the Paris Agreement.
- ▶ There is a scaling gap. Reframing transition risk, our research demonstrates that while disclosure and transition initiatives are widespread, they are often insufficiently differentiated by scale or funding.
- ▶ The Utilities sector is a transition leader, due to its access to mature, scalable technologies. But capex remains skewed towards fossil assets, with only 40% of Utilities' capex (in our data set) going towards low carbon generation, and major capital markets are creating a carbon lock-in.
- ▶ Long dated capex is often not disclosed or available, making it difficult to determine emissions reduction potential beyond 2030. Research demonstrates that transition investment and planning are heavily front loaded to 2030 and transition momentum is not transparent past that point.

**Required Capex in Energy Generation to Meet Net Zero versus Utilities Deployment per tCO<sub>2</sub>**



Source: Morningstar Sustainalytics LCTR data, as of April 1, 2026.

## More Money, More Carbon

Our analysis links company-level capital allocation decisions to real-economy climate outcomes, showing how the pace and direction of investment—not stated ambition—determine whether the transition aligns with a 1.5°C pathway or locks in higher warming. The 2015 Paris Agreement established a globally coordinated commitment to limit warming to well below 2°C (ideally 1.5°C), anchoring climate policy and, increasingly, capital markets around the concept of a finite carbon budget.

Since the adoption of the Paris Agreement (originally 195 parties) in 2016, temperature predictions have fallen. By the end of this century, the world is expected to warm by 2.3°C to 2.5°C, based on United Nations Environment Programme (UNEP) estimates, assuming we remain on the current warming trend.<sup>1</sup> Large reductions in greenhouse gas (GHG) emissions are required to bring global warming to below 2°C.

Rising geopolitical instability and constrained global supply chains are exposing the structural vulnerability of a fossil fuel-dependent energy system, transforming energy from a long-term transition theme into an immediate source of financial risk. At the same time, surging power demand, driven by AI and data centers,<sup>2</sup> is accelerating the urgency for reliable, scalable energy supply, forcing both governments and corporates to rethink energy security as a core strategic priority.

We are now at a critical crossroads: secure, resilient power must be delivered alongside rapid decarbonization. In practice, capital is being deployed increasingly to address near-term energy system risks, without yet scaling sufficiently to meet long-term climate targets. This persistent gap between ambition and delivery is intersecting with a more immediate set of energy system pressures.

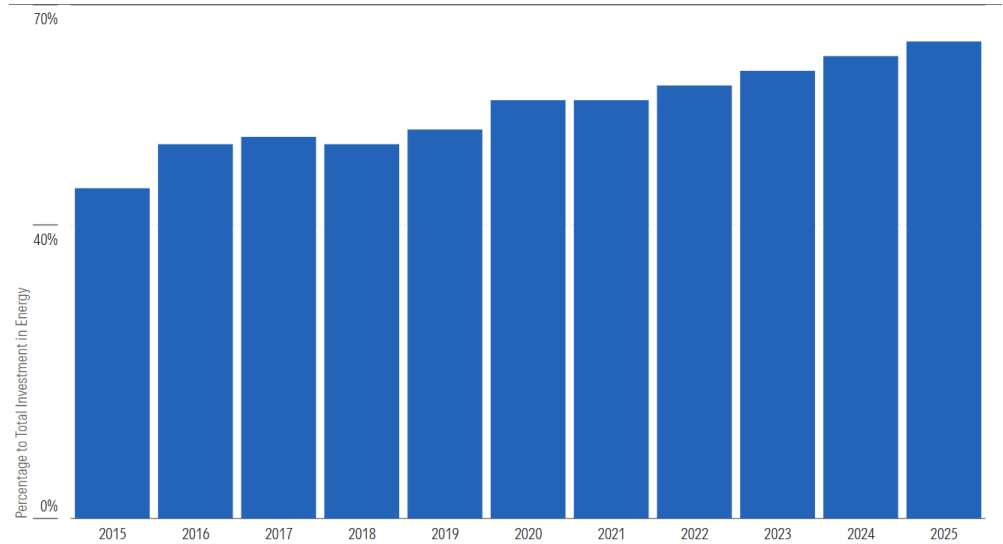
After 2023 and 2024, 2025 was the third hottest year on record. It was also a record year for investment in low carbon technologies, with renewables investment almost doubling investment in fossil fuels (USD 2,154 billion versus USD1,148 billion).<sup>3</sup> International Energy Agency (IEA) data demonstrates an increase in year-on-year investment in clean energy, yet temperatures continue to rise above safe planetary boundaries.

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<sup>1</sup> Emissions Gap Report, 2025, United Nations Environment Programme (UNEP), accessed May 8, 2026, <https://www.unep.org/resources/emissions-gap-report-2025>.

<sup>2</sup> Powering Tomorrow's AI Data Centers; The Market has Overlooked Renewables as it Focuses on Resurgent Legacy Technologies, Morningstar Equity Research, July 2025.

<sup>3</sup> World Energy Investment 2025, International Energy Agency, accessed May 8, 2026, <https://www.iea.org/reports/world-energy-investment-2025/executive-summary>.

**Exhibit 1** Investment in Clean Energy, 2015-2025

Data as of May 2026. Percentage of Investment in low carbon and renewable energy as a percentage of total investment in 2025.

Source: World Energy Investment 2025, IEA

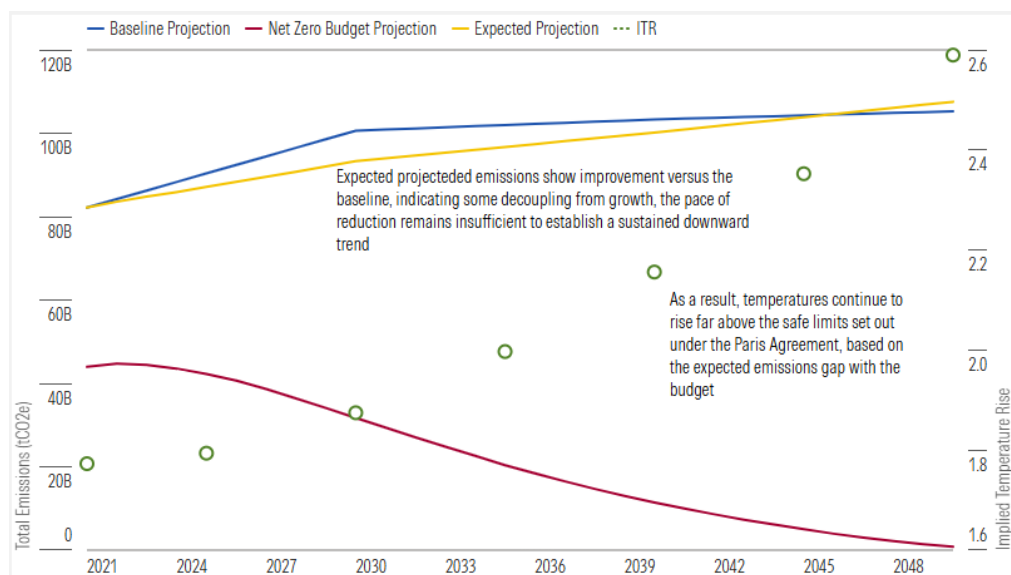
Morningstar Sustainalytics Low carbon Transition Ratings (LCTR) demonstrate that expected emissions are inconsistent with a 1.5°C target, or even below 2°C trajectories by mid-century, based on the main outcome of the rating, the Implied Temperature Rise (ITR),<sup>4</sup> which measures temperature impact based on company-level emissions gaps against a 1.5°C emissions budget. The Universe<sup>5</sup>-wide projections demonstrate that if the global economy decarbonizes at the same rate as all companies within our LCTR universe while maintaining the same growth, the planet will warm to a temperature of 2.6°C by 2050.

A 2.6°C implied temperature outcome reflects the expected warming consistent with company-level transition momentum, technology deployment, and corporate action without a material step-change in ambition. In contrast, the UNEP's long-term projections extend through the end of the century and incorporate full scenario pathways, including post-2050 emissions reductions, the gradual strengthening of national climate commitments, and some reliance on late-century decarbonization and carbon removal. Under these more optimistic structural assumptions, UNEP estimates highlight that the lower end-state temperature depends not on current delivery, but on the successful execution of additional policy ambition and systemic transformation over time.<sup>6</sup>

<sup>4</sup> Low Carbon Transition Ratings, Unrivaled analysis for financial stakeholders, Morningstar Sustainalytics, accessed 1 June 2026, <https://www.sustainalytics.com/investor-solutions/low-carbon-transition>.

<sup>5</sup> The LCTR Universe covers 11,147 companies as of May 2026.

<sup>6</sup> Emissions Gap Report 2025, United Nations Environment Programme (UNEP) Emissions Gap Report 2025, accessed 20 May 2026, <https://www.unep.org/resources/emissions-gap-report-2025>.

**Exhibit 2** LCTR Emissions and Implied Temperature Rise Projections

Note: Based on the LCTR Universe, which includes 11,147 companies  
 Source: Morningstar Sustainalytics. Data as of May 20, 2026

Exhibit 2 shows that while expected emissions fall below baseline projections in the near term, this reflects incremental gains rather than structural decarbonization. Over time, the gap between expected emissions and net zero pathways widens materially.

As a result, implied temperatures continue to rise, indicating that current transition pathways are not only insufficient, but deteriorating relative to required trajectories.

## Talk, Targets, and Guardrails

On paper, many companies look ready for transition, based on the amount and scale of low carbon related disclosures.

There has been an uptake in reporting, especially with the introduction of Taskforce for Climate related Financial Disclosures (TCFD) and the phase to International Financial Reporting Standards (IFRS), International Sustainability Standards Board (ISSB), S2 Climate-Related Disclosures, and the adoption of ISSB mandatory reporting across many jurisdictions. This means that we see more climate related data than ever before, and this has resulted in standardized low carbon transition related research across more than 80 key indicators and metrics.

Morningstar Sustainalytics research indicates that the initiatives most frequently cited across sectors, as evidence of transition activity (Exhibit 3), point to a largely sector-agnostic, near-term decarbonization playbook. While these programmes signal intent and operational improvement, they show limited differentiation in scale, funding, or long-term impact. As a result, understanding how these initiatives are funded—and whether they materially alter future emissions trajectories—is central to assessing the credibility of a company's low carbon transition.

**Exhibit 3** Common Decarbonization Initiatives Demonstrated in Sustainalytics LCTR Research

Initiative	Examples
Energy efficiency improvements and optimizations	<ul style="list-style-type: none"> <li>▶ Process/logistics optimizations</li> <li>▶ Efficiency upgrades</li> <li>▶ AI-enabled process optimization</li> </ul>
Electrification adoption	<ul style="list-style-type: none"> <li>▶ Delivery fleets</li> <li>▶ Operational equipment</li> </ul>
Renewable energy adoption	<ul style="list-style-type: none"> <li>▶ Power purchase agreements (PPAs)</li> <li>▶ On-site solar generation</li> <li>▶ Grid modernization</li> </ul>
Raw material and fuel substitutions	<ul style="list-style-type: none"> <li>▶ Lower carbon input materials</li> <li>▶ Use of alternative fuels (biofuel etc.)</li> </ul>

Source: Morningstar Sustainalytics

The introduction of ISSB-aligned disclosure results in a shift in climate reporting from ESG transparency toward core financial analysis. Companies are expected to demonstrate how capital allocation is reflected in their transition strategy and how this impacts financial performance.<sup>7</sup>

The shift is critical because this level of disclosure provides investors visibility into whether companies' transition ambition is supported by funded executable plans, rather than unfunded commitments.

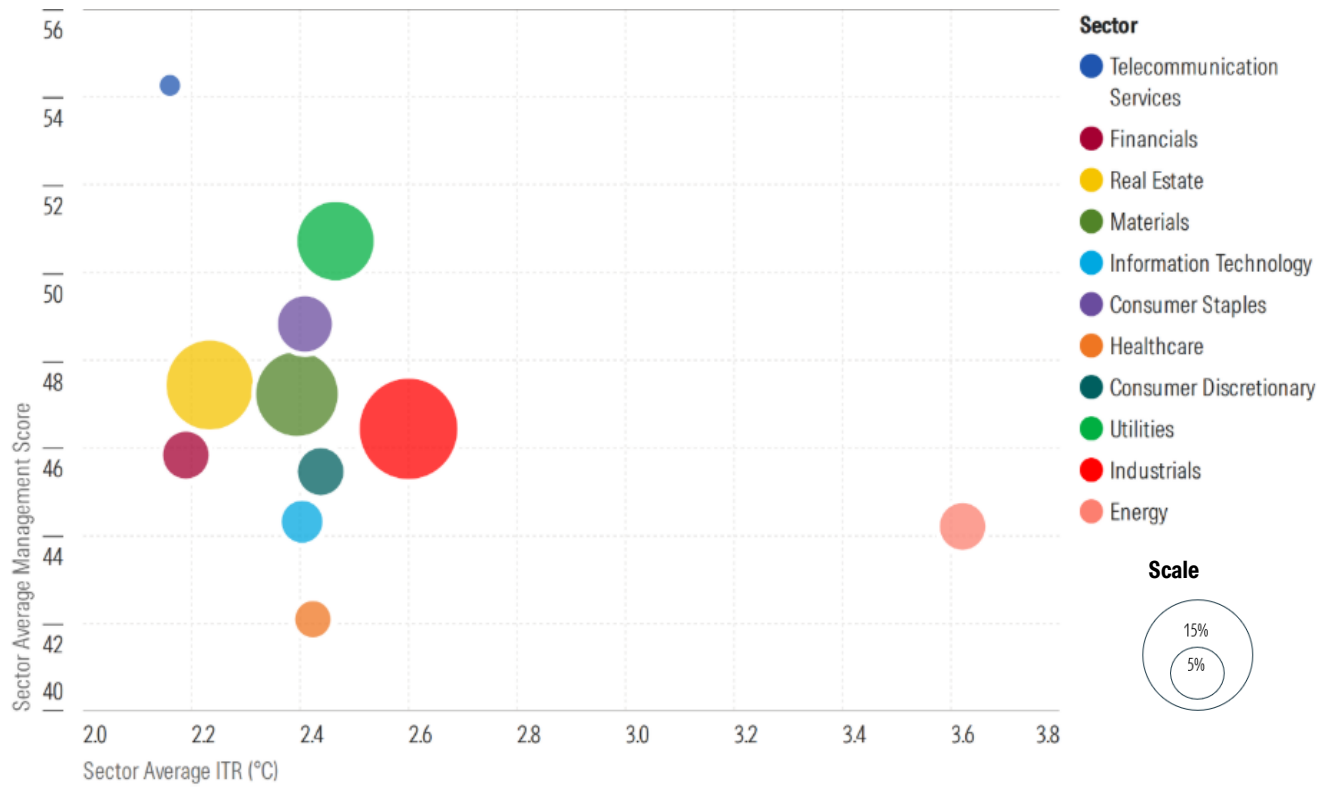
Within this framework, the LCTR management score evaluates how well a company is positioned to execute a low carbon transition, combining performance across transition planning, emissions reduction programmes, and capital allocation alignment into a single forward-looking metric. The framework enables us to assess whether a company has established credible transition enablers, including governance and oversight, robust strategy and target setting, clear capital planning signals, and the implementation mechanisms required to deliver on its transition. Together, these elements, combined with GHG emissions projections, provide a forward-looking view of whether management is not only setting ambition, but if it is structurally equipped to execute a low carbon transition.

There is a wide variation in management scores across the LCTR universe, resulting in a distribution of management scores across and within different sectors. Exhibit 4 highlights the average sector ITR against the average management score while the size of the bubble reflects the level of disclosure related to the percentage of companies, within a given sector, that report on low carbon investment planning.

The Low Carbon Transition Investment Planning Programme Indicator delves a little deeper into a company's stated disclosures on capex allocation, assessing its disclosures that support low carbon investment planning and preparedness initiatives, considering short- and medium-term low carbon transition-related investments, and the company's use of loans and capital to achieve targets related to this. While most sectors disclose information on capital planning, companies in the Utilities sector lead in their disclosure of capex planning, not only through the amount of disclosure, but the quality of disclosure too. Utilities disclose stronger medium term related investment information and provide a deeper level of disclosure on funding than other sectors. They also achieve strong sector-average management scores. However, they are still significantly misaligned, with an implied temperature rise of 2.5°C.

<sup>7</sup> IFRS S2 Climate Related Disclosures, International Financial Reporting Standards, accessed 20 May 2026, <https://www.ifrs.org/issued-standards/ifrs-sustainability-standards-navigator/ifrs-s2-climate-related-disclosures/>

**Exhibit 4** Sector Landscape on Low Carbon Investment Disclosure vs ITR and Management Performance



Note: Size of bubble represents percentage of the 7848 companies, by sector, which disclose low carbon transition investment planning program. For example, the Industrials sector represents 23% of all companies that disclose low carbon investment planning (size of bubble), the overall sector average management score is 46.3, while the sector average ITR is 2.5°C (Significantly Misaligned). Source: Morningstar Sustainalytics LCTR data, as of April 1, 2026.

Companies in the Industrials sector emerge as the most extensive disclosers across the universe, in terms of low carbon investment, i.e., Industrials disclose more on this topic than others. However, they demonstrate weaker disclosures (i.e. short-term planning only, no disclosures on longer term planning, or how capex is applied), and therefore remain significantly misaligned at 2.6°C. They only outperform the Energy sector, which is highly misaligned at 3.6°C on a sector-average basis. This outcome is not unexpected, given the structural and technological barriers to decarbonization that Industrials companies face, and this is reflected in their weaker average management scores.

Across the LCTR Universe, 7,848 (70%) companies disclose details on capex planning relating to low-carbon transition. Of these, roughly 1,500 (13% of universe) companies are assessed as having strong to very strong qualitative transition plans. That is, they disclose capex, timeline and use of market instruments, but only about 350 (3% of the universe) disclose funded strategies that focus on emissions reduction, and just 62 (0.5% of the universe) demonstrate strong or very strong investment plans (i.e. longer term targeted capex and funding plans). Utilities again stand out, accounting for 24% of these 62 companies. The gap between the emissions that companies say they are managing, and their financing of emissions reductions is stark, and it widens sharply at the company level.

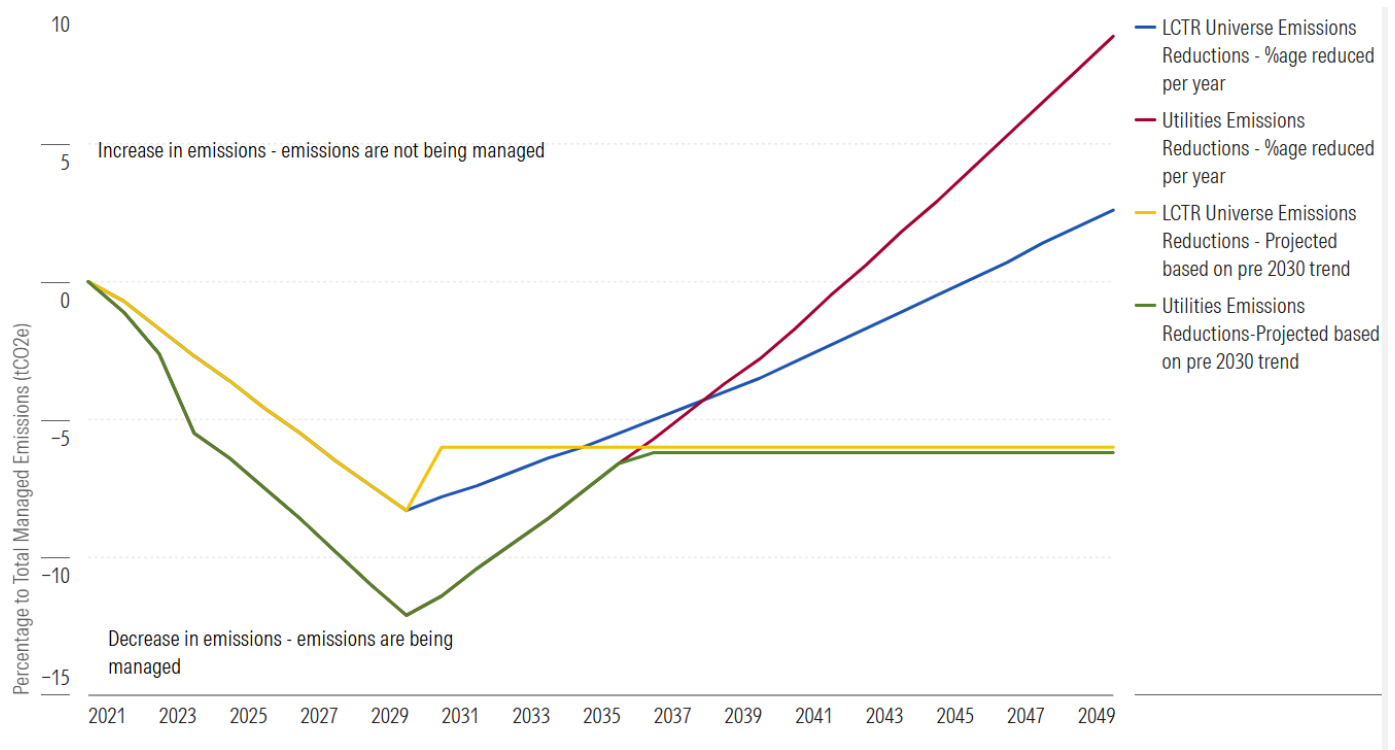
Ultimately, the rate and scale of emissions reduction depend on execution, not on disclosure. The LCTR focuses on how a company’s strategy translates into its capital allocation, governance decisions, and measurable operational outcomes.

### From Disclosure to Delivery

The LCTR translates companies' actions into emissions projections by estimating how the programmes and capital allocation they disclose influence future emissions, allowing for a distinction between emissions that are actively managed through corporate action and those that continue under business-as-usual conditions.<sup>8</sup>

Utilities demonstrate higher than average emissions management than the broader universe, but management actions are concentrated in the near term (2030), where there is existing policy support, a maturation of technology, and a demonstration of capex allocation. Post-2030 and longer-term reductions, however, do not show the same momentum among Utilities and the broader LCTR universe.

**Exhibit 5** Emissions Reduction Trends<sup>9</sup>



Note: The green and yellow lines denote average annual emissions reductions based on pre-2030 average emissions performance continuation to 2025. The current LCTR projection model takes the latest year of capex and does not assume continued investment.  
 Source: Morningstar Sustainability

Beyond 2030, this momentum is not sustained. Managed emissions reductions slow at precisely the point where acceleration is required, reflecting both limited long-dated capital allocation and insufficient visibility into future investment plans.

Even if current rates of reduction are maintained, emissions would decline at approximately 5% per year, which is insufficient to offset growth and align with a 1.5°C pathway. The transition, therefore, is structurally back-loaded, increasing reliance on unrealistically rapid decarbonization later. The LCTR

<sup>8</sup> Low Carbon Transition Ratings Methodology version 1.3, Morningstar Sustainability, accessed May 14, 2026  
<sup>9</sup> Based on the full LCTR Universe and of which Utilities form a subset of 394 companies

draws on the Implied Policy Response's (IPR) underlying net zero scenario to inform company-level net zero budgets.

IPR analysis indicates that, under current national policies, most 2030 targets are likely to be missed, even in jurisdictions with net zero commitments in place.<sup>10</sup> Germany, for example, is projected to reach its 90% clean power target around five years late due to a slowdown in expected deployment post-2030, while the UK and Canada remain broadly on track. In contrast, larger emitters, such as China and the US, show more pronounced delays, with current trajectories implying timelines that are approximately 10 and 15 years behind target, respectively. The LCTR data also demonstrate such a trend, with the current rate of emissions reductions, managed emissions projections, not aligned to 2030 emissions budgets. This results in emissions reductions being increasingly back-loaded beyond 2030, requiring far steeper decarbonization later and materially reducing the feasibility of regulating outcomes in line with 1.5°C or even 2°C temperature thresholds.

While the LCTR framework shows that the main proportion of emissions are managed to 2030, this is not sufficient to constrain temperature rise. Nor does it align with stated clean power and net zero targets at the national level. Taken together, both national and corporate approaches fall short. Ambition is present, but delivery is misaligned.

The Utilities sector emerges as a transition leader, driven by companies' higher renewable energy use, while also acting as critical upstream enablers for electricity-dependent sectors, such as Technology. But again, this is only to 2030.

For investors, this is a clear execution signal: despite owning the assets central to decarbonization, Utilities companies are not deploying capital at the scale or speed required, leaving transition progress lagging and managed emissions outcomes materially short of what credible leadership would imply.

### **If It's Not Funded, It's Not Real**

Achieving a reduction in GHG emissions consistent with 1.5°C warming will require low carbon investment to reach, and exceed, USD 8.4 trillion per year by 2030. Significant gaps already exist in both the financing and deployment of available low carbon technologies.<sup>11</sup> Alignment of low carbon capex therefore provides a concrete, measurable financial signal that companies are actively reshaping their business models and managing the financial risks associated with continued reliance on fossil fuel.

Low carbon transition plans that are not backed by capital commitments to low carbon technologies are like planning a journey without paying for a ticket—they are not going anywhere.

Within the LCTR, capex acts as a critical test of transition credibility, showing that alignment is determined not by stated intent alone, but by how capital is allocated over time. The LCTR treats capex alignment as a key indicator of execution risk in the transition, recognizing that emissions outcomes ultimately depend on investment decisions made today. By anchoring the investment alignment

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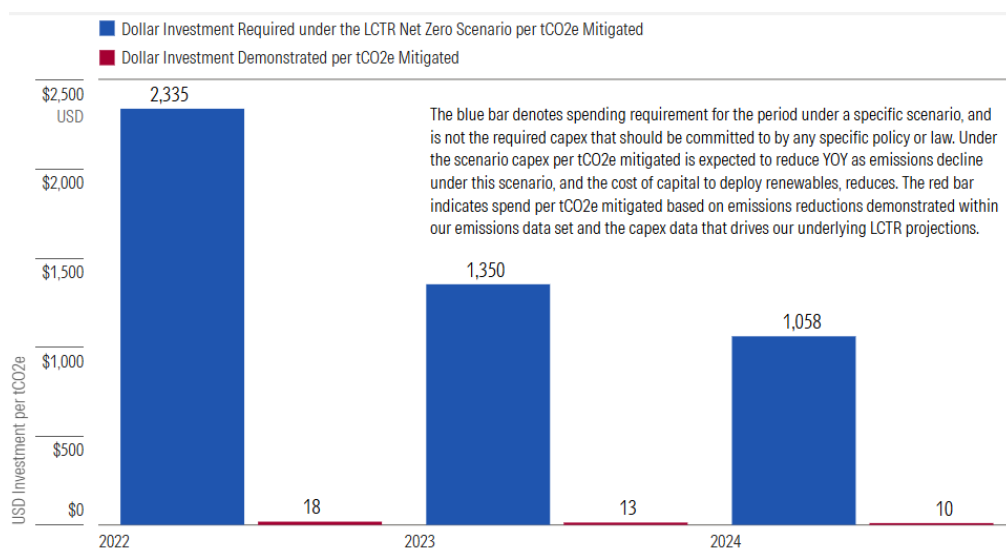
<sup>10</sup> 2026 Transition Forecast, Inevitable Policy Response, accessed 20 May 2026, [https://ipr.transitionmonitor.com/cms/wp-content/uploads/2026/02/2026\\_IPR\\_Climate-Transition\\_Forecast\\_19022026\\_Final\\_.pdf](https://ipr.transitionmonitor.com/cms/wp-content/uploads/2026/02/2026_IPR_Climate-Transition_Forecast_19022026_Final_.pdf)

<sup>11</sup> Bridging the Gap: How to Finance Net Zero Transition White Paper, World Economic Forum, accessed 20 May 2026, [https://reports.weforum.org/docs/WEF\\_Bridging\\_the\\_Gap\\_How\\_to\\_Finance\\_the\\_Net\\_Zero\\_Transition\\_2025.pdf](https://reports.weforum.org/docs/WEF_Bridging_the_Gap_How_to_Finance_the_Net_Zero_Transition_2025.pdf)

assessment in capex,<sup>12</sup> the LCTR distinguishes between aspirational transition narratives and those supported by tangible financial commitment.

Companies are putting their capital to work, but the level is nowhere near enough to close the emissions gap. Annual climate finance requirements are projected to rise to USD 9 trillion by 2030, and exceed USD 10 trillion annually from 2031 to 2050.<sup>13</sup> In the Utilities sector, the current funding gap is estimated to be between USD 2.8 trillion to USD 4 trillion per year. Under the LCTR net zero budget scenario, investment in renewables is expected to increase year on year to deliver the emissions reductions the sector requires. The capex data underpinning the LCTR's expected emissions projections make the shortfall clear: while investment exists, it would need to scale roughly 100-fold to meet the carbon-reduction demands of a net zero world.

**Exhibit 6** Required Capital versus Utilities Deployment per tCO2



The LCTR Net Zero Scenario is downscaled from the Inevitable Policy Response, Required Policy Response, a 1.5 degree aligned, net zero by 2050 scenario.

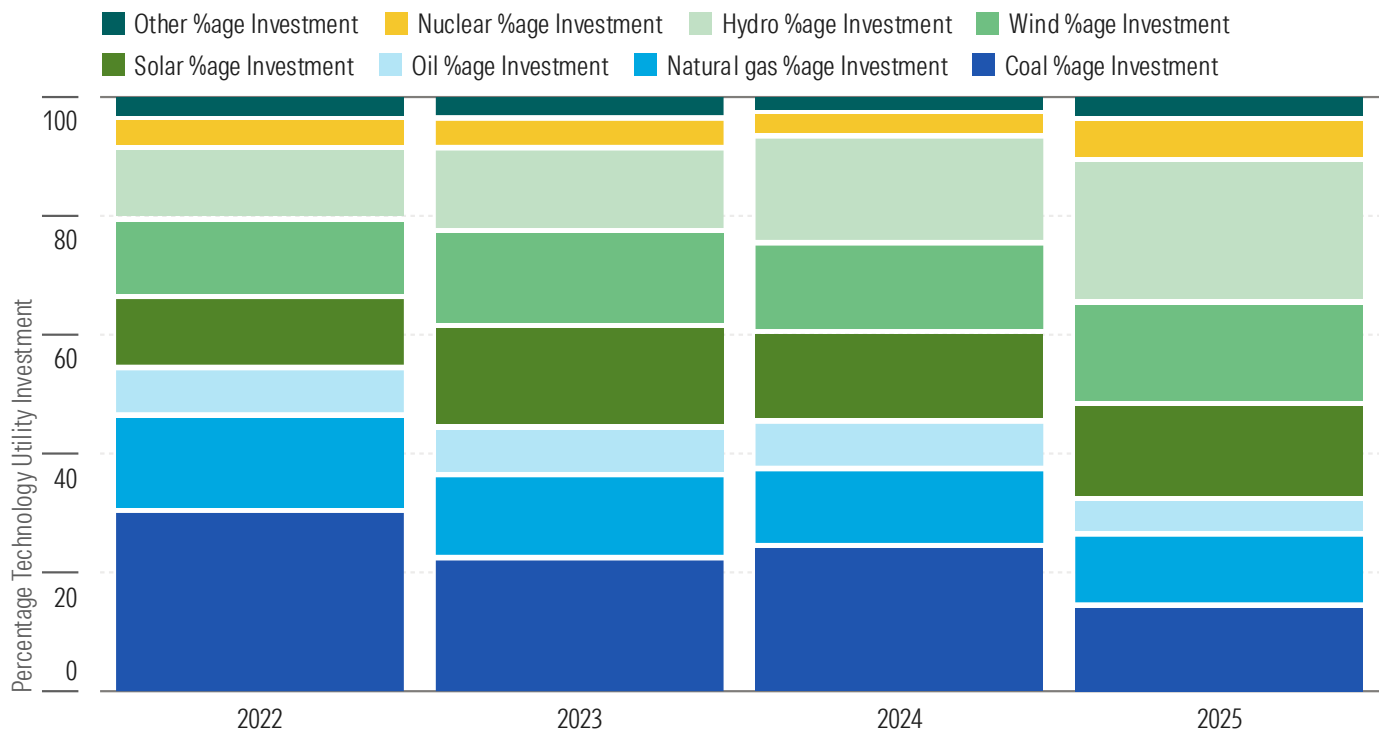
Source: Morningstar Sustainalytics, based on Inevitable Policy Response and S\* Data.

### This is Not a Transition Gap; It's a Scale Failure

Decarbonization is fundamentally a capex allocation problem. Capex is a leading indicator of credible transition. Capex plans are a primary input into our managed emissions projections because today's capital decisions determine tomorrow's carbon impact. Exhibit 7 presents the year-over-year allocation of Utilities companies' capex, broken down by key generation technology.

<sup>12</sup> Capex data is provided by a third-party provider for 1500 companies based on reporting availability, companies where data is not available are defaulted to reductions achievable under the IES Stated Policies Scenario. Within the data set, 211 Utilities companies have capex data that is integrated into the LCTR framework.

<sup>13</sup> Bridging the Gap: How to Finance Net Zero Transition White Paper, World Economic Forum, accessed May 20, 2026, [https://reports.weforum.org/docs/WEF\\_Bridging\\_the\\_Gap\\_How\\_to\\_Finance\\_the\\_Net\\_Zero\\_Transition\\_2025.pdf](https://reports.weforum.org/docs/WEF_Bridging_the_Gap_How_to_Finance_the_Net_Zero_Transition_2025.pdf)

**Exhibit 7** Percentage of Utilities Capex by Key Generation Technology, Between 2022 and 2025

Source: Morningstar Sustainalytics

The trend is not all negative. There was a clear structural shift in Utilities investment away from fossil fuels and toward renewables between 2022 and 2025. Coal investment declined sharply from just above 30% to around 15% of total investment, while wind and solar (photovoltaic) increased, with wind rising to about 18% and solar stabilizing near to 17%. Natural gas and oil both trended downward over the period, with gas falling modestly from 17% to 13%. Overall, the data highlights a reallocation of capital toward low carbon energy sources, with renewables overtaking fossil fuels in terms of share of investment by the end of the period.

However, the dynamic picture is less clear. Fossil-fuel capex change year on year across coal, natural gas, and oil is fluctuating, rather than declining in a sustained and orderly way. Despite stated transition ambitions, there is no clear or durable withdrawal from fossil fuel generation embedded in Utilities' capex allocation.

At the same time, year-on-year growth in capex directed toward renewable technologies, particularly solar PV and wind, has slowed steadily over the past five years. Renewable investment continues to rise in absolute terms; however, in many cases the pace of expansion is decelerating year on year.

This slowdown is not unique to the Utilities in this sample. It reflects a broader global pattern documented across the IEA, International Renewable Energy Agency (IRENA), and wider transition finance research. Understanding why renewable investment surged sharply in 2022–2023 and has since lost momentum is therefore central to interpreting the LCTR signal. The 2022–2023 surge was driven by a powerful policy-and-crisis tailwind.

Three reinforcing forces lifted renewable investment sharply in 2022 and 2023:

1. Energy-security shock from Russia's invasion of Ukraine. European gas and power prices spiked in 2022, reframing renewables as the cheapest available form of energy independence. The European Commission's REPowerEU plan (May 2022) raised the EU's 2030 renewables target to 45% of final energy consumption and unlocked accelerated permitting and procurement.<sup>14</sup>
2. The U.S. Inflation Reduction Act (IRA), signed in August 2022. The IRA extended Investment and Production Tax Credits for renewables through 2032, introduced direct-pay and transferability for tax credits, and delivered the largest single climate investment package in US history.<sup>15</sup>
3. Falling clean technology costs. The IEA's Clean Energy Equipment Price Index hit a record low in early 2024, with Chinese solar PV module and wind-turbine prices down approximately 60% and 50%, respectively, from 2022 levels, reinforcing the economic case for renewables despite a higher rate environment.<sup>16</sup>

The slowdown in year-on-year capex growth for Utilities since 2024 reflects a mix of higher financing costs,<sup>17</sup> post-stimulus normalization,<sup>18</sup> and rising policy and supply chain frictions,<sup>19</sup> all of which have disproportionately affected renewable project economics. At the same time, elevated fossil fuel cash flows and renewed energy security priorities in parts of the global economy have redirected capital toward conventional assets, dampening the pace of renewable investment, despite sustaining net zero commitments.

These barriers matter, but they do not apply uniformly because capex is not simply constrained, it is unevenly deployed. To understand where transition is genuinely taking hold, investors must look beyond ambition to where capex is flowing, and where it is not.

## Uneven Capital, Uneven Transition

Companies and regions that have begun to scale down fossil fuel capex are seeing faster realized emissions reductions, while those that remain anchored to fossil investment face carbon lock-in, elevated stranded-asset risk, slower pathway alignment, and a higher contribution to temperature rise. In contrast, renewable capex shows a pronounced regional divide.

Europe stands out for combining the addition of renewables with the active displacement of fossil fuel capacity. Many other regions, meanwhile, have focused primarily on adding renewables without meaningfully retiring fossil fuel assets. Where displacement does not occur, additional renewable capacity delivers far lower emissions reductions than headline deployment numbers imply, as new assets serve incremental demand while existing fossil generation continues to operate. This dynamic helps explain why global emissions can remain stubbornly above a Paris-aligned trajectory, even as renewable deployment reaches record levels.

14 REPowerEU Affordable, secure and sustainable energy for Europe, European Commission (2022), accessed 1 May 2026, [https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/repowerEU-affordable-secure-and-sustainable-energy-europe\\_en](https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/repowerEU-affordable-secure-and-sustainable-energy-europe_en).

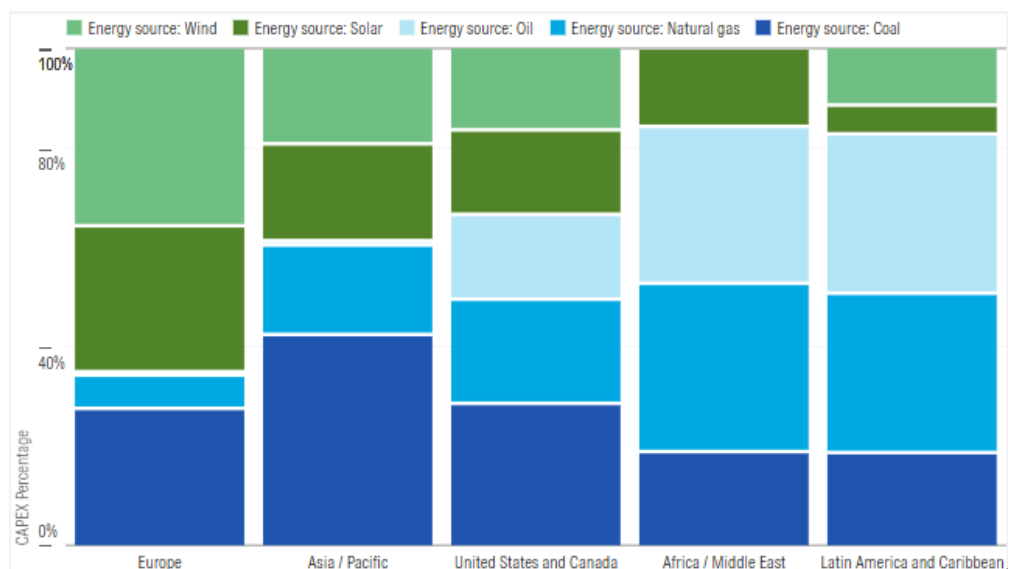
15 Fact Sheet: How the Inflation Reduction Act's Tax Incentives are Ensuring All Americans Benefit from the Growth of the Clean Energy Economy, US Department of the Treasury, accessed 1 May 2026, <https://home.treasury.gov/news/press-releases/jy1830>.

16 World Energy Investment 2025, International Energy Agency, accessed 1 May 2026, <https://www.iea.org/reports/world-energy-investment-2025>

17 Conflicts of interest, The cost of investing in the energy transition in a high interest-rate era, Wood Mackenzie, accessed 1 May 2026, <https://www.woodmac.com/horizons/energy-transition-investing-in-a-high-interest-rate-era/>.

18 Falling Interest Rates Alone May Not Inimminently Boost Investments in Renewable Energy, Center on Global Energy Policy, Columbia SIPA, accessed on 1 May 2026, <https://www.energypolicy.columbia.edu/falling-interest-rates-alone-may-not-imminently-boost-investments-in-renewable-energy/>.

19 Renewables 2025, Analysis and Forecasts to 2030, IEA, accessed 1 May 2026, <https://www.iea.org/reports/renewables-2025>.

**Exhibit 8** Regional Utilities Capex Mix

Source: Morningstar Sustainalytics.

At a global level, just 38% of Utilities' cumulative disclosed capex between 2021 and 2025 was allocated to green activities. In other words, less than four dollars in 10 of planned utility investment was directed toward the low carbon transition.

To dive deeper, we use a green-brown capex ratio to compare capital directed toward low carbon or transition-aligned activities versus fossil fuel-dependent assets, revealing whether capital allocation supports, or undermines, transition objectives. Unlike emissions metrics or stated targets, this ratio captures forward-looking financial intent, showing how companies are reshaping their future asset base rather than reporting on past performance.

Using capex data in this way aligns directly with transition-finance logic: credible pathways require significantly more clean investment than fossil fuel investment. Applying underlying Morningstar Sustainalytics data to derive a green-brown metric, Utilities globally exhibit a cumulative green-to-brown ratio of just 0.6:1. In practical terms, the sector is still planning to invest approximately USD 1.0 in fossil-fuel generation for every USD 0.6 invested in renewables.

This contrasts with the International Energy Agency's estimate of a 2:1 clean-to-fossil fuel ratio for global energy investment. Utilities—the sector most central to delivering the energy transition—is in aggregate allocating capital more conservatively than the wider energy investment system requires.

Regionally, Europe is the sole exception. Utilities in Europe allocate 65% of capex to low carbon energy, equivalent to a 2:1 green-to-brown ratio, making it the only region where the generation-only capex mix approaches the broader IEA benchmark.<sup>20</sup> This pattern is consistent with the policy environment shaped by REPowerEU.

<sup>20</sup> World Energy Investment 2024, IEA, accessed 7 May 2026, <https://www.iea.org/reports/world-energy-investment-2024>.

In contrast, Asia-Pacific and the United States and Canada, which together account for over 80% of global Utilities capex in the sample, remain decisively brown. Africa and the Middle East, and Latin America and the Caribbean are the most fossil-heavy regions of all, with green shares of just 16% and 17.5%, respectively, although their absolute capex bases are an order of magnitude smaller.

**Exhibit 9** Utilities Green-Brown Ratio, 2021-2025

Region	Green share (%)	Green : Brown Ratio
Europe	65.4	2:1
Asia-Pacific	39.0	0.6:1
United States and Canada	33.7	0.5:1
Africa and Middle East	16.0	0.2:1
Latin America and Caribbean	17.5	0.2:1
Global Utilities	38.4	0.6:1

Source: Morningstar Sustainalytics.

Ultimately, the green–brown capex ratio cuts through ambition to show what companies are building. If the balance still favors brown expenditure, the transition remains theoretical, no matter how strong the targets appear.

### No Capex. No Credibility

Capital allocation is now the critical missing link between transition ambition and climate outcomes. While companies increasingly disclose targets, strategies, and long-term pledges, disclosure of forward-looking and granular capex remains uneven, limiting investors' ability to assess the true level, durability, and scale of commitment to the low carbon transition. Without clearer visibility into how capital is being deployed, transition credibility cannot be fully evaluated.

This challenge is not new. A decade ago, investors faced a similar problem with carbon emissions data: disclosure was partial, inconsistent, and frequently revised, obscuring true exposure and delaying accountability.<sup>21</sup> Only after disclosure improved—supported by data providers combining reported information with robust estimation frameworks—did emissions data become decision-relevant at scale.<sup>22</sup> Companies increasingly reference low carbon investment, but reporting often lacks the granularity, consistency, and time horizon needed to assess whether capital allocation is sufficient to deliver net zero outcomes. These gaps risk repeating the same pattern seen in early carbon disclosure, where ambition outpaced evidence.

The LCTR addresses this gap by anchoring transition assessment in capital allocation.<sup>23</sup> Drawing on Sustainalytics' climate and investment datasets, the LCTR translates available capex data into a comparable, forward-looking signal of execution and transition risk. However, persistent corporate

<sup>21</sup> Harvard study: 74% of S&P 500 companies revised emissions data, Harvard Business School, accessed 8 May 2026, <https://www.hbs.edu/big5/harvard-study-74-percent-sp-500-companies-revise-emissions-data>.

<sup>22</sup> What are Greenhouse Gas Accounting and Corporate Climate Disclosures? 6 Questions, Answered, World Resources Institute, accessed 8 May 2026, <https://www.wri.org/insights/ghg-accounting-corporate-climate-disclosures-explained>.

<sup>23</sup> Underlying capex and related activity data is translated into emissions reductions, and investment alignment scores, please see Appendix, and LCTR Methodology for more details on how this data is used.

reporting gaps mean that capex alignment—like emissions data before it— requires continued improvement in disclosure to fully reflect real-world transition readiness.

For investors, the implication is clear: better capex data is not a nice-to-have, it is essential for distinguishing between narrative-driven transition claims and credible, financed pathways to a low carbon economy.

Without transparent, granular capex data, investors are being asked to believe in a transition they cannot verify, and belief alone does not cut emissions. ■■

## Appendix

The examples below demonstrate how capex data is integrated into the LCTR, which is used to calculate future emissions reductions, or managed emissions, potential to 2050, and is translated into our proprietary Investment Alignment indicator score.





We highlight the underlying capex data that feeds into our proprietary model and the interpretation of the capex data for three companies across Europe, North America and Asia.

### Endesa SA

**Exhibit 10** Europe — Activity and Scope Breakdown for Endesa SA

	Scope 1	Scope 2	Scope 3 - Upstream	Scope 3 - Downstream
<b>Emissions Reduction</b>	32.4%	21%	34%	34%
<b>Investment Alignment Score</b>	66.2	60.5	67	67

- Endesa SA has strong investment alignment scores, especially for scope 1, due to investments demonstrating a reduction in scope 1 emissions of 32%.
- This is due to large-scale, sustained investment in renewables and a complete phase out of coal generation.
- Emerging hydrogen and grid expansion are the next growth pillars, suggests a focus on enabling infrastructure and positioning for future low-carbon energy systems.

Activity Type	2022	2023	2024	2025	2026	2027	2028
 Energy source: Coal	0.00	0.00	0.00	0.00	0.00	0.00	0.00
 Energy source: Renewables	0.00	25.46	21.31	21.42	0.00	0.00	0.00
 Transmission and Distribution of Electricity	0.00	1.90	0.98	0.00	1.98	1.98	1.98
 Manufacture of Hydrogen	0.00	0.00	0.00	0.00	0.05	0.87	3.43

- Coal power signaled previous investment, but no future capex planning
- Large increases in renewable energy investment
- Investment in energy innovation

Values are in USD Billion

## ATCO Ltd

### Exhibit 11 North America — Activity and Scope Breakdown for ATCO

	Scope 1	Scope 2	Scope 3 – Upstream	Scope 3 – Downstream
<b>Emissions Reduction</b>	31.4%	20.8%	16.8%	21.0%
<b>Investment Alignment Score</b>	65.7	60.4	58.4	60.5

- ATCO has good investment alignment scores. The underlying data demonstrates the company maintains diversified generation investments, with hydro and renewables while natural gas sees a very large spike, suggesting reliance on gas as a transitional or capacity-supporting activity alongside expanding green generation.
- Investment in transmission and distribution rises significantly, particularly for low-carbon gas networks and electricity grids, highlighting a strategic focus on enabling infrastructure needed to integrate hydrogen and renewable energy at scale..  
Translates to strong investment alignment scores for scope 1 especially

Activity Type	2022	2023	2024	2025	2026	2027	2028
Manufacture of Biogas and Biofuels for use in Transport and of Bioliquids	0.01	0.00	0.00	0.00	0.00	0.00	0.00
High-efficiency Cogeneration of Heat/Cool and Power from Fossil Gaseous Fuels	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Energy source: Hydro	0.00	0.00	0.23	0.23	0.00	0.00	0.00
Energy source: Natural gas	0.00	0.27	0.00	0.00	3.33	0.00	0.00
Energy source: Photovoltaic	0.00	0.00	0.23	0.23	0.00	0.00	0.00
Energy source: Wind	0.00	0.00	0.23	0.23	0.00	0.00	0.00
Storage of Electricity	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Storage of Hydrogen	0.00	0.00	0.00	0.00	1.15	1.91	0.77
Transmission and Distribution Networks for Renewable and Low-carbon Gases	0.06	0.05	0.00	0.00	1.18	1.18	1.18
Transmission and Distribution of Electricity	0.07	0.06	0.00	0.00	0.53	0.53	0.53
Manufacture of Hydrogen	0.00	0.00	0.00	0.00	7.28	7.28	7.28

Investment in low carbon electricity generation like solar and hydro power is expected to increase

Investment in innovations to reduce emissions

Values are in USD Billion

Source: Morningstar Sustainability

## YTL Corp. Bhd

### Exhibit 12 Asia-Pacific — Activity and Scope Breakdown for YTL

	Scope 1	Scope 2	Scope 3 – Upstream	Scope 3 – Downstream
<b>Emissions Reduction</b>	31.2%	20.8%	17.2%	21.6%
<b>Investment Alignment Score</b>	65.6	60.4	58.6	60.8

- YTL has good investment alignment scores. The company ramps up investment in clean technology manufacturing, indicating a strategic build-out of enabling technologies rather than only asset-based generation.
- Maintains investment in gas and fossil fuels, investment is heavily front-loaded in natural gas generation. This suggests gas plays a near-term capacity or transition role rather than a sustained long-term focus.
- Translates to strong investment alignment scores for scope 1 especially

Activity Type	2022	2023	2024	2025	2026	2027	2028
Manufacture of Other Low Carbon Technologies	0.62	0.86	1.02	1.04	0.00	0.00	0.00
High-efficiency Cogeneration of Heat/Cool and Power from Fossil Gaseous Fuels	0.06	0.05	0.06	0.05	0.00	0.80	0.00
Energy source: Natural gas	2.89	3.56	0.00	0.00	0.00	0.60	0.00
Transmission and Distribution Networks for Renewable and Low-carbon Gases	0.00	0.00	0.00	0.00	0.80	0.80	0.80
Transmission and Distribution of Electricity	0.00	0.00	0.00	0.00	0.80	0.80	0.80
Production of Heat/Cool from Fossil Gaseous Fuels	0.00	0.00	0.00	0.00	0.80	0.00	0.00
Production of Heat/Cool from Renewable Non-fossil Gaseous and Liquid Fuels	0.00	0.00	0.00	0.00	0.80	0.00	0.00

Investment in low carbon electricity generation

High, but not sustained investment in gas

Investment in transmission of technology types

Values are in USD Billion

Source: Morningstar Sustainability

## About Morningstar Sustainalytics

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