



# How ambitious and credible are electric utilities' transition plans? An analysis of keystone companies in 2023

**Insights Report**

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# The 2023 Climate and Energy Benchmark for the Electric Utilities Sector

The electricity sector is at the centre of our global ambition to decarbonise the world economy by 2050. In all 1.5 aligned scenarios the sector needs to be the first to transition so that a decarbonisation wave can be mobilised across the [transport](#), [buildings](#) and heavy industries sectors. The fate of the global agreement to “limiting warming to 1.5°C” hinges on how rapidly the electricity sector can rise up to the challenge.

Over the past two years, the global energy landscape has seen a stark dichotomy, marked by remarkable growth in clean energy technologies set against increased investment in fossil fuels and persistently high emissions. The latter has narrowed the pathway to achieving the 1.5°C target, underscoring the urgency of transitioning to clean electricity generation. On a positive note, the costs associated with deploying renewable energy generation have significantly decreased. In 2022, the global weighted average cost of electricity for new onshore wind projects was 52% less than the cheapest fossil fuel-fired solutions. Likewise, solar photovoltaic (PV) energy costs were 29% lower than the least expensive fossil fuel-fired solution ([IRENA 2023](#)). This reduction in costs makes the shift away from fossil fuel-based energy both timely and economically advantageous. The imperative for embracing clean energy has never been more pressing, aligning cost-effectiveness with environmental sustainability.

The electricity sector needs to progress at substantial speed, with developed economies leading the way and emerging economies following closely as they have little slack if we are to realise our global decarbonisation ambition. Developed nations must take the lead by committing to phase out coal by 2030 and unabated fossil gas by 2035, setting a precedent for transitioning to cleaner energy sources. At the same time, while recognising that the pace of action may vary in emerging economies, they too need to partake in the shared responsibility and strive towards eliminating coal and unabated fossil gas from electricity generation by no later than 2045.

This required decarbonisation pace for electricity companies is non-negotiable, with the sector representing about 25% of global total emissions in 2022. In fact, it is a physical imperative if humanity aims to keep the long-term impacts of climate change within tolerable levels, including outcomes like sea level rise and ecosystem impacts. At the same time, it is important for the sector to not lose sight of the impacts on the social system accompanying the fast-paced decarbonisation, as there will be winners and losers in any transition. In the electricity sector, the integration of renewables is already creating additional employment opportunities. However, the necessary phasing out of fossil fuel energy underscores the importance of ensuring a just transition for those who are impacted by the changes this transition brings.

This report presents the five key findings from the 2023 Electric Utilities Benchmark and a technical summary of the findings from the ACT assessment modules covering key elements of companies’ low-carbon transition plans. The findings are designed to provide investors, civil society and policymakers – as well as companies themselves – with the insights needed to take responsible and effective action.

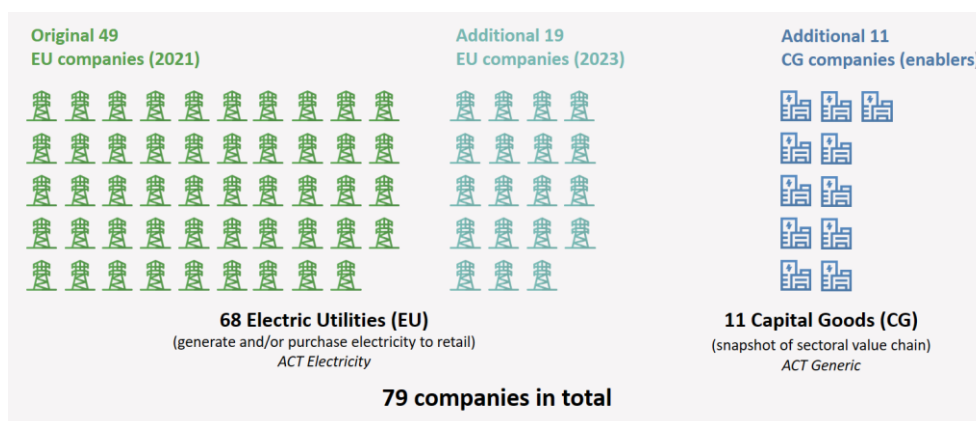


WBA's mission is to build a movement to measure and incentivise business impact towards a sustainable future that works for everyone. Working with about 350 organisations in our Alliance, we envision a society that values the success of business by what it contributes to the world. To achieve this, we need all actors in the ecosystem to drive the needed transformations. If you have any feedback on our findings, please reach out to Vicky Sins, Decarbonisation and Energy Transformation Lead at WBA: [info.climate@worldbenchmarkingalliance.org](mailto:info.climate@worldbenchmarkingalliance.org)

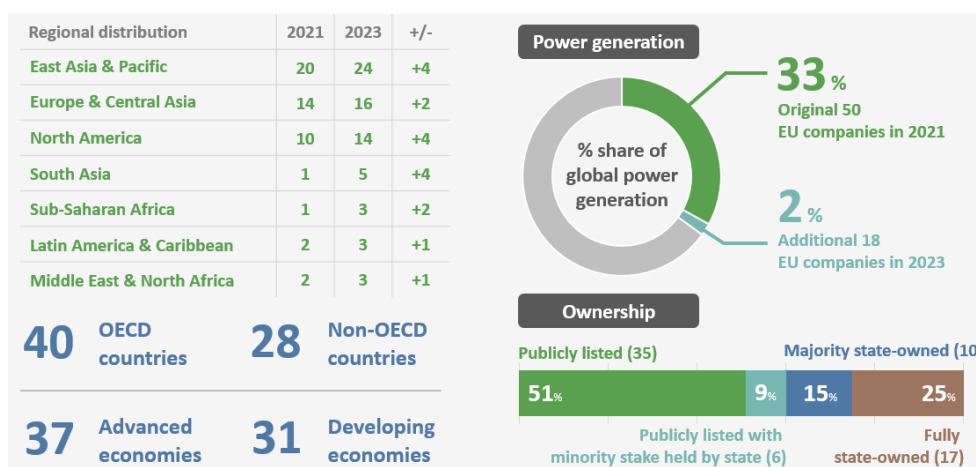


# Keystone companies in the 2023 Electric Utilities Benchmark

The 2023 Electric Utilities Benchmark has expanded in scope compared to the 2021 edition, aiming to improve coverage and account for a substantial share of global electricity generation. The 2023 benchmark has assessed 68 electric utilities, a notable increase from the 50 companies assessed in 2021 (of which 49 have been reassessed in 2023).



The benchmark focuses on companies engaged in the generation and/or retailing of electricity. The 18 new companies added to the benchmark enhance coverage in emerging markets and developing economies (EMDEs), particularly in South Asia, and to a lesser extent, Sub-Saharan Africa. In doing so, the benchmark covers a nearly equal number of advanced economies as EMDEs and, consequently, the share of global electricity generation covered in the benchmark has risen from 34% to 36% in 2022. In terms of ownership structure, the benchmark is dominated by publicly listed companies, but it also captures a good proportion of fully state-owned companies and includes other degrees of joint company ownership.



Against a backdrop of expanding demand for clean energy and the need to heavily invest in grid infrastructure to avoid distribution bottlenecks, it is imperative to have a more holistic understanding of the climate performance of the energy sector along its entire value chain. To reflect this, 11 capital goods companies supplying electric utilities with renewable energy generation technologies and grid



solutions and technologies have been included in the 2023 benchmark, providing a first snapshot of the climate performance of the electricity sector's value chain. The evaluated companies include six renewable energy technology manufacturers responsible for 41% of the installed wind and solar power capacity in 2022. In addition, five integrated companies supplying grid-enabling businesses, such as transformers, digitisation as well as transmission and distribution, are also considered. These integrated companies are large in size, each with over 100,000 employees, and are leading players in the power grid solutions market.

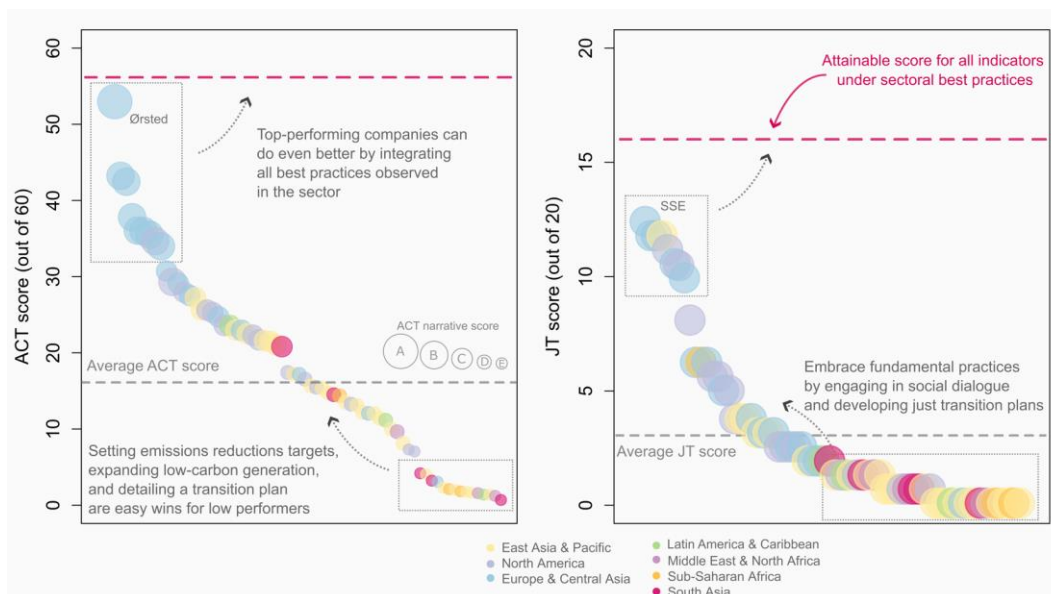
Despite the addition of these companies, the focus of this insights report is very much related to findings for the electric utility companies. All companies are evaluated with regard to their climate performance – the Assessing Low-carbon Transition (ACT) assessment – and social performance – the Just Transition Indicators (JTI) and Core Social Indicators (CSI); see the 2023 [Electric Utilities Benchmark methodology](#).



# Results

The average score for the 68 companies benchmarked in 2023 stands at 26.0 out of 100, with a median score of 25.1. A breakdown reveals that the ACT score contributed, on average, 17.7 points (out of 60) to the final score, while the social performance averaged at 8.3 points (out of 40).

The ranking of companies along their respective ACT score (out of 60) shows a concentration of companies headquartered in Europe and North America at the top of the distribution. Companies with below-average ACT score are dominated by companies headquartered in East Asia & Pacific, joined by those in South Asia the very bottom of the performance rank.



All of the top-ten companies evaluated have an ACT score that is above 30, meaning that the companies attain 50% or more of the maximum available score. Despite their relative position as sectoral leaders, more should and can be achieved. A maximum ACT score of 56.2 (determined via the sum of the best scores at the indicator level) is plausible under current practices, assuming top companies can replicate each of the best indicator performance observed throughout the sample.

For companies ranking very low, bridging the gap to the average ACT score can be achieved through relatively simple steps. Key actions include setting near and long-term emission reduction targets and transparently disclose their low-carbon capital expenditures. Developing a detailed transition plan is an attainable first step for organizing and operationalizing the company's vision for a cleaner future, together with specific commitments to expanding a company's low-carbon generation portfolio.

For the case of JT scores (out of 20) about 37% of the companies do not score higher than 1, indicating the long way to go in even accounting for the most basic principles of the just transition/reporting. A maximum JT score of 16.3 is plausible under current practices but the best performing company in just transition achieves only 12.5. The gap is telling that even at the "top end" of the ranking more is indeed possible.

For companies with low scores on their efforts towards a just transition, they can bridge the gap by taking key first steps. Engaging in social dialogue is crucial to ensuring that efforts towards a just transition meet the needs and desires of workers and affected stakeholders. These connections can be



further leveraged by companies to plan for a just transition together with workers and unions, ensuring that the transition happens in a way that benefits everyone involved.

It's worth noting that the 2023 benchmark evaluates 18 more companies than in 2021. The ACT methodology has been updated after a multistakeholder consultation, and scoring practices for Just Transition Indicators have been enhanced. As a result, a direct comparison with the 2021 results may not fully reflect sector trends and performance. Still, Ørsted retains the top-place of with the highest score of 70.0 (out of 100), while a quarter of the companies scored below 20 (out of 100). The average score for the 68 companies benchmarked in 2023 stands at 26.0 out of 100, with a median score of 25.1. A breakdown reveals that the ACT score contributed, on average, 17.7 points (out of 60) to the final score, while the social performance averaged at 8.3 points (out of 40).

By ownership	ACT (60%)	Social (40%)	Total	By capacity	ACT (60%)	Social (40%)	Total
Majority state-owned (10)	21.4	9.2	30.6	>51.5 GW (17)	16.2	7.8	24.0
Publicly listed (35)	20.7	9.7	30.4	26-51.4 GW (17)	18.1	8.3	26.4
Publicly listed with minority stake by state (6)	18.7	10.8	29.5	11.6-25.9 GW (17)	18.9	8.9	27.8
Fully state-owned (17)	8.9	4.2	13.1	<11.5 GW (17)	17.4	8.4	25.8

■ 2023 ACT Score    ■ 2023 Social Score

Fully state-owned companies displayed significantly lower average scores than other types of companies. This was true for both the ACT as well as the social assessment. The 17 fully state-owned companies received an average ACT assessment score of 8.9 and a social assessment score of 4.2. These scores were about two times lower than those observed for companies that are majority state-owned. The latter had an average ACT assessment score of 21.4 and a social assessment score of 9.2. The scores for publicly listed companies are similar to those observed for majority state-owned companies. Publicly listed companies with a minority state participation received the best social assessment score – 10.8 on average. The overall poor performance of fully state-owned companies in the 2023 Electric Utilities Benchmark echoes the findings of the [2023 Oil and Gas Benchmark](#), where fully state-owned companies also obtained the worst scores compared to other types of company ownership structures.

There is no discernible direct relationship between company size and score. Categorising companies into four bands based on their installed energy generation capacity, the total average score across all bands ranged from 24.0 to 27.8, with an ACT assessment score ranging from 16.2 to 18.9 and a social assessment score ranging from 7.8 to 8.9. Consequently, the ownership structure of electric utilities is far more relevant as a determinant of their climate and social performance than company size.





By region	ACT (60%)	Social (40%)	Total	By status	ACT (60%)	Social (40%)	Total
Europe & Central Asia (16)	30.3	16.0	46.3	OECD (40)	24.1	11.7	35.8
North America (14)	20.5	10.1	30.7	<u>Non OECD</u> (28)	8.5	3.6	12.1
East Asia & Pacific (24)	13.3	4.8	18.1	By status			
Latin America & Caribbean (3)	12.0	5.6	17.6	Advanced Economies (37)	24.8	12.0	36.8
South Asia (5)	8.7	4.5	13.2	Developing Economies (31)	9.2	4.0	13.2
Sub-Saharan Africa (3)	6.1	4.1	10.2				
Middle East & North Africa (3)	4.2	1.5	5.7				

■ 2023 ACT Score    ■ 2023 Social Score

Regionally, companies headquartered in Europe and Central Asia had the highest scores, with an average of 46.3 — eight times higher than the average score of companies headquartered in the Middle East and North Africa, which scored a mere 5.7 (although only three companies included in the benchmark originate from these regions). Companies based in North America ranked second with an average total score of 30.7, while those in East Asia & the Pacific and in Latin America & the Caribbean followed with scores of 18.1 and 17.6 respectively.

The regional differences point at a strong association between the ACT and social assessment scores and the level of economic development where the company is headquartered. Companies with headquarters in developed economies attained average scores of 24.8 and 12.0 for the ACT assessment and social assessment, respectively. The same assessment for companies with headquarters in developing economies yielded average scores of 9.2 and 4.0, respectively.



# Five key findings

The subsequent sections present the key benchmark findings for the electric utility companies, outlining primary challenges and opportunities for achieving a just low-carbon transition in the sector.

## Key finding 1: Wind and solar power advances signal the beginning of the transition from fossil fuel dominance.

**Wind and solar power advances have surged, signalling the end of fossil fuel dominance. The share of wind and solar power generation across the 68 electric utilities almost doubled to 7% between 2017 and 2022. If companies maintain this momentum, solar power generation will increase seven times by 2030, surpassing the IEA's Net Zero Emissions (NZE) requirements. Wind power generation has also seen substantial but slower growth, with current rates likely to fall short of the minimum threefold increase in wind power required in the current decade.**

A rapid shift from fossil fuels is crucial to limiting increase in global temperatures to 1.5°C. According to the International Energy Agency's (IEA's) NZE Roadmap, by 2030, global renewable energy capacity must triple and 40% of electricity should be wind and solar powered – compared to 9% in 2020 (IEA 2023). In contrast, electricity generated using unabated fossil fuels must decline by 40% in the current decade. Unabated coal power generation (responsible for 30% of global emissions in 2022) needs to be cut by more than half by 2030 and phased out globally by 2040.

### The growth of wind and solar

There has been significant momentum towards renewables in the last five years, in particular solar and wind power as these hold the largest unlocked global potential to raise the share of clean electricity generation in line with the IEA's NZE Scenario. Among the 68 companies evaluated, the combined share of wind and solar electricity generation increased from 4% to 7% between 2017 and 2022. Wind power generation nearly doubled to 647 terawatt-hours (TWh) during this period, while solar power more than tripled from 23 TWh to 80 TWh. This progress was driven by companies headquartered in China, Europe and North America. For instance, ENGIE, based in France, quadrupled its wind power generation during 2017-2022. If companies maintain their current pace, they will generate seven times more solar electricity in 2030 than in 2022, exceeding the IEA's requirement for a six-fold increase. Wind generation is projected to increase 2.4 times by 2030, but this will still fall short of NZE Scenario of more than a threefold increase.

### The tide is turning on fossil fuels

Current trends indicate that fossil fuel dominance is waning. Between 2020 and 2022, the 68 assessed companies commissioned wind and solar power projects with a total capacity of 88 gigawatts (GW), surpassing the 85 GW capacity of coal and gas power projects. Of the 60 companies that generated coal power in the last five years, 39 (65%) burned less coal in 2022 than in 2017 and 26 (43%) companies showed a significant coal power reduction of over 25%. Two companies – Iberdrola and SSE – completely phased out coal during this period. Overall, the coal power generation share of companies headquartered in advanced economies declined by 6%.



Globally, coal still represents the largest source electricity, accounting for 44% of the 68 companies' power generation. Coal-fired power generation only declined significantly for companies headquartered in Europe and North America, where growth in coal electricity generation has stagnated. Just four companies headquartered outside these regions (CFE, KEPCO, Power Assets and Tata Power) demonstrated at least a 25% reduction in coal power. Declines in Europe and North America were offset by increases in coal power elsewhere. The six companies in Mainland China included in the benchmark, where the IEANZE Scenario requires the electricity sector to reach net zero around 2040, have grown coal generation by 20% since 2017, from 2,260 TWh to 2,716 TWh. The coal generation from these six companies alone was equal to 89% of the low-carbon electricity generated by the 68 companies together in 2022.

### **Emerging markets and developing economies face significant challenges**

Electricity demand is expected to see the most significant growth in emerging markets and developing economies (EMDEs). In 2022, companies headquartered in EMDEs, excluding China, contributed 18% of the total electricity generated by the 68 companies together. The IEA NZE requirements set a deadline of 2045 for the electricity sector to achieve net zero in EMDEs. However, total wind and solar power generation only accounted for 0.5% of these companies' total generation in 2022. Although solar power generation among companies in EMDEs almost tripled, driven by companies in India and the Middle East (NTPC, Qatar Electricity and Water Company, and Tata Power), wind power generation only grew by 7% between 2017 and 2022. Despite having some of the youngest fossil fuel power plants, companies operating in EMDEs must commit to significantly increase investment in and prioritise the expansion of low-carbon energy generation. Otherwise, they will fail to decarbonise at the rate required to reach net zero before 2045.

### **Companies should not rely on gas to transition in the long term**

It is essential that companies avoid transitioning to gas in the long term while phasing out coal. All 14 of the North American companies assessed in the benchmark increased their gas-based generation between 2017 and 2022. Despite doubling wind and solar power generation, their share of fossil fuel generation remained unchanged, with the share of gas increasing from 28% to 35%. Europe-based companies have also seen a slight growth in their gas share, from 26% to 28%. Companies cannot afford to commit to using unabated high-carbon assets like gas in the long term, particularly in advanced economies where the power sector is required to reach net zero by 2035.

The increasing adoption of wind and solar power indicates a turning point. However, the global electricity sector still relies heavily on fossil fuels. The sector must take urgent action to transition to renewable energy sources, especially wind and solar power, to limit global temperature increase to 1.5°C.



## Key finding 2: Despite setting transition plans in motion, electric utilities' current commitments and investments show insufficient ambition.

**Electric utilities must lead decarbonisation efforts to enable other sectors to follow suit. Despite positive trends over the past five years, evidence shows that electricity companies have not yet committed to keeping up the required pace of change. Companies' emissions reduction targets lack sufficient ambition and their commitments to increase low-carbon energy and decrease fossil fuel capacity fall short in both scale and speed. Additionally, companies are not disclosing their investments towards making their low-carbon commitments a reality. These factors raise doubts about the sector's ability to successfully transition within the necessary timeframe.**

### Targets as drivers of change

Decarbonisation of electricity is a key mechanism to reduce emissions across all sectors. However, to date, only ten of the electric utilities assessed in the benchmark, accounting for just 5% of emissions, have set net-zero targets in line with the IEA's recommendations. One-fifth of the assessed companies, accounting for 45% of emissions, have not set any targets. The knock-on effects of inadequate targets can be seen in the companies' transition strategies, which lack sufficient commitments.

### Increasing renewables

Over the previous five years, approximately two-thirds (44) of the assessed companies have made commitments to increase their low-carbon energy capacity. These commitments will see renewable and nuclear power capacity increase by 432 GW by 2030 and a further 141 GW beyond 2030. While this represents a significant increase from the current installed low-carbon capacity of 820 GW (a 53% increase by 2030 and a 70% increase including commitments beyond 2030), the rate of growth falls far short of the IEA's NZE requirement of 300% growth by 2030.

Among the 68 companies assessed, the 16 companies headquartered in Europe have the highest commitment, to grow renewables capacity by 319 GW by 2030 – an increase of 108%. In contrast, public commitments made by companies in East Asia & the Pacific to grow renewables is much smaller, at 45 GW or 14% increase from the installed capacity of 321 GW in 2022. Proportionally, the most significant growth is expected from companies headquartered in South Asia, with a planned increase of 73 GW, a remarkable 557% growth from the 13 GW capacity observed in 2022.

### Reducing coal

Next to increasing their share of low-carbon energy, it is critical that electric utilities reduce their reliance on fossil fuels, particularly coal. Of the 60 companies in the benchmark with coal power generation, 26 have committed to phase out coal. Compared to the 2021 benchmark, nine companies have moved their coal phase-out dates forward (by 3-13 years) and four companies have set new coal phase-out targets. However, at least two companies have pushed back their targets. Seven of the 18 companies assessed for the first time have coal phase-out targets.

The IEA NZE Scenario requires advanced economies to phase out unabated coal by 2030. Given that coal represents just 19% of the total generation capacity for the assessed companies headquartered in advanced economies, this seems to be within reach. In total, 21 companies (out of 35 with coal power generation headquartered in advanced economies) have set phase-out dates, and two-thirds of these aim to do this by 2030 or earlier. A further four companies have pledged to reduce coal dependence



but not yet committed to a phase-out. However, these commitments will only see a 26% reduction in coal energy generation from the current capacity (240 GW) by 2030.

For companies headquartered in EMDEs, including China, where the IEA NZE Scenario requires phasing out unabated coal by 2040, 56% of the generation capacity is dependent on coal. Just two companies (CLP Group and Power Assets, both headquartered in Hong Kong, China) have committed to phasing out coal by this date, a combined reduction of just 11.5 GW from the current 769 GW coal capacity of companies headquartered in EMDEs. Commitments beyond 2040 still only account for an expected total reduction of 46 GW or 6%. The top five companies by coal capacity are all located in China and represent 58% of the total coal energy capacity of the assessed companies. None of these five companies have set a coal phase-out date.

Together, the commitments put in place by the 68 companies to reduce coal dependence equate to a 6% reduction by 2030 and a 17% reduction by 2040 from the current coal capacity of 1,008 GW. It also remains unclear how many companies have plans to increase installed coal capacity. This uncertainty raises questions about whether the committed reductions in coal power generation will be negated by potential increases, as has been observed for some companies over the past five years.

### Finances

To demonstrate the credibility of their transition plans, companies should support their stated commitments with clear financial planning. Though 37 companies include some financial details in their transition plan, only 29 report low-carbon capital expenditure (CapEx) for the next three years. Some of these companies clearly demonstrate how they will achieve this transition; Ørsted has committed 100% of its CapEx to low-carbon technologies, SSE 90% and AEP 88%. However, the average low-carbon CapEx share for the assessed companies is just 54%, which is significantly lower than the sectoral requirement of 95% and creates doubt around how companies plan to fund their low-carbon transition.

It is clear that to achieve the pace and scale of the required transition, companies must increase the ambition of their targets. They must commit to developing new low-carbon energy capacity and to phasing out all fossil fuel capacity to achieve these targets. Furthermore, they must allocate enough funding to make these goals a reality.

### Key finding 3: The rise of renewables may be hindered unless energy storage and demand response grows to match it.

**Next to expanding renewables and phasing out fossil fuels, companies should look to investing in other areas to future-proof their transition. The companies assessed in the benchmark are well placed to contribute to improving the flexibility and resiliency of the power grid by expanding solutions such as demand response and battery storage. However, currently too few companies are investing significantly in these vital solutions that will be needed to stabilise a more variable supply of renewables brought online.**

As companies transition their core business models away from fossil fuels towards solar and wind power, electricity system flexibility needs to increase in order to accommodate the increased variability in supply. The IEA identifies energy storage and demand response as the two most important solutions to provide this flexibility.



## Energy storage

Stationary battery storage is likely to be the primary form of energy storage, and the IEA's NZE Scenario requires massive growth in battery storage capacity from 45 GW in 2022 to around 1,020 GW in 2030 and 4,200 GW in 2050. Alongside improving flexibility, battery storage also brings potential economic benefits to renewable electricity generators as it reduces renewables curtailment (when supply outstrips demand). Only 31% of the companies in the benchmark are building battery storage capacity and disclose plans to grow this business model. Some companies are planning significant growth in battery storage capacity, for example Engie, which currently has a capacity of 0.05 GW, plans to expand this to 10 GW by 2030, and JSW Energy which had no storage capacity in 2022 plans to reach a capacity of 3.4 GW by 2024. However, more investment will be needed to push the growth of battery storage in line with the IEA requirement.

Many of the companies are in a strong position to influence energy use patterns as they sell electricity directly to customers, both business and residential. Of the benchmarked companies, 35% are investing in rolling out smart meters to customers, an important first step in improving load visibility and increasing customer awareness of electricity use. However, far fewer companies (less than 10%) are actively investing in technologies and programmes that build on this improved data availability to influence demand patterns and increase the resilience of electricity supply.

## Demand response

Demand response programmes enhance flexibility by incentivising customers to shift demand to help balance out daily peaks and troughs in electricity supply. However, very few companies in the sample have established such programmes, which need to grow significantly to contribute to the flexibility required to incorporate the tripling of renewables capacity under the IEA NZE Scenario. Companies like Enel are leading the way, with a well-established demand response programme which already has 8.5 GW under management and plans to expand this to 12.4 GW by 2025. Under the NZE Scenario, 500 GW of energy in the market by 2030 needs to be managed using demand response, equivalent to almost 15% of installed renewable energy capacity in 2022.

The assessed companies are well positioned to contribute to the building of a 21st century electricity system, especially through measures to influence demand and contribute to capacity firming. However, as of now, too few companies are looking beyond their core electricity generation business to invest in these solutions and build the grid flexibility needed to ramp up renewables, retire fossil fuel assets and transition to a low-carbon future.

## Capital goods snapshot

Manufacturers in the renewables sector, specifically in solar and wind power, have made substantial strides in reducing greenhouse gas (GHG) emissions intensities per unit of energy capacity manufactured. Between 2018 and 2022, manufacturing intensities witnessed a significant decline of 31% and 21% for solar and wind, respectively.

## Direct emissions

Despite the substantial growth in wind capacity manufacturing observed from 2017 to 2022, direct emissions for most of the evaluated manufacturers of wind power decreased within the same timeframe, aligning with a 1.5°C trajectory. In 2022, 41% of the global wind power capacity installed in 2022 originated from these companies. Despite observed improvements in emissions intensities, solar power capacity manufacturers experienced a rise in direct emissions across all companies. The 400% surge in solar capacity manufacturing from 2018 to 2022 poses a significant challenge for companies to reduce emissions amidst such substantial increases in activity.



Direct emissions for all integrated companies evaluated in the benchmark were also found to be aligned with a 1.5°C trajectory between 2017 and 2022. Of the five integrated companies, ABB, Eaton and General Electric commit to achieving “carbon neutrality” for their operations as early as 2030.

### Supplier and client engagement

Given that about 90% of total emissions from manufacturers of renewable energy are located upstream - and a similar percentage for integrated companies can be found up- or downstream - it is important that all companies establish strong supplier and client engagement underpinned with specific emissions requirements. When it comes to establishing mandates and actions for emissions reductions with suppliers and clients companies show distinct stages of commitment.

Three solar capacity manufacturers (Canadian Solar, First Solar and Trina Solar) have initiated supplier engagement but need to ensure consistency in translating their strategies into tangible actions for substantial emissions reductions. Among the wind capacity manufacturers, Siemens Gamesa stands out with a specific commitment to contractually engage 50% of its suppliers in the Science Based Targets initiative (SBTi) by 2040.

For integrated companies, supplier engagement was found to hinge primarily on information collection without direct evidence of activities that demonstrably influence suppliers to reduce their emissions. But some integrated companies go further. Schneider Electric provides suppliers with digital tools to measure emissions and takes actions such as minimizing GHG leakage with its clients while also instituting circular business model and offering renewable power generation.

### Key finding 4: The electric utilities sector shows that all fundamentals of a just transition are possible, but good practices should be adapted and implemented more broadly.

**The electric utility sector shows that a just transition is possible. Each of the just transition sub-indicators has been met by at least one company in the benchmark, showcasing real-world good practice across the industry. However, no individual company brings meets all the fundamental indicators of a just transition. The best performing company, SSE, only scores 12.5 points out of 20 in this area, and the average score for companies on the just transition assessment is only 2.8 out of 20.**

Companies should adhere to all basic principles of a just low-carbon transition, including respect for workers, communities and vulnerable groups. This helps ensure that all affected groups end up benefiting along with the company as it decarbonises its business. The benchmark results show that every sub-indicator of the just transition methodology can be met in the real world, with individual companies showcasing good practices in different areas. However, these indicators only constitute the fundamentals of a just transition, covering the aspects that are shared across all high-emitting sectors. The topics covered by these indicators should be further adapted and expanded on to meet the local conditions and needs of the community and workers that are impacted, to enable just transitions in every context. This is because what constitutes a just transition depends on the relevant local conditions and stakeholders in each location, and the ways in which their social protection may be impacted.

Good practice cannot necessarily be directly copied from one place to another. To meet the needs of their stakeholders and make the transition *actually* just, companies need to use social dialogue to



understand the needs of their relevant stakeholders and negotiate a plan for the transition together with them to ensure it is successful. Currently, only 31% of the electric utilities are committed to engaging in social dialogue, and only 22% disclose what categories of stakeholders they engage with on the topic of a just transition. This indicates how far the sector still has to go to meet even the first steps of a just transition.

The assessment also looks at advocacy for a just transition to see how companies work with the topic beyond their immediate operations. Only 15% of the benchmarked companies disclose their processes for understanding the alignment of their lobbying activities with wider policies and practices that support a just transition, and only three companies (4%) demonstrate that they lobby, either directly or through trade associations they are part of, for just transition policies and green, decent jobs.

### **A just transition for everyone**

Companies need to leverage all of the impact they can have, not only over their own operations, but also in their business relationships and in partnerships with others, to have a good chance at ensuring a just transition. Furthermore, beyond taking the steps to make the transition inclusive, a just transition needs to be underpinned by respect for human rights. Currently, only 54% of the companies have public commitments to respect human rights, while only 9% of companies show a complete human rights due diligence process. The benchmark results highlight a gap between corporate commitments to respect human rights and the processes companies have in place to ensure this in practice.

#### **Commentary from the Business & Human Rights Resource Centre: Human rights and corporate accountability in a just energy transition**

A just transition requires respect for human rights in both the urgent move away from fossil fuels and the shift towards renewable energy. This transformation offers immense opportunities for the private sector and governments, as well as for the communities and workers upon whose support the global energy transition depends. Nevertheless, the required speed and scope of the transition comes with risk of real harm that can hollow out public trust.

A critical step for companies in the energy sector while undertaking the move away from fossil fuels, is to adopt credible and just transition plans that integrate the rights of workers and communities. These plans must be developed through social dialogue and include comprehensive upskilling and retraining programmes for workers affected by the transition. While some big players are beginning to recognise the imperative for a just transition and are undertaking practical steps, such as forming agreements with unions to transition workers into the renewable energy field, we need more companies to follow suit.

On the other hand, the move towards renewable energy generation, can bring with it threats to the environment, livelihoods, land rights, indigenous peoples' rights and culture, and labour rights. Some of these threats are already emerging across new project developments and in supply chains. As the [2023 Renewable Energy & Human Rights Benchmark](#) demonstrates, the human rights policies and practices of both project developers and key equipment manufacturers need to be strengthened in order for the energy sector to deliver a just transition. Rights-based business operations, and a commitment to the [key principles](#) that must underpin the massive and rapid overhaul of global energy production – shared prosperity, human rights and social protection, good-faith negotiations





by government, companies, and their investors offer a path to an energy transition that is both fair and fast.

### **Key finding 5: Companies need to bring their workers along to make it a just transition.**

**Companies in the electric utilities sector show commitments to job creation and skills development for their workers as part of the low-carbon transition, with 33% being committed to creating new, green and decent jobs and 36% committing to reskill their existing workers to make sure they have the skills needed to participate in the low-carbon transition. While commitments like these are important, companies need to step up action in the area. Only two of the companies assessed in this benchmark disclose their processes to understand the employment dislocation risks or skills gaps that may emerge as they decarbonise.**

Workers are at the centre of making the low-carbon transition just, as the work they perform itself may change drastically as businesses decarbonise. As such, respect for workers is central to a just transition. The expansion of renewables will bring with it different jobs from those available today, requiring new skill sets from workers. If companies cannot ensure they have workers with appropriate skill sets, their efforts to expand renewables and decarbonise their businesses may be at risk. Only one company in the benchmark, Xcel Energy, discloses its process for identifying skills gaps that may emerge in the low-carbon transition. Having such a process enables a company to understand the skills needed to make its low-carbon transition plans a reality.

#### **Considering existing workers**

Similarly, only one company in the benchmark, American Electric Power, assesses and discloses the risk of employment dislocation caused by its planned low-carbon transition, which refers to the impact that its changing business may have on current workers and where they may become redundant as a result. It is important for companies to understand such risks, as while the jobs created by the energy transition are estimated to outweigh the losses (IEA, 2023, p.192), the jobs created may be in different locations from the ones that are lost, which would entail both winners and losers in the low-carbon transition. Knowing where employment dislocation may happen allows companies to plan how to address this in proactive ways, which can reduce the social protection gap emerging with unemployment or underemployment. Twelve electric utility companies (16%) in this benchmark have contributed to closing the social protection gap for workers, in particular in relation to plant closures, through the good practice of including job severance packages. However, while this support is crucial to the workers, it comes in the wake of changing business and should not be relied upon as a substitute for proactive investments that can effectively take the same workers along in the energy transition, reskilling and upskilling them to take on the new, green jobs that are created.



### **Case study: American Electric Power (AEP) and Xcel Energy**

Only two companies assessed in the benchmark meet either indicator 3b: assessing and disclosing the risks of employment dislocation caused by the low-carbon transition, or indicator 4b: disclosing its process for identifying skills gaps for workers and affected stakeholders in the context of the low-carbon transition. AEP meets indicator 3b as it discloses the estimated impact of the closure of its coal plants on employment dislocation, for its own employees as well as on local employment in the concerned communities. The company reports an analysis of the various types of impact a plant has on the local economy. They show an understanding of how closure may have both direct and indirect impacts on jobs and the local economy, and further induced changes on consumer spending, in the local economy. Furthermore, the company estimates the economic impact at each of these levels which helps .

To understand the full range of impacts that plant closures may have on the local community, including induced changes is crucial as power plants are often large local employers with a considerable impact on the local economy. The former workers of closed power plants often possess skills that may not be fully applicable to the community after the plant has closed, limiting their avenues for future employment. Xcel Energy meets indicator 4b by showing its process to identify skills gaps as part of the plans for its workforce, embedded within a comprehensive plan for the future of its business and the future roles of various forms of energy and associated emissions. Here, understanding the potential skills gaps helps the company ensure that its energy transition planning can proceed according to plan, and that it can upskill people before the lack of suitable skills impedes the company's expansion of certain renewables.

These disclosures from Xcel Energy and AEP, and in particular how they are embedded into the companies' reporting on broader topics, show that these companies have an understanding for how social impacts are linked to the process of decarbonising their business.



# Technical summary

This technical summary provides an in-depth look into the ACT assessment results of the 2023 Electric Utilities Benchmark. The summary is arranged by topic, drawing on analyses from the individual ACT performance modules and indicators. The table below outlines which modules and indicators are discussed in each topic.

For more information about ACT performance score, please refer to the [ACT electricity methodology](#).

TABLE 1: MAPPING OF TECHNICAL SUMMARY TOPICS AND ACT PERFORMANCE MODULES AND INDICATORS

Technical summary topic	ACT modules/indicators
<b>Targets</b>	Module 1
<b>Emissions performance</b>	Indicators 2.1, 2.2, 2.3, 4.1, 4.2 and 4.3
<b>Investment</b>	Indicator 2.4 and Module 3
<b>Climate oversight and governance</b>	Indicators 5.1, 5.2, 5.4 and 5.5
<b>Transition planning and scenario analysis</b>	Indicators 5.4 and 5.6
<b>Supplier and client engagement</b>	Modules 6 and 7
<b>Trade associations and policy engagement</b>	Module 8
<b>Low-carbon business activities</b>	Indicators 4.4 and 4.5 and Module 9

## Targets

A public-facing decarbonisation target is an indication of corporate commitment to reducing emissions. Companies without ambitious targets appear unlikely to be committed to decarbonising, and therefore this indicator has a high impact on the likelihood of a successful low-carbon transition. Targets provide a direction to which companies can align their strategy, capital expenditure, and research and development to deliver emissions reductions.

The emissions reduction targets set by the assessed electric utilities fall short of what is needed to drive a low-carbon transition at the required scale and speed. Of the benchmarked companies, a fifth are yet to set any target and almost a third have not set a net-zero target for their scope 1 and 2 emissions.

### What targets have been set?

Out of the 68 electric utilities assessed in this benchmark, 78% have publicly disclosed an emissions reduction target. Those without any targets represent over 35% of the total electricity generation and 45% of emissions for the companies included in the benchmark. This includes four of the five largest companies by electricity generation (CHN Energy, China Huaneng, China Huadian and State Power Investment Corporation), all headquartered in China, which account for over 27% of the total electricity generated by the benchmarked companies. The remaining companies with no emissions targets, accounting for 8% of electricity generation, come from emerging markets and developing economies (EMDEs).

Of the 49 companies reassessed in the 2023 benchmark, after being included in the 2021 benchmark, twenty companies have set new targets or improved the ambitions of their targets. In 2021, 27 (55%) of the companies had a net-zero emissions target. In 2023, the number of companies with net-zero targets reached 73%, as nine of the reassessed companies have set new net-zero targets. Additionally, eight companies have improved the ambition of their net-zero targets, six of which have accelerated



their target by ten years or more. One of these companies, Fortum, has brought forward its net-zero scope 1, 2 and 3 emissions target from 2050 to 2030, showing a strong commitment to a nearer-term transition away from fossil fuels.

As per the IEA's NZE Scenario, the electricity sector should reach net-zero emissions in advanced economies by 2035, in China around 2040 and globally before 2045. In the 2021 assessment, 8% of the companies had net-zero targets aligned with the IEA's recommended timeframe. In the 2023 assessment, this has grown to 15%, with ten companies meeting the IEA recommendation. However, these ten companies only represent 10% of the total electricity generation of the benchmarked companies.

### **Are the targets ambitious enough?**

To determine whether a company's target is aligned with its 1.5°C pathway, and is therefore sufficiently ambitious, the ACT electricity methodology requires a company to disclose sufficient detail on each target. In the 2023 assessment, only 27 (40%) companies disclosed enough information for their targets to be assessed.

Targets are a meaningful metric for companies' internal planning towards a transition, both in the near- and the long-term. Near-term targets cover the ten-year period after the reporting year, i.e. from 2022 up to 2032, and long-term targets look beyond this period, i.e. from 2033 onwards. In the 2023 benchmark, eight companies (12%) were found to have near-term emissions reduction targets for their own electricity generation aligned with a 1.5°C pathway. Out of these eight companies, Ørsted stands out with its aim to reduce its scope 1 and 2 emissions by 98% by 2025, compared to a 2006 baseline. Only three companies in the benchmark have long-term scope 1 and 2 emissions targets that are aligned with a 1.5°C pathway, including E.ON and Enel which have net-zero targets for 2040 and Tata Power which has one for 2045.

Companies that purchase a significant amount of the electricity they sell should also set targets for scope 3 (category 3: Fuel- and Energy-related activities not included in scope 1 or scope 2) emissions associated with the generation of their purchased electricity. Of the 41 (60%) companies in this benchmark that purchase over 5% of their sold electricity, 26 (38%) have a target that covers their scope 3 emissions. Although 24 companies have a target for net-zero scope 3 emissions, only one company, Enel, has a long-term, net-zero scope 3 target for 2040 that is aligned with a 1.5°C pathway. Further, two companies, Eletrobras and Engie, have net-zero scope 3 targets that closely follow a 1.5°C pathway but do not fully align due to the use of offsets. Although the sector lacks long-term scope 3 emissions targets more generally, two companies with significant electricity purchases, EDF and EDP, have aligned near-term targets for their scope 3 emissions with a 1.5°C pathway. EDP is aiming for an 80% reduction in its scope 3 emissions intensity by 2030, compared to 2020 levels.

Another element assessed in the benchmark is the time horizon of these emissions targets. The ideal set of targets should be forward-looking enough to cover the lifetime of the majority of a company's electricity generation assets and should include sufficient interim targets that incentivise action in the present. Of the companies assessed in 2023, 42 (62%) have set targets that cover the lifetime of the majority of their generation assets. However, only one company in the benchmark has both a long-term target and clearly defined interim targets at gaps of no more than five years: NextEra Energy aims to reach net-zero across its scope 1 and 2 emissions by 2045 and has four interim targets to ensure its long-term success. When assessing targets, the ACT methodology also measures companies' historic target achievement and current progress towards active emissions reduction targets. In total, 20 (29%) companies in the 2023 benchmark are on track to achieve all their emissions targets.



### Case study: Tata Power

Tata Power aims to reach net zero across its scope 1, 2 and 3 emissions by 2045. To achieve its 2045 net-zero target, Tata Power is aiming to establish 70% renewable energy capacity by 2030 and 100% by 2045, while phasing out its thermal power portfolio. Although the proportion of scope 3 emissions in this target could not be scored as the company does not provide data for its purchased power, its scope 1 and 2 net-zero target for 2045 is aligned with a 1.5°C pathway. This makes the company one of only four companies in the 2023 benchmark with a long-term scope 1 and 2 emissions target aligned with a 1.5°C pathway. Tata Power's net-zero target is also in line with the IEA's sectoral recommendation for developing economies to reach net zero by 2045.

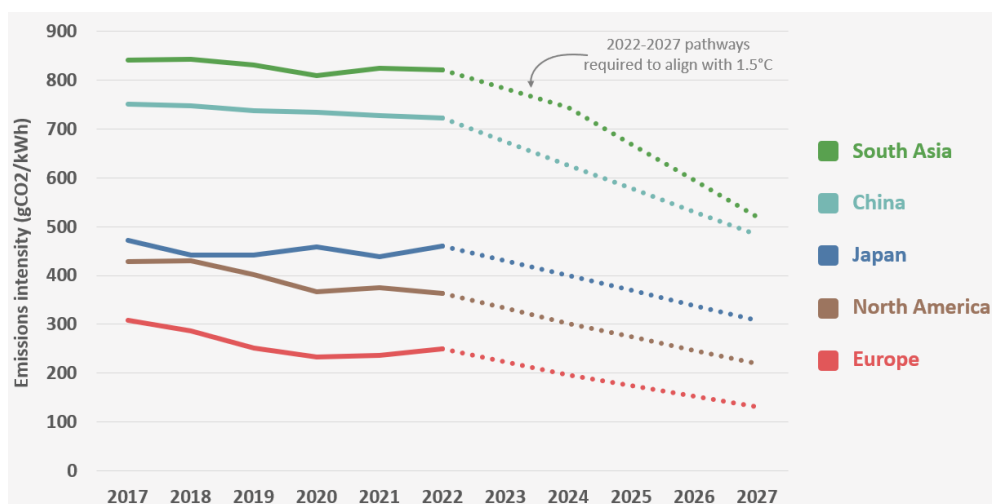
### Emissions performance

The main source of emissions for electric utilities is power generation either in their own operations or in their supply chain in the case of their purchased electricity. The ACT methodology assesses past emissions intensity and projected emissions intensity trends to provide insight into how effectively the companies are reducing their emissions across their operations and supply chain and transitioning away from carbon-intensive generation to low-carbon sources.

#### Past emissions intensity trend for generated electricity

The past emissions intensity indicator compares a company's rate of emissions reduction over the previous five years with the rate required by its 1.5°C pathway over the coming five years. Emissions intensity is an important metric to track the extent to which companies are diversifying their electricity generation assets away from carbon-intensive sources. Comparing a company's past and projected emissions intensity trends with its 1.5°C pathway provides a good measure of its transition progress and gives an indication of the scale of change the company needs to make to align with a low-carbon future.

FIGURE 1: EMISSIONS INTENSITY BY REGION WHERE COMPANIES ARE HEADQUARTERED BETWEEN 2017 AND 2022, AND 2022-2027 TRAJECTORIES REQUIRED TO ALIGN WITH 1.5°C



A weighted average of the 68 companies shows that the overall emissions intensity trend decreased from 2017 to 2022, though not at a sufficient rate to align with the companies' 1.5°C pathways for 2022-2027. This is true for all of the regions in the assessment. Companies headquartered in North



America and Europe have made the most significant reductions in their emissions intensities. However, for both North American and European companies, the rate of emissions reduction slowed between 2020 and 2022, likely due to companies bouncing back from the Covid-related demand reduction in 2020 and the increased use of coal due to the volatility in gas prices and supply as a result of the Russian invasion of Ukraine. Coal-powered generation in the EU, for example, increased during 2020-2022 after reducing year on year between 2017 and 2020. However, this trend is projected to reverse from 2023 onwards.

Some companies have made significant progress in reducing the emissions intensity of their electricity generation. Eleven companies have reduced their emissions intensity at a sufficient rate to align with their 1.5°C pathways. However, even though the total number of companies assessed in the 2023 benchmark is larger, this is a reduction from the 14 companies that achieved emissions reductions in alignment with their 1.5°C pathways in the 2021 assessment. Only six companies whose past emissions intensity trend was 1.5°C aligned in 2021 continue to show this alignment in the current assessment and they are all headquartered in Europe: E.ON, EDP, Enel, Engie, Ørsted and Vattenfall. Furthermore, 15 companies show an increased emissions intensity between 2017 and 2022.

### **Future emissions intensity trend for generated electricity**

Each company's projected emissions intensity is assessed to evaluate its future action towards decarbonisation. The projections are based on the company's current and planned assets. Only four companies are projected to reduce their emissions intensity at a sufficient rate to align with their 1.5°C pathways: EDP, Ørsted, Origin and TANESCO. EDP, Ørsted and TANESCO will primarily achieve this through significant expansions in their renewable energy capacity. Origin is not projected to significantly increase its renewables capacity over the next five years; however, it is closing its Eraring Coal Power Station in 2024, which will significantly decrease its emissions intensity. A further four companies are projected to reduce their emissions intensity over this period at rates close enough to align with their 1.5°C pathways: Aboitz Power, CMS Energy, Enel and Kyushu Electric Power. All of these companies are projected to reduce their coal generation between 2022 and 2027.

### **Carbon budget**

The locked-in emissions indicator compares projections of companies' cumulative absolute emissions for 2022-2037 against the cumulative carbon budget allocated by their 1.5°C pathways. The projections are based on current assets, known commissioning and decommissioning of projects and assumptions of asset lifetimes. In the 2021 assessment, only Ørsted was projected to remain within its carbon budget. In the current assessment, two companies are projected to remain within their 1.5°C carbon budgets: Ørsted and TANESCO. These two companies generated less than 0.5% of the 68 companies' total electricity generation in 2022. Ørsted is planning to effectively achieve net-zero emissions from its own electricity generation in 2025, with a target to reduce its emissions intensity by 98% compared to 2006, which is ten years earlier than required by its 1.5°C pathway. TANESCO already has significant renewable electricity capacity and is projected to bring the Julius Nyerere Hydropower Station online in 2024, which will more than double its current capacity and significantly decarbonise its electricity output going forward. In the 2021 assessment, only Ørsted was projected to remain within its carbon budget. As for the rest, 27 companies are projected to exceed their carbon budget by under 50%. The eight largest companies (by generation) alone are expected to use up the 68 assessed companies' 1.5°C carbon budget by 2037.

The 68 companies together are projected to exceed their cumulative 1.5°C carbon budget by over 60%, burning through their entire 2022-2037 budget in the next eight years. The best-performing regions for this indicator are Europe, Middle East & North Africa, and North America. However, there



is minimal variation across regions, with companies worldwide expected to exceed their combined carbon budgets by over 50% by 2037.

### **Purchased electricity**

The 2023 assessment looks, for the first time, at companies' purchased power, i.e. electricity generated by another party that the company purchases to resell to its customers. Purchased power gives a fuller view of the companies' activities and covers all the emissions associated with the electricity it sells. Of the 68 companies in the benchmark, 41 (60%) purchase electricity for resale which accounts for at least 5% of their total sales. The proportion of own and purchased electricity sold by each company varies and ranges from 5% to 79% purchased electricity, and an average of 30% purchased electricity. Companies' disclosure of purchased electricity and the scope 3 emissions associated with this electricity was notably worse than for their own electricity generation.

### **Past emissions intensity trend for purchased electricity**

The assessment of past emissions intensity trend for purchased electricity uses the same calculation as for own generation, comparing the trend from the past five years with the emissions reduction rate required by the 1.5°C pathway for the next five years. Only 16 companies disclosed sufficient data to be scored for this indicator. Of these, six companies reduced their emissions intensity at a sufficient rate to align with their 1.5°C pathways: Dominion Energy, Enel, Engie, Kyushu Electric Power, Origin and Vattenfall. EDF and PG&E also achieved significant emissions reductions for purchased electricity but not enough to align with their 1.5°C pathways.

### **Future emissions intensity trend for purchased electricity**

None of the companies disclosed sufficient details regarding forward-looking commitments related to their purchased power to ascertain how the emissions intensity will change over 2022-2037. The companies that purchase a significant proportion of their sold electricity need to improve disclosure in relation to this and take responsibility for these emissions to promote decarbonisation in their supply chains.

The companies in this benchmark show a mixed picture of emissions trends for the sector. Some companies have made significant progress in reducing emissions intensity and are projected to make significant reductions in the future. However, the overall rate of reduction is not sufficient to align with the companies' 1.5°C pathways and significant investment in low-carbon capacity and reductions in existing fossil fuel-fired capacity are needed for these companies to successfully transition. Lack of disclosure of emissions from purchased power limits a full assessment of their emissions performance.

### **Contribution to low-carbon electricity generation**

How a company procures its electricity is also relevant, as companies should contribute to enabling more low-carbon electricity assets to be connected to the grid, ideally through power purchase agreements (PPAs) or, if not, by procuring energy attribution certificates (EACs). Only four companies disclosed they used PPAs to acquire all of their renewable electricity and a further two procured EACs.



### Case study: Energias de Portugal

Energias de Portugal (EDP) is the second highest scoring company across the emissions performance indicators, with only Ørsted performing better. EDP has reduced its emissions intensity for its own electricity generation between 2017 and 2022 at a rate faster than that required to align with its 1.5°C pathway. The proportion of low-carbon electricity in its generation mix has increased from 56% in 2017 to 73% in 2022. The company is projected to reduce the emissions intensity of its own generation at a sufficient rate to align with its 1.5°C pathway for 2022-2027 as it reduces its gas and coal generation and continues to expand its wind and solar power capacity. Though the company is projected to narrowly exceed its 1.5°C carbon budget for 2022-2037 based on its current and future assets, if it can reduce its emissions intensity in line with its targets, it will remain within its carbon budget.

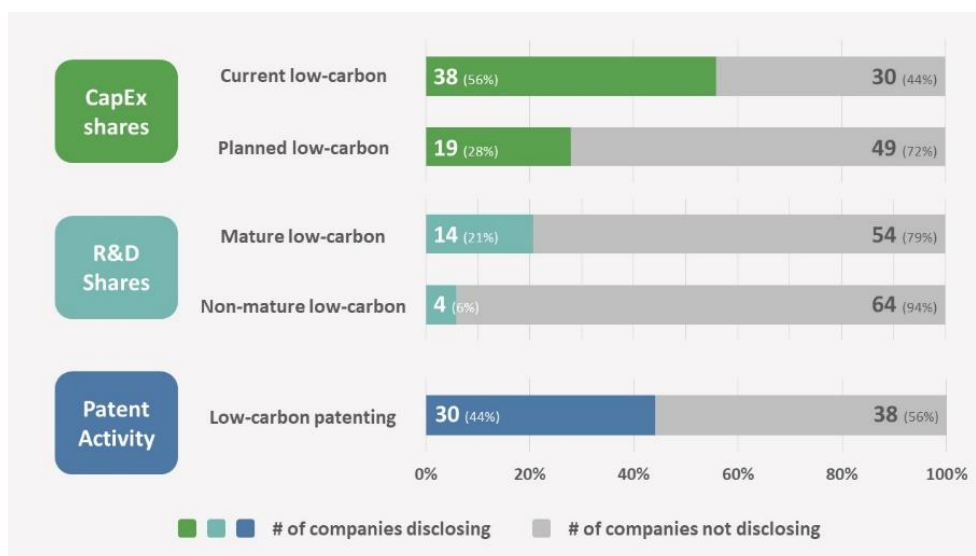
### Investments

In the face of ever-growing electricity demand, electric utilities must ensure that the majority of their capital expenditure (CapEx) and research and development (R&D) spending goes towards advancing and patenting new low-carbon technologies that reduce their emissions and help maintain revenues in a low-carbon economy. Yet, 44% of the assessed companies do not disclose their low-carbon CapEx, while 79% do not disclose their R&D investments.

### Capital expenditure

Of the 68 companies assessed, 38 (56%) disclose the proportion of CapEx they have invested in low-carbon technologies in their latest reporting year (2021 or 2022). Of the companies that disclose this information, seven (18%) spend less than 10% on low-carbon technologies. The three leaders in this area: Ørsted, JSW Energy and EDF, invest 99%, 94% and 90%, respectively. Only Ørsted exceeds the sectoral-level expectation that at least 95% of an electric utility's total CapEx should be dedicated to low-carbon technologies.

FIGURE 2: NUMBER OF COMPANIES DISCLOSING THE SHARE OF LOW-CARBON CAPEX, R&D, AND PATENTING ACTIVITIES





Companies headquartered in Europe disclose more information on their CapEx and are the highest investors in low-carbon technologies, with 15 (94%) out of the 16 companies reporting an average low-carbon CapEx share of 74%. Of the 49 companies assessed in both the 2021 and 2023 benchmarks, the average low-carbon CapEx share of the companies that disclosed this data has increased from 39% to 48%. However, this level is still well below the low-carbon CapEx share needed to fund a transition aligned with a 1.5°C scenario.

Clean energy needs to account for 89% of investment in 2030 under the IEA's NZE Scenario. Of the assessed companies, 19 (28%) publish information on their future low-carbon CapEx plans, and the average share of this planned investment constitutes 54% of their total planned CapEx. Future investment plans demonstrate a company's commitments and reflect its internal planning towards a low-carbon transition. The three leading companies in terms of low-carbon CapEx share over the next three years – Ørsted, SSE and AEP – plan to invest 100%, 90% and 88%, respectively. Ørsted, once again, is the only company out of the 68 which plans to invest a high enough share of its CapEx in low-carbon technologies.

Companies headquartered in North America disclose more information on their planned low-carbon CapEx shares. Yet, of the companies that disclose this information, companies headquartered in Europe invest the largest proportion of their planned CapEx in low-carbon technologies. The average share of low-carbon CapEx for companies headquartered in Europe is 66%, whereas for North America this share is 46%. Of the 49 companies which have been assessed in both the 2021 and 2023 benchmarks, the average planned low-carbon CapEx share has increased over time from 45% to 61% but is still well below the 95% sectoral requirement.

### **Research and development**

Investment in R&D is necessary to reduce the costs and speed up deployment of innovative low-carbon technologies. Out of the 68 companies in the benchmark, 34 (50%) report information on their R&D expenditure; however, only 14 (21%) report information on how much of this is dedicated to low-carbon technologies. Ørsted, Iberdrola and Fortum lead in low-carbon R&D shares, with investments of 100% for each company, followed by Vattenfall with 81%. The average low-carbon R&D share for the 14 companies is 74%. As with low-carbon CapEx, the leading region in terms of low-carbon R&D investments is Europe, with over half the companies headquartered there reporting their low-carbon R&D shares, and the average share amounting to 83%.

Non-mature technologies are key to addressing some of the intractable, hard-to-abate emissions from different sectors, and so the ACT methodology rewards companies for their investments in these technologies. Around 35% of global CO<sub>2</sub> reductions between now and 2050 will result from low-carbon technologies that are currently in the demonstration or prototype phase (IEA, 2023). Yet, only NTPC, EDP, TEPCO and PPL disclose the monetary value of their investment in non-mature technologies, such as demand response and direct air capture, with their investments amounting to 44%, 24% 7% and 4%, respectively.

### **Low-carbon patenting**

Low-carbon patenting activity is an important indicator of a company's ability to transition and develop new low-carbon business models in an era of electrification and decarbonisation. Evidence of low-carbon patenting activity could only be found for 44% of the assessed companies. North America leads in low-carbon patenting activity, with seven (50%) companies' low-carbon patenting share averaging at 51%. Dominion Energy, headquartered in North America, leads with 81% of the company's patents targeted at low-carbon technologies.



### **Case study: JSW, SSE, Iberdrola and Fortum**

The ACT sectoral-level expectation is that at least 95% of a company's CapEx should be dedicated to low-carbon technologies. Ørsted exceeds this expectation for both its current and planned low-carbon CapEx shares. JSW Energy comes a close second, dedicating 94% of its CapEx to low-carbon activities such as hydropower, and solar and wind power in 2022. In relation to planned CapEx, SSE is the second-best company, with plans to invest 90% of its CapEx in low-carbon technologies.

In terms of R&D, Iberdrola targets its entire spending on low-carbon technologies. These technologies include smart grids and energy storage. Similarly, Fortum also invests all of its R&D spending into low-carbon technologies, including demand response. Smart grids and energy storage, particularly batteries, as well as demand response will be essential to manage the impact on the power grid from hourly and seasonal variations in renewable electricity supply as well as keeping grids stable and reliable on the face of growing energy demand (IEA, 2023).

## **Climate oversight and governance**

Corporate climate oversight and governance help ensure that companies include the low-carbon transition in their strategic plans and address other environmental challenges. By having a structured framework for climate oversight, companies can set and meet emissions reduction targets and commit to achieving the Paris Agreement goals.

### **Presence of climate governance**

Eight of the assessed companies headquartered in EMDEs have no form of climate governance. Almost all other companies (86%) have board-level oversight of climate-related issues, indicating that governance of climate change mitigation in electric utilities is mainly the responsibility of boards or the Chief Executive Officer (CEO).

### **Expertise of those with climate oversight**

However, none of the assessed companies showed the desired level of expertise among board members or individuals overseeing climate change issues. A top-performing company should have people in senior roles with relevant academic or professional qualifications and experience related to climate change and the low-carbon transition, membership in organisations advancing corporate knowledge on the topic, and technical knowledge evidenced through published outputs. The board, including the CEO, of only one of the assessed companies, Uniper, met at least three of these criteria. In total, only 29 companies (42%) showed some level of climate expertise at the board level.

### **Incentives linked to climate change**

Forty-one of the assessed companies (60%) have management incentives linked to climate change mitigation. Most of them provide different types of monetary rewards. These include annual bonuses, bonuses as a percentage of salary, salary increases, and other forms of incentives for achieving climate-related targets, both in the short- and long-term. A few companies (E.ON, Iberdrola and J-Power) provide equity in the company as a management incentive for achieving greenhouse gas reduction targets. Iberdrola, for example, created a strategic bonus for the executive officer to be paid through the delivery of shares for deploying clean energy development strategies, maintaining downward emissions trends and achieving other climate-related goals. The companies without



incentives, representing the remaining 40%, are typically also bottom rankers in the benchmark overall.

### **Case study: Uniper**

German company Uniper is the only company among those assessed in the benchmark to have appointed a member to the board meeting at least three climate expertise criteria. The company's CEO has an academic background in pollution and environmental control and environmental law. He has previously held the position of environmental scientist at Wessex Water and an environmental specialist at PowerGen PLC. In addition, he was a member of the board of the European Wind Energy Association (EWEA) and a member of the advisory board of the E.ON Energy Research Centre. He has also been CEO for Climate & Renewables at E.ON.

## **Transition planning and scenario analysis**

Companies should establish a time-bound action plan outlining how they will adapt and prepare for a low-carbon transition. This action plan should include medium- and long-term targets, quantified objectives and financial commitments. The plan should also be informed by climate scenario analysis to ensure its ambition is sufficient to align with a 1.5°C pathway.

Of the 68 companies assessed, four did not appear to have any elements of transition planning (QEWG, TANESCO, Transcorp Power and Vietnam Electricity), while just one (Ørsted) has a transition plan completely aligned with a low-carbon future. The remaining 63 companies vary considerably in how prepared they are for the transition.

### **Measures of success**

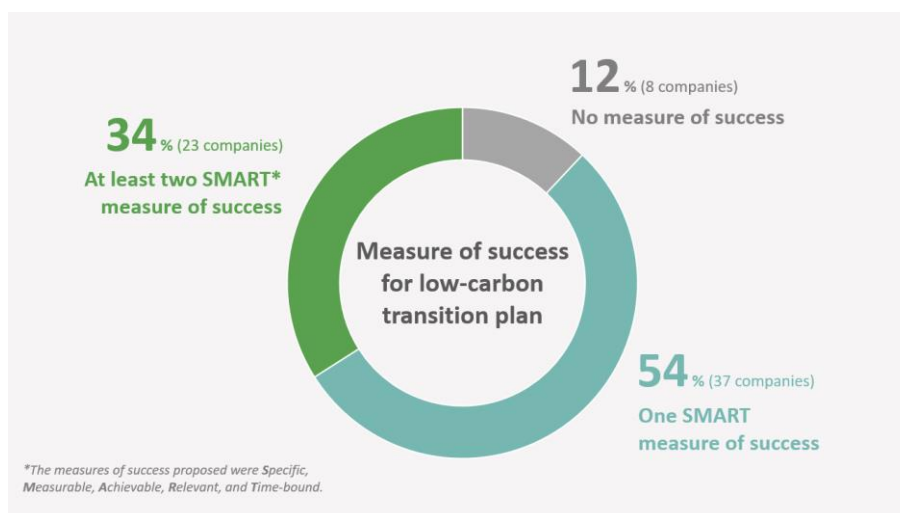
Companies' plans should set out clear objectives that can be monitored and reported against. In the reporting year (2021 or 2022), 88% of the assessed companies disclosed at least one quantified, time-bound measure of transition success. Of these, over one-third included two or more aims with qualitative and quantitative details aligned with a low-carbon scenario. Such measures include emissions targets, plans to phase out coal assets, increasing energy storage or expanding energy generation capacity from renewable sources. Overall, the companies assessed in both the 2021 and 2023 benchmarks have shown an improvement, both in the number of companies that disclose measures of success (46 in 2023, up from 38 in 2021) and the quality of these measures (20 have two or more low-carbon measures, up from 16 previously).

### **Detailed short and long-term actions**

To achieve their goals, companies should develop both short- and long-term actions. Three-fifths of the companies disclose examples of actions they expect to implement in the short term (the next five years). But fewer (32%) have developed comprehensive plans that contain detailed descriptions of these actions. The number of companies with plans for the longer term (beyond the next five years) falls to 72% and the proportion of companies with practical actions beyond the next five years and a vision of what the future company could look like in terms of physical assets and business models is just 16%. At a regional level, East Asia & the Pacific, Europe, and North America, all follow the same trend of action plans becoming less concrete over longer timeframes. However, the gap in details between short- and long-term planning is most distinct for North American companies.



FIGURE 3: COMPANIES SETTING SMART MEASURES OF SUCCESS FOR LOW-CARBON TRANSITION PLANS



### Financial planning

All companies' strategies should be supported by clear financial planning. However, 38% of the companies that disclose a measure of transition success have no financial planning to realise these goals. European companies have the strongest financial planning, with all companies quantifying financial projections, cost estimates or other estimates of financial viability. South Asian companies, fewer of which are assessed in the benchmark, also all disclose this data.

### Scenario analysis

In addition, companies should develop their plans based on a 1.5°C scenario analysis. More than a quarter of the assessed companies have not conducted any scenario analysis. Fully state-owned companies are the least likely to have undertaken this type of analysis. Overall, 32% of companies have conducted an analysis using three or more scenarios, including a 1.5°C scenario. Furthermore, though 48 companies (71%) have undertaken an analysis of at least one scenario, only 41 have utilised this scenario testing when developing their transition plan.

When all comparable indicators are considered, the transition plans of companies that have also been assessed previously in the 2021 benchmark have improved. Even including the newly assessed companies, the quality of transition plans shows an improvement, though to a lesser extent.

### Case study: EDF

EDF engages in exemplary scenario analysis which it uses to inform its transition plan. EDF undertakes a company-wide analysis and considers its upstream and downstream value chain up until 2100. The company considers five separate scenarios to assess its physical and transition risks, including the IEA NZE Scenario. EDF's scenarios include considerations such as electricity demand, the development of electric mobility and hydrogen power, the cost of electricity production and the price of CO<sub>2</sub>. The company includes a carbon price between USD 48 and USD 185 per tonne of CO<sub>2</sub> in its analysis. In addition, the company reports the results of its analysis in clear qualitative, quantitative and financial terms to keep its stakeholders well informed.



## Supplier and client engagement

Scope 3 emissions can represent a significant share of a power company's total emissions, depending on its business model and the proportion of purchased electricity in its retail portfolio. Of the 68 assessed companies, 41 (60%) engage in the purchase of electricity for resale, with an average purchased electricity share of 30%. To reduce scope 3 emissions, electric utilities must make active efforts to engage with their suppliers and clients on greenhouse gas (GHG) emissions reduction.

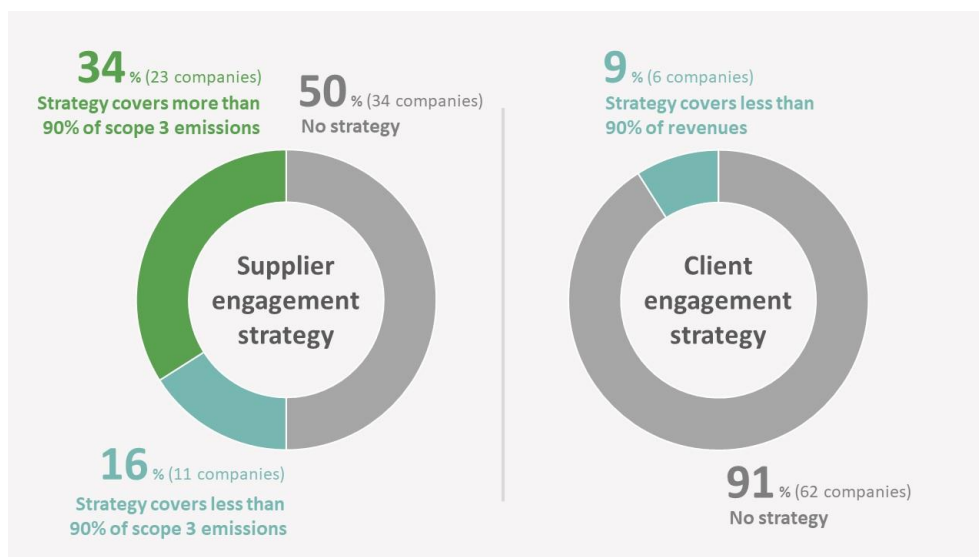
The supplier and client engagement modules measure a company's performance in aiding and influencing the decarbonisation of its value chain. These modules assess the company's strategies, as well as its existing activities, initiatives and partnerships, aimed at influencing and supporting suppliers and clients in their emissions reduction efforts.'

### Supplier engagement

Companies must develop a strategy that is integrated into business decision-making to influence, enable or otherwise shift suppliers' choices and behaviours to reduce GHG emissions. Only 23 (33%) companies have a supplier engagement strategy that applies to the majority (over 90%) of their procurement spending or covers over 90% of supplier-related scope 3 emissions. Half of the companies in the assessment have not developed a strategy to influence suppliers' climate performance.

Engaging suppliers through contract clauses and sales incentives is necessary to bring them on board. A requirement for the supply chain to report and reduce emissions is a powerful tool to drive businesses towards decarbonisation. Yet, 42 (62%) of the 68 assessed companies do not require suppliers to reduce their emissions. A mere seven (10%) companies: CLP Group, Engie, NRG Energy, Ørsted, SSE, Tokyo Electric Power Company and Vattenfall, require their suppliers to publicly report their emissions. Further, just nine (13%) companies include GHG emissions reduction or reporting requirements in the selection of new suppliers or renewal of contracts with existing suppliers.

FIGURE 4: COVERAGE OF COMPANIES' SUPPLIER AND CLIENT ENGAGEMENT STRATEGIES



The companies are expected to implement a process for responding to suppliers' non-compliance with emissions reduction requirements. Unfortunately, less than half of the companies that set emissions reduction requirements for their suppliers have developed a process to respond to suppliers' non-compliance. Nine (13%) companies suspend and further engage non-compliant suppliers to achieve improvements. Only two companies (Power Assets and Uniper) permanently



exclude those suppliers that fail to show significant improvement after the period of engagement. Only 12 (17%) companies evaluate the impact of their supplier engagement strategy in quantitative terms, and 15 (22%) companies evaluate the impact in qualitative terms.

Overall, the electric utilities sector demonstrates poor performance in terms of climate-related supplier engagement. On average, the companies only received 15% of the points available for supplier engagement strategy and activities.

### **Client engagement**

The client engagement module assesses the company's engagement efforts to influence its clients' behaviour in order to reduce their GHG emissions. Companies should create a formalised and ambitious strategy, preferably governed by policy and integrated into business decisions, to encourage and facilitate changes in client choices and behaviour to lower carbon emissions and increase the energy efficiency of their operations. The assessment shows that 57 (83%) of the companies do not have a client emissions reduction strategy.

Companies often have the ability to influence their clients' actions and performance with respect to climate change through the provision of their products or services. Overall, 50 (72%) companies have employed various levers to motivate their clients to lower their emissions. These encompass initiatives such as demand-side efficiency programmes, implementing equipment upgrades to enhance clients' energy management capabilities, and providing customised renewable energy solutions aligned with each client's specific requirements. By employing these measures, electric utilities can play an active role in improving clients' energy efficiency and reducing emissions. However, only 13 (19%) companies disclose the impact of their client engagement activities in quantitative terms.

The sector's approach to client engagement is characterised by the lack of a well-defined structure, objectives, consistency and transparent key performance indicators (KPIs) for assessing the effectiveness of engagement efforts, underscoring the need for substantial improvement in this area.

#### **Case study: SSE**

SSE stands out as the top-performing company under the supplier engagement module. SSE's Sustainable Procurement Code mandates its suppliers to report their scope 1 and 2 emissions. Additionally, suppliers must undergo external data validation and provide carbon reports for SSE sites, where requested. Suppliers are also required to establish a net-zero strategy with associated science-based targets. SSE has committed to the goal of having 50% of its suppliers set science-based targets by March 2024, although it does not specify its response to supplier non-compliance. Emissions data from suppliers is collected at least once a year through the CDP Supply Chain Programme. Furthermore, through the Supply Chain Sustainability School, SSE provides information, resources and training to its suppliers on climate-related topics. The company also launched the Open Innovation programme to facilitate supplier-led innovation to reduce emissions.

### **Trade associations and policy engagement**

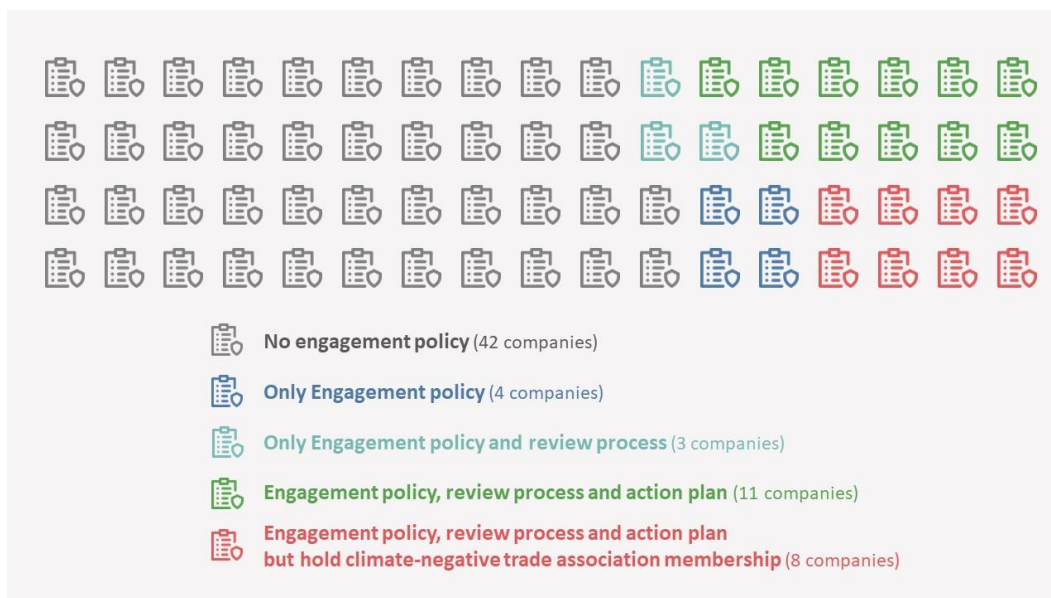
Public policy plays a key role in initiating, accelerating and supporting the energy transition. Companies can advocate for climate-positive measures and actions and intervene when trade associations they are members of lobby against such actions. In doing so, companies can help create a positive climate policy environment supporting the transition to a low-carbon economy.



## Strength of engagement strategy

Trade associations, alliances, coalitions and think tanks are key instruments through which companies can indirectly influence climate-related policy. Yet, over 60% of the companies assessed in this benchmark do not disclose how they govern their relationships with these influential parties. Most of the companies (64%) without engagement policies are headquartered in EMDEs. Of the 49 companies assessed in both the 2021 and 2023 benchmarks, the number of companies disclosing how they govern policy engagement has increased from 16 to 22.

FIGURE 5: COMPANY POLICY ON ENGAGEMENT WITH ASSOCIATIONS, ALLIANCES, COALITIONS, OR THINK TANKS



In total, 26 of the 68 companies in the benchmark disclose how they govern relationships with influential parties, and of these, only 19 discuss their processes to review climate-alignment of trade associations they are members of, along with action plans that outline what steps the company will take in the case of misalignment. Out of the 49 companies that were also assessed in 2021, the number of companies with an engagement policy which includes a review process and action plan has increased from 8 to 18.

Seven companies disclose how they govern relationships with influential parties, but lack a review process or an action plan, bringing into question how effectively they adhere to their policies in relation to trade association membership.

### Consistency of companies' engagement strategies in relation to trade association memberships

Of the 68 benchmarked companies, 57 disclose whether they are members of trade associations. Out of these, 42% were identified as members of trade associations with climate-negative positions. Among the 49 companies that were also assessed in the 2021 benchmark, there has been a slight increase in the number of companies that hold a membership in climate-negative trade associations. Five companies previously assessed in 2021 now disclose their trade association memberships, while one no longer reports this information.

In the current benchmark, 19 companies have implemented an engagement policy which includes both a review process and an action plan. However, only eight of these companies: AES, AGL Energy, EDF, EDP, Enel, Fortum, NextEra and Ørsted, are not members of climate-negative trade associations.



Of the 49 companies previously assessed in 2021, there was an 18% increase in companies that despite having a review process and action plan, were identified to be involved with climate-negative trade associations. This indicates inconsistencies between companies' disclosure of how they govern relationships with influential parties and the actual actions companies take in relation to climate-negative trade associations.

### **Support for the Paris Agreement and initiatives**

Overall, 37 of the 68 companies in the benchmark have disclosed supporting the Paris Agreement, with ten of these companies new to the 2023 benchmark. Out of these 37 companies, 27 are headquartered in countries with advanced economies, with the majority, i.e. 13 companies, headquartered in Europe, ten headquartered in North America and four headquartered in the East Asia & Pacific geographical regions. Ten of the companies that disclose support for the Paris Agreement are headquartered in countries with EMDEs nations, and of these, four are headquartered in the East Asia & Pacific and three in the South Asia geographical region. None of the companies headquartered in mainland China (i.e. excluding those headquartered in Hong Kong and Taiwan) disclosed support for the Paris Agreement.

### **Collaborating with local authorities to reduce emissions**

Just over half of the assessed companies disclose collaborating with or supporting local authorities to achieve emissions reductions, and 22 of these companies report examples of their collaborations. For example, as part of the Belt and Road initiative, SPIC aims to strengthen international energy cooperation. Through this initiative, SPIC engages in overseas developments, such as the company's participation in the first 120 MW solar PV project in Puerto Peñasco, Mexico, led by the Mexican government.

#### **Case study: SSE**

In 2022, SSE's in-house brand SSE Energy Solutions partnered with Zellar to help local authorities and small- and medium-sized enterprises (SMEs) initiate their transition to net zero. Through this partnership, SSE offers its Sustainable Business Communities project, which aims to help SMEs offset carbon and save on energy costs, as well as provide local authorities with insightful data so they can report on sustainability. Local authorities that sign up for this project are also granted access to data insights and case studies, which in addition to other facilities, allows them to measure their progress. Since SSE launched its partnership with Zellar, several local authorities have received funding from this project, with discussions underway to sign up more local authorities to the project in the future.

### **Low-carbon business activities**

In a low-carbon economy, companies must adapt to stay profitable. They need to transition away from high-carbon business models to ensure that all revenue stems from low-carbon products and services. The ACT assessment focuses on two key aspects of companies' businesses: the share of income from low-carbon products and services and companies' actions to embrace new low-carbon business models while phasing out high-carbon ones. Additionally, companies' actions to mitigate life cycle emissions associated with low-carbon assets are also assessed.





## Revenue from low-carbon products and services

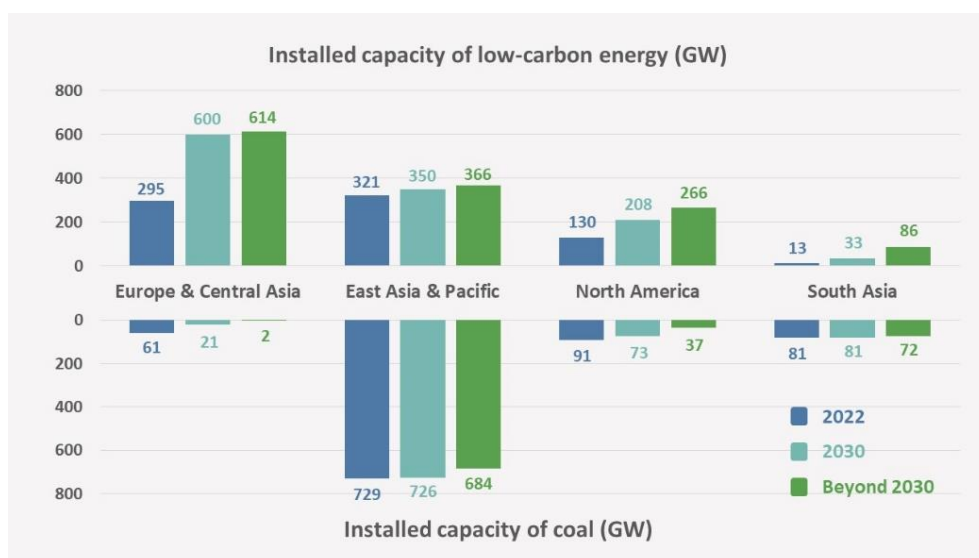
Over half of the assessed companies disclose their share of revenue from low-carbon products and services. These 36 companies report an average low-carbon revenue share of 21%, with a median share of 11%. Only six companies report a low-carbon revenue share of over 50%. Among these companies, Eletrobras is the only company with more than 95% low-carbon revenue. Eletrobras generates almost all of its electricity from hydroelectric sources. EDF is another frontrunner, with about 80% of its revenue coming from low-carbon products and services. There are a further four companies with a low-carbon revenue share between 50% and 75%. Among the six top performers, four are headquartered in Europe, the other two are based in Latin America and North America.

Of the 68 companies assessed, 38 report offering energy efficiency services to their clients. However, only 11 companies disclose total revenue from energy efficiency services in 2022. ČEZ Group reports the largest share of such revenues, with 7% of its total revenue in 2022 associated with energy efficiency services. The company provides its customers with emissions-free electricity from nuclear power. ČEZ is working on Smart City projects, involving the creation of new communication and control infrastructure as well as smart digital electricity and fibre-optic networks. ČEZ also offers a programme called Photovoltaics for 1 CZK, which allows customers to purchase solar PVs without an initial investment.

## Development of a low-carbon electricity portfolio

Developing a low-carbon electricity portfolio is the main low-carbon business model amongst the assessed companies. Of the 68 companies, 63 are developing low-carbon electricity portfolios. Further, 44 have made commitments to expand their installed low-carbon capacity by around 574 GW within a defined timeframe, representing a 70% increase from the current installed capacity of around 820 GW. NextEra Energy and Enel are among the companies who have made the most ambitious commitments to increasing their low-carbon capacity. NextEra Energy expects to bring an additional 28-37 GW of renewable energy online by 2025. Enel plans to add 17 GW of installed renewable energy capacity between 2022 and 2025 and is expected to double its renewable energy capacity by 2030, reaching a total renewables capacity of more than 80 GW. Chinese companies, like CHN Energy, have also reported ambitious targets, such as initiating the construction of 25 GW of renewable energy projects. However, these targets often lack clear deadlines.

FIGURE 6: COMPANIES' INSTALLED CAPACITY OF LOW-CARBON ENERGY AND COAL BY REGION



Companies in Europe are aiming for substantial growth in low-carbon energy capacity, with plans to add 319 GW by 2040 (95% of which will be achieved before 2030), which represents a 108% growth from 2022. Companies in North America are targeting a 136 GW increase, representing a 105% growth by 2040, with 78 GW (60%) to be achieved before 2030. In contrast, companies in East Asia & the Pacific have more modest growth plans to add 45 GW (14%) of installed low-carbon capacity by 2040. The most significant growth is expected in South Asia, with a planned increase of 73 GW by 2045, a remarkable 557% growth from the total installed low-carbon capacity of 13 GW recorded among the companies from this region in 2022.

There are 31 companies shifting away from high-carbon business models, with 26 committing to phase out coal. Five companies: AES, CMS Energy, EDP, Origin Energy and Ørsted, have committed to phasing out coal by 2025. Only four companies in the benchmark have committed to phasing out gas by 2040 with Enel and EDP further planning to phase out combined-cycle gas turbines (CCGT) - in case of EDP by 2030.

The 26 companies committed to phasing out coal, plan to retire 167 GW of coal capacity in total. Companies in Europe are planning a coal capacity reduction of 59 GW, which represents a 97% decrease from 2022. Of this 41 GW of capacity reduction is planned to be achieved by 2030. North American companies have planned to reduce their coal capacity by 54 GW, representing a 60% decrease, with 18 GW of capacity reduction planned by 2030. In contrast, companies in East Asia & the Pacific are planning a coal capacity reduction of 45 GW, equalling a 6% decrease, with only 3 GW targeted for reduction by 2030. South Asian companies plan to reduce their capacity by 9 GW, which is an 11% decrease. However, no reduction is planned before 2030.

### **Optimisation of energy supply and management**

In addition to the essential process of decarbonising the energy mix, it is vital for companies to proactively explore and expand other low-carbon business models, including energy storage, demand-side management as well as forecasting and monitoring abilities. These models are categorised as enabling business models, as they help add flexibility to companies' renewable energy supply strategies, enhancing both supply security and efficiency.

In the benchmark, 32 companies have reported plans for developing energy storage capabilities or forming partnerships with storage providers. The total committed capacity for energy storage growth is 99 GW, with approximately 25 GW set to be achieved by 2030. Notably, a subsidiary of NextEra Energy, FPL, has made a significant commitment to achieve 49.5 GW of growth in energy storage from its current 0.5 GW capacity. However, this target does not come with a specified timeline. In general, there is still a lot of room for growth in the area of energy storage, as IEA's NZE Scenario includes a 23-fold increase in this area from 2022 to 2030 and more than a 400% increase from 2030 to 2050.

There are 24 companies in the benchmark that have been deploying smart meters. Saudi Electricity Company achieved 100% coverage in 2022 – having rolled out 10 million smart meters in 15 months. CLP Group plans to deploy smart meters to cover all its customers by 2025 and EDP is targeting 100% smart meter coverage in Iberia by 2024.

### **Interventions to reduce life cycle emissions of low-carbon assets**

As companies invest in low-carbon assets to decarbonise their electricity generation, the life cycle emissions of these assets will represent a growing share of a company's total emissions. This indicator assesses company action to reduce the emissions from all phases of the life cycle of these assets, including the production of materials, construction and decommissioning. Although most of the companies assessed have low-carbon assets in operation, only 19% of companies disclosed interventions to reduce the emissions of relevant life cycle phases of these assets.



The most common intervention was to reduce the emissions associated with wind turbine blades, which accounted for 58% of the identified interventions. Companies mostly focused on increasing the rate of blade recycling. Only three companies disclosed interventions to reduce the life cycle emissions from solar panels. Ørsted is the best-performing company for this indicator with its plans to reduce the life cycle emissions for its wind assets. The company is taking action to reduce its use of virgin materials and has made commitments to procure low-carbon cement and turbines made from low-carbon steel towards its aim of achieving net-zero emissions across its value chain by 2040. Vattenfall has also committed to sourcing 100% net-zero steel for its wind turbines by 2040 and Enel is partnering on a project to test wind turbines made with wooden towers.

#### **Case study: Vattenfall**

In 2022, 55% of Vattenfall's revenue came from low-carbon products and services. The company had a total installed energy capacity of 28.8 GW in 2022, 80% of which is low-carbon. It has identified projects that are in the pipeline that will quadruple its installed solar and wind power capacity from 4 GW in 2022 to 16 GW in 2030, with an interim target to reach 7 GW by 2024. The company has committed to a coal phase-out by 2030. Furthermore, Vattenfall has been investing in energy storage technologies. The company reports having battery projects with a total capacity of 500 MW in the pipeline. Additionally, it plans to develop a carbon capture, storage and utilisation (CCUS) solution for its biomass and waste plant in Uppsala, Sweden.



# Appendix: Companies in the Electric Utilities Benchmark 2023

## Electric utilities

Company name	Country of headquarters
AboitizPower	Philippines
AES	United States of America
AGL Energy	Australia
American Electric Power	United States of America
ČEZ Group	Czech Republic
China Datang	China
China Huadian	China
China Huaneng	China
China Three Gorges	China
CHN Energy	China
Chubu Electric Power	Japan
Chugoku Electric Power	Japan
CLP Group	Hong Kong, China
CMS Energy	United States of America
Comisión Federal de Electricidad	Mexico
Constellation Energy	United States of America
Dominion Energy	United States of America
Duke Energy	United States of America
E.ON	Germany
Egyptian Electricity Holding Company	Egypt
Électricité de France	France
Electricity Generating Authority of Thailand	Thailand
Eletrobras	Brazil
EnBW Company	Germany
Enel	Italy
Energias de Portugal	Portugal
ENGIE	France
Eskom	South Africa
Fortum	Finland
Iberdrola	Spain
Inter RAO	Russian Federation
J Power	Japan
JSW Energy	India
Kansai Electric Power	Japan
K-Electric	Pakistan
Korea Electric Power Corporation	Republic of Korea
Kyushu Electric Power	Japan
Mahagenco	India
Nextera Energy	United States of America
NRG Energy	United States of America
NTPC	India
Origin Energy	Australia
Ørsted	Denmark
Pacific Gas and Electric	United States of America



Pampa Energia	Argentina
Perusahaan Listrik Negara	Indonesia
Polska Grupa Energetyczna	Poland
Power Assets	Hong Kong, China
PPL	United States of America
Qatar Electricity and Water Company	Qatar
RWE	Germany
Saudi Electricity Company	Saudi Arabia
Southern Company	United States of America
SSE	United Kingdom
State Power Investment Corporation	China
Taipower	Taiwan, China
Tanzania Electric Supply Company	Tanzania
Tata Power	India
Tenaga Nasional	Malaysia
Tohoku Electric Power	Japan
Tokyo Electric Power Company	Japan
Transcorp Power	Nigeria
Uniper	Germany
Vattenfall	Sweden
Vietnam Electricity	Vietnam
Vistra	United States of America
WEC Energy Group	United States of America
Xcel Energy	United States of America

## Capital goods

Company name	Company category	Country of headquarters
ABB	Integrated company	Switzerland
Canadian Solar	Renewables manufacturer	Canada
Eaton	Integrated company	Ireland
First Solar	Renewables manufacturer	United States of America
General Electric	Integrated company	United States of America
Honeywell	Integrated company	United States of America
Schneider Electric	Integrated company	France
Siemens Gamesa	Renewables manufacturer	Spain
Trina Solar	Renewables manufacturer	China
Vestas	Renewables manufacturer	Denmark
Goldwind	Renewables manufacturer	China



# About the World Benchmarking Alliance

Founded in 2018, the World Benchmarking Alliance (WBA) is a non-profit organisation holding 2,000 of the world's most influential companies accountable for their part in achieving the United Nations Sustainable Development Goals. It does this by publishing free and publicly available benchmarks on their performance.

WBA shows what good corporate practice looks like so that leading companies have an incentive to keep going and laggards feel pressure to catch up. WBA has identified seven systems that, if transformed, have the greatest potential to put our society, planet and economy on a more sustainable and resilient path. These are the transformation of our social system, our agriculture and food system, our decarbonisation and energy system, our nature system, our digital system, our urban system and our financial system.

By benchmarking companies on each system transformation every second year, WBA reveals where each company stands in comparison to its peers, where it can improve and where urgent action is needed. The benchmarks provide companies with a clear roadmap of the commitments and changes they must make. Over time, they will show whether or not these 2,000 companies are improving their business impact on people, workers, communities and the environment. They equip everyone – including a community of about 350 organisations, referred to as the WBA Allies – with the insights that they need to collectively ensure that the private sector changes.

For more information, visit [www.worldbenchmarkingalliance.org](http://www.worldbenchmarkingalliance.org) and follow us on Twitter @SDGBenchmarks.

If you have any feedback on our findings, please reach out to Vicky Sins, Decarbonisation and Energy Transformation Lead at WBA: [info.climate@worldbenchmarkingalliance.org](mailto:info.climate@worldbenchmarkingalliance.org)





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