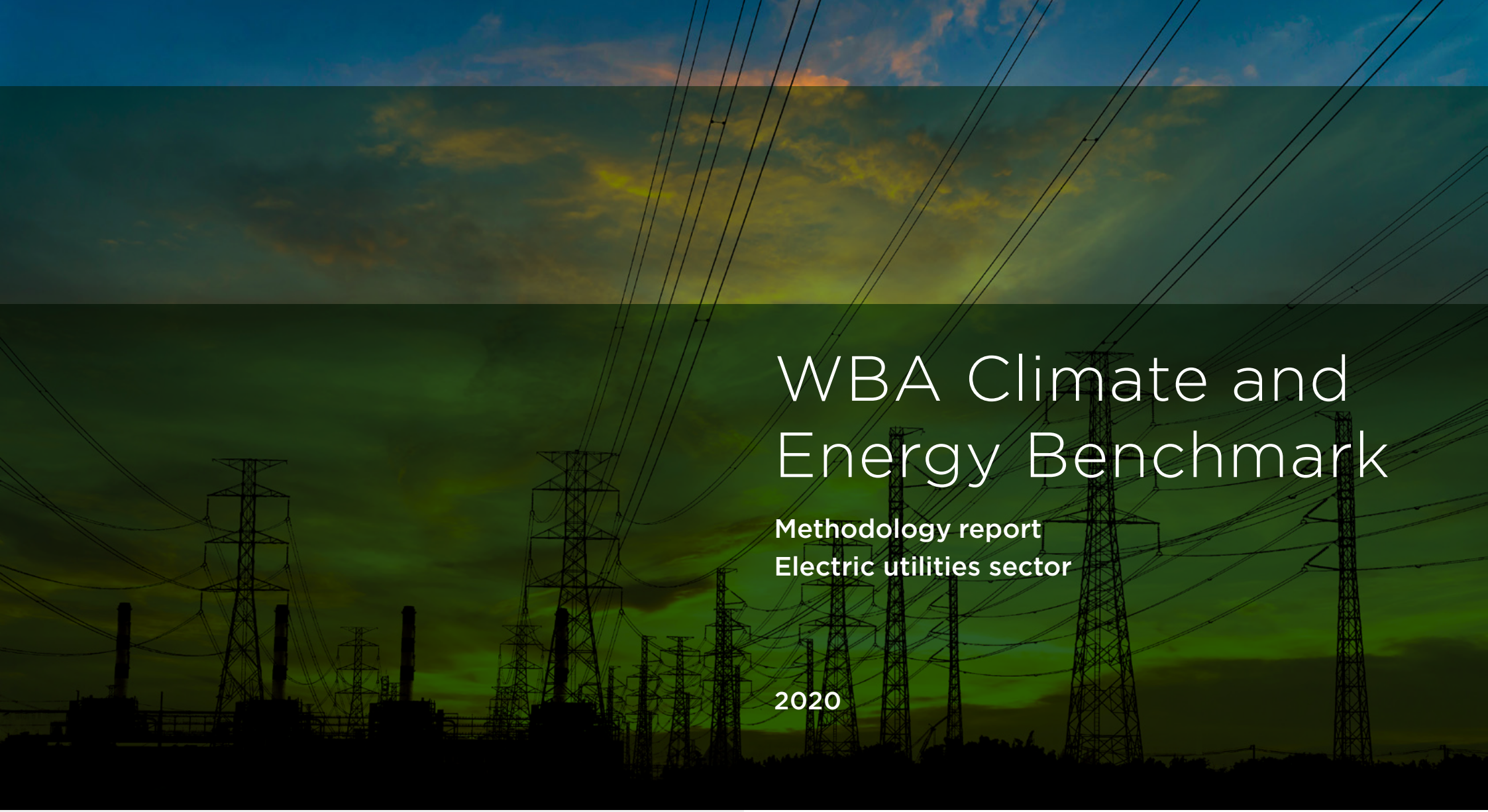


WBA Climate and Energy Benchmark

Methodology report
Electric utilities sector

2020

World Benchmarking Alliance

WBA and CDP have formed a strategic partnership to accelerate decarbonisation of the economy and ensure a climate-resilient future aligned with the Paris Agreement.

The World Benchmarking Alliance (WBA) has partnered with CDP, a disclosure non-profit, and the Assessing low-Carbon Transition (ACT) initiative developed by CDP and ADEME, the French Environment and Energy Management Agency, to accelerate a global decarbonisation and energy transformation. WBA's Climate and Energy Benchmark ranks companies against the climate and energy transition required to meet the Paris Agreement, by engaging with the companies themselves, evaluating their current and – importantly – their future plans in terms of decarbonisation pathways, as well as past and present performance to assess future alignment. We expect the benchmark to drive increased transparency and corporate accountability, moving companies from commitment to action.

Following from the Automotive Benchmark launched in December 2019, this report presents the scope of the next sector and the companies that WBA will benchmark on the decarbonisation and energy transformation: electric utilities.

Overview

Turning down the heat

With 67 countries and eight US states now having set net-zero carbon ambitions, the pressure is on for electric utilities companies to turn down the heat on producing power. These companies face transition risks from such incoming policies, as well as from legal, technological and market changes, including consumer appetite for clean electricity. Companies also face physical risks from changing climate patterns, such as direct damage to assets. Companies are increasingly expected to disclose their governance around climate-related risks and opportunities.

"Electricity and heat production is the single largest greenhouse gas-emitting economic activity. The electric utilities sector is thus crucial to to the ability of other sectors to decarbonise. Deep transformational change through the decarbonisation of generation assets is needed if we are to meet the well-below 2°C ambition of the Paris Agreement."

Vicky Sins
Lead Climate and Energy Benchmark

WBA is developing a range of benchmarks to assess the progress of 2,000 companies across seven system transformations needed to achieve the UN's Sustainable Development Goals (SDGs) and accelerate sustainable business beyond 2030. The private sector has a crucial role to play in advancing the SDGs, but there needs to be real change in the way that business impact is measured. By publishing free, publicly available benchmarks, WBA envisions a future where companies, investors, policymakers, civil society and individuals are empowered with data to take action and encourage more sustainable business practices across all sectors.

Decarbonising the economy and providing universal access to sustainable energy

While energy access is a cornerstone for development, the energy sector is also a dominant contributor to greenhouse gas emissions, and climate change represents the single biggest threat to development. This is where the Climate and Energy Benchmark comes in.

The tipping point

Without urgent action, the world will experience more extreme weather events, sea level rise and negative impacts on biodiversity, ecosystems and oceans. These will have a disproportionate effect on the poorest and most vulnerable populations for decades to come. A major decarbonisation and energy transformation is needed to align with global efforts to prevent the worst impacts of climate change and achieve the goal set out in the Paris Agreement of limiting global warming to well below 2°C. This is the accountability mechanism – the Climate and Energy Benchmark will measure corporate progress against the Paris Agreement. Private sector engagement alongside action by governments and civil society are critical for meeting this goal.

The electric utilities sector

Between 2000 and 2016, the proportion of the world's population with electricity increased from 78% to 87%, and the number of people without access to electricity dropped below 1 billion. Expanding infrastructure and improving technologies to provide sustainable and affordable energy for all will enable the growing global population to prosper.[1] However, the current reliance on fossil fuels means that the production of electricity and heat accounts for 25% of all greenhouse gas emissions and is the single largest greenhouse gas-emitting economic activity.[2] With electricity demand predicted to increase by 79% by 2050,[3] decarbonisation of the electric utilities sector is crucial for the transition to a low-carbon economy. More than two thirds of electric power is currently generated from combustible fuels.[4] However, the renewable energy sector employed a record 10.3 million people in 2017,[5] and resource availability, changing policies and falling technology costs are predicted to drive solar energy's share of power generation in the coming decades.[6] WBA believes that there is momentum for climate action within the electric utilities sector.

For other sectors to deliver on their decarbonisation objectives, it is widely understood that substantial electrification is required. The potential for electrification across high-emitting industries is considered to be significant, and there is broad consensus that electrification is the most effective and efficient way to transition to a low-carbon economy. The electric utilities sector therefore plays a pivotal role in achieving this transition.

[1] United Nations Development Programme (UNDP), 'Goal 7: Affordable and clean energy.' 2020. (Online). Available at: https://www.undp.org/content/undp/en/home/sustainable-development-goals/goal-7-affordable-and-clean-energy.html

[2] IPCC, 'Climate Change 2014 Mitigation of Climate Change. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change.' 2014. (Online). Available at: https://www.ipcc.ch/site/assets/uploads/2018/02/ipcc_wg3_ar5_full.pdf

[3] US Energy Information Administration (EIA), 'Global Greenhouse Gas Emissions Data.' 2019. (Online). Available at: https://www.eia.gov/todayinenergy/detail.php?id=41433

[4] IEA, 'Electricity.' 2020. (Online). Available at: https://www.iea.org/fuels-and-technologies/electricity

[5] United Nations Development Programme (UNDP), 'Goal 7: Affordable and clean energy.' 2020. (Online). Available at: https://www.undp.org/content/undp/en/home/sustainable-development-goals/goal-7-affordable-and-clean-energy.html

[6] US Energy Information Administration (EIA), 2019. (Online). Available at: https://www.eia.gov/todayinenergy/detail.php?id=41533

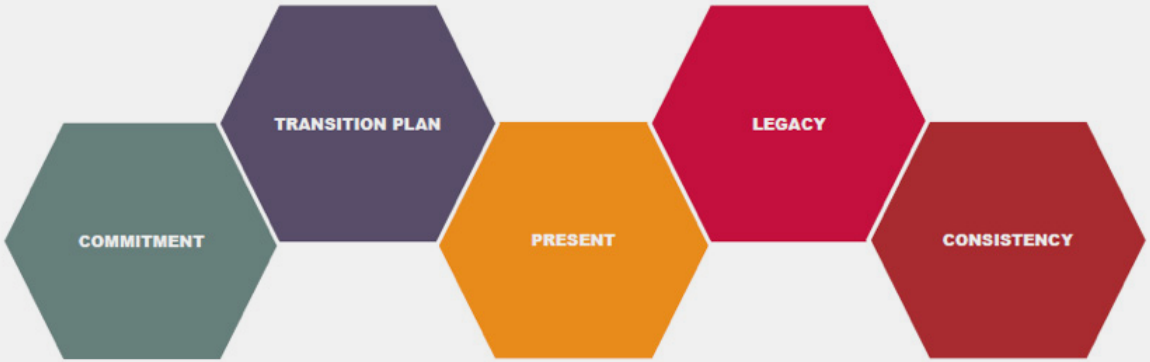
Reducing emissions

Power generation accounts for more than 90% of the Scope 1 and 2 emissions of an electric utilities company, according to the ACT Electric Utilities sector methodology. A central focus of the methodology and benchmark will therefore be on how electric utilities companies intend to reduce these emissions between now and 2050. As well as the reduction of emissions in the generation process, the transition of the sector implies rethinking the role of electric utilities companies in society more broadly. Using the methodology to set climate action goals within company strategies is important. Companies are also challenged to present their views on the decoupling of business growth from emissions, and how they see their role evolving in low-carbon scenarios, such as shifting their business models to include acting as energy-as-a-service providers, local low-carbon energy access providers, and carbon capture and use operators.

Aligned state for companies in the electric utilities sector

The ACT initiative assesses organisations' readiness to transition to a low-carbon economy, using future oriented methodologies. Based on the sectoral decarbonisation approach developed by the Science-Based Targets initiative, ACT evaluates a company's alignment with a 2°C world. The application of the sectoral decarbonisation approach is described in the ACT framework.

For the electric utilities sector, the sectoral decarbonisation approach only takes into account emissions from electricity generation, excluding other business segments. The generic sector decarbonisation pathway is adapted into regional pathways. The company decarbonisation pathway and carbon budget are derived considering the geographic distribution of the company's generation assets.



1	2	3	4	5
The company's science-based targets have a time horizon that is longer than the expected retirement age of the majority of the asset portfolio.	The company's transition plan lays out the asset investment strategy in multiple 5-year steps to shift the generation portfolio to low-carbon technologies.	The investment strategy for new generation capacity and R&D places clear focus on low-carbon alternatives. The company's current generation portfolio leaves enough room in the carbon budget for a flexible investment strategy.	The company has demonstrated a trend of decreasing generation's emissions intensity over the past five years, in alignment with the speed of emissions reductions required in the short-term and through deliberate investment decisions.	The company's targets, transition plan, actions and legacy show a consistent willingness to achieve low-carbon transition goals. There are no secondary activities, such as coal mining, that clash with the such goals, and no management incentives in place that promote further utilization of fossil fuels.

Figure 1: Aligned state for companies in the electric utilities sector. CDP Worldwide and ADEME 2019.

ACT methodology and assessment criteria

WBA will use the ACT assessments to produce various freely available benchmarks of companies in high-emitting sectors. Our goal is to drive action by companies, the financial sector including investors, policymakers and other stakeholders including consumers. In doing so, we encourage companies to move to a well-below 2°C compatible pathway in terms of their climate strategy, business model, investments, operations and management of greenhouse gas emissions.

For the electric utilities sector, particular emphasis will be placed on the level of emissions planned or 'locked in' by a company from its generation assets between now and 2050, compared to its carbon budget. Analysing a company's locked-in emissions alongside science-based budgets makes it possible to scrutinise the potential cost of inaction, including the probability of stranded assets. To provide comprehensive, actionable information, the benchmark will also measure the gap between a company's confirmed planned generation emissions intensity and its decarbonisation pathway in the next five years. Also important is the company's development of a low-carbon transition plan and scenario analysis determining the impact of the transition on its strategy or business model.

Electricity generation is strongly influenced by regulation, market structure and network infrastructure. Nonetheless, the sector has an important role in influencing and overcoming any constraints posed by these factors. Companies will be assessed on their electricity production portfolio, targets, R&D in low-carbon technologies, and climate action management. Companies will also be assessed on their implementation of low-carbon business models, which include acting as energy-as-a-service providers, local low-carbon energy access providers, large-scale low-carbon electricity generators, flexibility optimisers, and carbon capture and use operators.

Public consultation was an important step in the development of the ACT methodology. ACT sought the views and opinions of a wide range of stakeholders including companies, civil society, academics and other relevant experts. The methodology includes indicators that align with the information disclosed by companies using CDP, GRI and SASB. It also shows alignment with and supports the objectives of the recommendations made by the Taskforce on Climate-related Financial Disclosures. WBA will continue to embrace multi-stakeholder dialogue and consultation throughout the benchmark development process.

Electric Utilities keystone companies – sample setting

WBA builds on leading academic research that put forward the idea of keystone actors, inspired by the concept of 'keystone species' in ecology, to illustrate that the most influential companies in a given industry can operate similarly to keystone species in ecological communities. This means that they can have a disproportionate effect on the structure and system in which they operate. As a result, WBA focuses its benchmarks on keystone companies.

We used the following five criteria and principles to identify the keystone electric utilities companies:

1. The company dominates global or regional production revenues and/or volumes within the electric utilities sector.
2. The company controls globally or regionally relevant segments of production and/or service provision, based on an assessment of gigawatts of installed capacity and renewable energy generation.
3. The company connects (eco)systems globally or regionally through subsidiaries and their supply chains.
4. The company influences global or regional governance processes and institutions.
5. The company has a global or regionally significant footprint, particularly in developing countries. However, because this sector is strongly influenced by national regulation, this principle was less relevant than in other sectors.

The sample includes companies that have electricity generation activities. As explained in the ACT Electric Utilities (EU) sector methodology: 'The focus is on generation emissions for two main reasons: (1) it is expected that these will generally represent more than 90% of the Scope 1 and 2 emissions of a company from the EU sector', and (2) they represent a single, comparable activity through which a company's low-carbon transition can accurately be measured.

The methodology also notes that companies might have other activities that could cause significant emissions in any of the greenhouse gas accounting scopes. 'Examples include gas exploration (significant Scope 1 emissions), transmission and distribution (significant Scope 2 emissions), or retail of gas (significant Scope 3: use of sold products emissions). These will be considered, but only to the extent that they reinforce or undermine the transition strategy of the company (e.g. by carbon lock-in). The transition strategy of the electricity generation is the main focus.'

"We need to think and act in systems to drive transformative change and identify the keystone companies that can help put the world on a more sustainable path. WBA has identified and is now ranking the world's most influential companies in terms of their impact on the SDGs. The transparency and insight in performance these rankings will provide will support accountability; and given the influence these keystone companies have on their employees, suppliers, customers and communities, this could lead to real and transformative change."

Gerbrand Haverkamp
Executive Director, World Benchmarking Alliance

Companies in the Electric Utilities Benchmark 2020

1	AES Corp	Northern America	United States of America
2	AGL Energy	Australia and New Zealand	Australia
3	American Electric Power (AEP)	Northern America	United States of America
4	CEZ Group	Eastern Europe	Czech Republic
5	China Datang Corp	Eastern Asia	China
6	China Energy Investment Group	Eastern Asia	China
7	China Huadian Corporation	Eastern Asia	China
8	China Huaneng Group	Eastern Asia	China
9	China Three Gorges	Eastern Asia	China
10	Chubu Electric Power	Eastern Asia	Japan
11	Chugoku Electric Power Company	Eastern Asia	Japan
12	CLP Holdings	Eastern Asia	Hong Kong, China
13	Comision Federal de Electricidad (CFE)	Central America	Mexico
14	Dominion Energy	Northern America	United States of America
15	Duke Energy	Northern America	United States of America
16	E.ON	Western Europe	Germany
17	EDP Energias de Portugal	Southern Europe	Portugal
18	Egyptian Electricity Holding Company (EEHC)	Northern Africa	Egypt
19	Électricité de France (EDF)	Western Europe	France
20	Eletrobras	Southern America	Brazil
21	EnBW Energie Baden-Wuerttemberg	Western Europe	Germany
22	Enel	Southern Europe	Italy
23	ENGIE	Western Europe	France
24	Eskom Holdings	Southern Africa	South Africa
25	Exelon Corporation	Northern America	United States of America
26	Fortum	Northern Europe	Finland
27	Iberdrola	Southern Europe	Spain
28	Inter RAO	Eastern Europe	Russia

Companies in the Electric Utilities Benchmark 2020

29	Kansai Electric Power Company (KEPCO)	Eastern Asia	Japan
30	Korea Electric Power Corporation (KEPCO/Hanjeon)	Eastern Asia	Korea; Republic (S. Korea)
31	Kyushu Electric Power	Eastern Asia	Japan
32	NextEra Energy	Northern America	United States of America
33	NTPC	South-Eastern Asia	India
34	Origin Energy	Australia and New Zealand	Australia
35	Ørsted	Northern Europe	Denmark
36	Pacific Gas and Electric (PG&E)	Northern America	United States of America
37	Perusahaan Listrik Negara (PLN)	South-Eastern Asia	Indonesia
38	RWE	Western Europe	Germany
39	Saudi Electricity Company (SEC)	Western Asia	Saudi Arabia
40	Southern Co	Northern America	United States of America
41	SSE	Northern Europe	United Kingdom
42	State Power Investment Corporation (SPIC)	Eastern Asia	China
43	Taiwan Power Company	Eastern Asia	Taiwan, China
44	Tenaga Nasional	South-Eastern Asia	Malaysia
45	Tohoku Electric Power	Eastern Asia	Japan
46	Tokyo Electric Power Company (TEPCO)	Eastern Asia	Japan
47	Uniper	Western Europe	Germany
48	Vattenfall (Vattenfall Energy Trading)	Northern Europe	Sweden
49	Vistra Energy Corp	Northern America	United States of America
50	Xcel Energy	Northern America	United States of America

Glossary of selected ACT Electric Utilities sector methodology terms

Decarbonisation pathway: A standard, pathway or point of reference against which things may be compared. In the case of pathways for sector methodologies, a sector benchmark is a low-carbon pathway for the sector average value of the emissions intensity indicator(s) driving the sector performance. A company's benchmark is a pathway for the company value of the same indicator(s) that starts at the company performance for the reporting year and converges towards the sector benchmark in 2050, based on a principle of convergence or contraction of emissions intensity. (As explained in the methodology, the default sectoral benchmark is taken from the sectoral decarbonization approach to science-based targets.)

Please note this is the use of the term in the ACT Electric Utilities sector methodology, and 'benchmark' has a specific meaning and application in relation to the work of WBA and its benchmarks.

Energy: Power derived from the utilization of physical or chemical resources, especially to provide light and heat or to work machines.

Low-carbon scenario (or pathway): A 2°C scenario, a well-below 2°C scenario or a scenario with a higher decarbonisation ambition.

Power: Energy that is produced by mechanical, electrical or other means and used to operate a device (e.g. electrical energy supplied to an area, building etc.).

Power Generation: The process of generating electric power from other sources of primary energy.

Renewable Energy: Energy from a source that is not depleted when used, such as wind or solar power.

Science-Based Target: To meet the challenges that climate change presents, the world's leading climate scientists and governments agree that it is essential to limit the increase in the global average temperature at below 2°C. Companies making this commitment will be working toward this goal by agreeing to set an emissions reduction target that is aligned with climate science and meets the requirements of the Science-Based Targets Initiative.

The full glossary of ACT terms is available in the methodology.