ASSESSMENT

18 March 2025

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ESB

Net Zero Assessment - ESB assigned an NZ-3 score

Summary

We have assigned an NZ-3 net zero assessment (NZA) score (significant) to ESB's carbon transition plan. ESB's ambition score is well below 2 degrees Celsius on our scoring scale (that is, within a 1.55 C-1.80 C temperature range), consistent with Paris Agreement goals. ESB's implementation score is moderate, driven by a credible action plan on scope 1 and 2 emissions in the short term, but higher uncertainties for long-term targets, especially for scope 3 emissions.

ESB has set targets that cover all its attributable emissions. This includes fuel and energy-related activities and use of products sold, categories which dominate its scope 3 emissions. The company has transparently communicated the underlying assumptions guiding the implementation of its strategies to achieve its goals.

However, likely hurdles for the company as well as for the markets where it operates translate into a moderate implementation score, worsening the potential overall score by one notch. These hurdles are mainly related to both the pace and extent of renewable energy development in Ireland, as well as to the pace of reduction of natural gas consumption in the UK retail market.

NZA strengths

- The company decreased its electricity generation-related emissions substantially since 2005 through the closure of part of its thermal facilities
- The major part of scope 1 emissions reduction should be attained in the short-term due to the repowering of its remaining coal-fired plant and its subsequent marginal utilisation

NZA weaknesses

- Uncertainty on the pace of development of new renewable electricity generation in the Irish market
- Lack of visibility on the phase out of the company's gas-fired power plants in the long-term potentially leading to higher level of absolute emissions and relatively high intensity in 2040
- Partial reliance on overall grid improvement to reach objectives
- Uncertainty on the post-2030 reduction of the gas consumption of its GB retail customer base that ESB intends to grow until then

What could strengthen or weaken the NZA?

▲ The individual implementation scores for scope 3 emissions may benefit from potential incremental measures to reduce the use of products sold in the short and long terms

▼ Slower than anticipated build-up of renewable generation in Ireland may hamper the company's ability to reduce the use of its thermal facilities

This assessment reflects our point-in-time opinion of the company's carbon transition plan as of the publication date of this report. Our view draws on public and non-public information provided by the company and is based on our Net Zero Assessments framework, published on 9 November 2023.

Entity profile

ESB is a vertically integrated electric utility in the Republic of Ireland (RoI). It holds leading market positions in power generation and electricity supply, and is the regulated owner of electricity distribution and onshore transmission networks across RoI and Northern Ireland (NI).

Regulated businesses contribute most of the group's earnings (typically around 70% of EBITDA). Across RoI and NI, ESB's network (which includes over 181,000 kilometres (km) of power lines in RoI and around 49,000 km in NI) had a combined regulatory asset base (RAB) of roughly €13.2 billion as of the end of December 2023. In addition, the group had a power generation market share of around 27%, by volume, across the Irish Single Electricity Market (I-SEM) in 2023 and served 1.4 million electricity and gas customer accounts across Ireland, accounting for around 40% of the overall market. As of December 2023, the group had installed capacity of owned generation encompassing both thermal and renewables assets of 5.4 gigawatts (GW), with 4 GW in the island of Ireland and 1.4 GW in Great Britain (GB).

ESB is 97% owned by the Irish Government, through the Minister for Public Expenditure and Reform and the Minister for Communications, Climate Action and Environment. The remaining stake is held by an employee share ownership trust.

Exhibit 1

GHG inventory as of 2022 base year and greenhouse gas reduction targets

Activity/Source	Base year 2022 GHG emissions [tCO2e]	% of total	Year 2030 GHG emissions [tCO2e]	2030 target [Absolute]	2030 target [Absolute]	2030 target [Intensity]	2040 target	2018 GHG emissions [tCO2e]	% of total	2018 vs 2022
Scope 1	**7 258 615**	**62%**		-60%	-44%	67% (from 419gCO2/kWh) to 140gCO2/kWh)	Net Zero (at least -90%)	**8 314 078**	**71%**	**-13%**
Generation	7 234 561	62%	2 860 000					8 275 321	71%	
Ireland	*4 690 064*	*40%*	*-60%*					*5 704 932*	*49%*	
Northend Ireland	*761 594*	*7%*						*803 553*	*7%*	
Britain	*1 782 903*	*15%*						*1 766 836*	*15%*	
Others emissions (SF6, vehicles transport, premises energy etc.)	24 054	0%				N.A.		38 757	0%	
Scope 2	**783 535**	**7%**						**574 131**	**5%**	**36%**
Losses	776 371	7%	295 021					562 888	5%	
Premises energy	*7 164*	*0%*	*-62%*					11 243	0%	
Scope 3	**3 642 531**	**31%**	3 401 425	-7%		N.A.		**2 346 924**	**20%**	**55%**
Capital Goods (Cat 2)	*265 912*	*2%*	373 285					172 670	1%	
Fuel & Energy (Cat 3)	*1 579 873*	*14%*	1 131 074					1 406 563	12%	
Use of Sold Products (Cat 11)	*1 784 940*	*15%*	1 888 203					749 936	6%	
Others (Cat 1, 4, 5, 6, 7)	*11 806*	*0%*	8 863					17 756	0%	
Total	***11 684 681***							**11 235 133**		**4%**
Intensity of electricity produced	419gCO2/kWh					140gCO2/kWh		454gCO2/kWh		**-8%**

* The short-term scope 3 target has been disclosed as part of company's projections in the ESB net zero pathway (see "Figure 18 Scope 3 - Current and projected emissions (in tCO2e)"). This target is also implied by the combination of other targets (See 'Ambition assessment - short term scope 3' in this report).
** According to the ESB net zero pathway, the net zero targets for 2040 entail at least 90% emissions reductions for scopes 1, 2 and 3.
Sources: Moody's Ratings and ESB

The most significant part of ESB's emissions stems from its generation activities that accounted for 62% of the company's total greenhouse gas (GHG) footprint in 2022. Compared with other European utilities, the carbon intensity of the electricity produced by ESB is above-average. Scope 3 emissions account for 31% of the total, and are classified under two main emissions categories: upstream emissions from purchased fuels at 14% and emissions resulting from the use of sold products at 15%. These categories are driven by the use of fossil fuels in power plants and natural gas sales for heating.

Ambition assessment — Well below 2 C

ESB's ambition score is well below 2 C, based on an implied temperature rise of 1.5 C for the short-term scope 1 and 2, and long-term scope 3 targets; above 2 C for the short-term scope 3 target; and well below 2 C for the long-term scope 1 and 2 targets. We have run the targets through our assessment, using our electric and gas utilities scope 1 global benchmark for ESB's carbon intensity of power generation target, which focuses on generation only. For the wider targets we used our global sector-agnostic absolute rate of reduction of CO2 emissions benchmark for the wider absolute targets, which reflect a more diverse mix of emissions. Both assessments result in consistent outcomes.

Short-term scope 1 and 2 — 1.5 C
ESB targets a 60% absolute reduction for its scope 1 (-62%) and scope 2 (-60%) emissions from 2022 to 2030 (see Exhibit 2). In terms of carbon intensity, the company targets a 67% reduction in scope 1 emissions per unit of power generation, to 140 grams of CO2 per kilowatt-hour (gCO2/kWh) in 2030 from 419 gCO2/kWh in 2022.

We assess ESB's ambition score for this subfactor at 1.5 C. Its aims for its operations are consistent with decarbonisation pathways that limit temperature rises to 1.5 C for both its absolute and intensity targets by 2030.

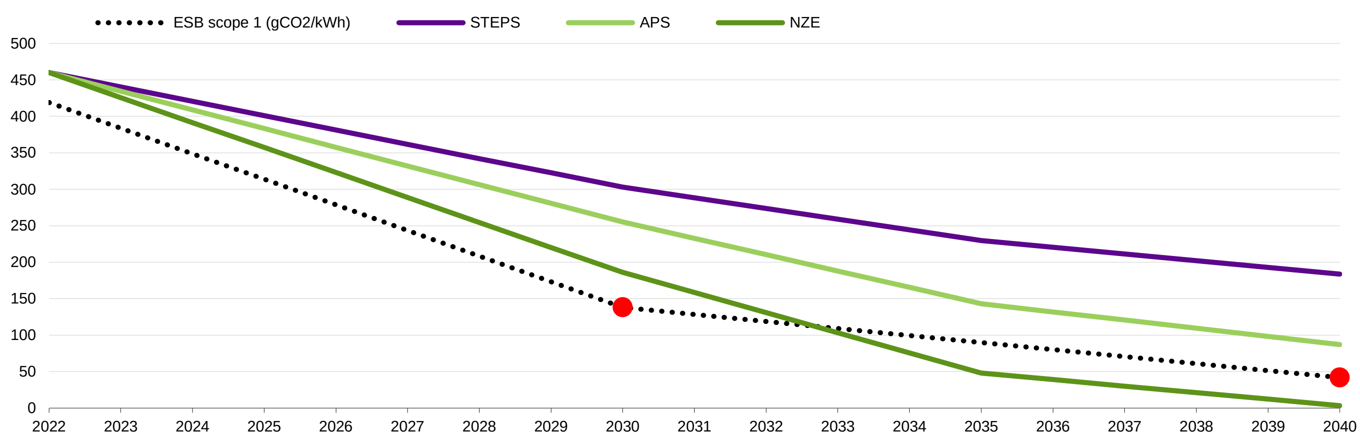
Short-term scope 3 — Above 2 C
ESB targets a 7% absolute reduction for its scope 3 emissions, implied by the scope 1 and 2 target of 60% reduction by 2030 and the 44% reduction target for all scopes by 2030. The targets covers procurement (3.1 and 3.2), purchased energy and upstream emissions of purchased fuels (3.3), upstream transportation and distribution (3.4), waste (3.5), business travel (3.6) and employee commuting (3.7), and use of sold products (3.11). Categories 3.3 and 3.11 together account for more than 90% of ESB's scope 3 emissions.

ESB's short-term scope 3 ambition is aligned with an above 2 C trajectory (see Exhibit 3). This is partly because of an implied increase in category 11, linked with an increase in its gas customer base by 2030 in Great Britain.

Long-term scope 1 and 2 — Well below 2 C
Although we consider a 90% absolute reduction target by 2040 from 2022 levels in line with a 1.5 C trajectory in absolute terms , the score differs when considered from a carbon-intensive perspective. If we consider the target as a reduction in intensity, then the projected intensity would be aligned with a well below 2 C trajectory in 2040, due to a relatively high initial carbon intensity. Taking both of these aspects into consideration, we have assigned a well below 2 C score to this subfactor.

Long-term scope 3 — 1.5 C
ESB's long-term “net zero” scope 3 emissions reduction target for 2040 would also entail at least a 90% reduction from 2022 without the use of offsets, as confirmed by the company in its public communications. This ambitious target aligns with a global benchmark for assessing scope 3 emissions, implying that this decrease is compatible with a 1.5 C scenario.

Exhibit 2
Scope 1 emissions intensity target compared with electric and gas utilities scope 1 global benchmark
Grams of CO2 per kilowatt-hour



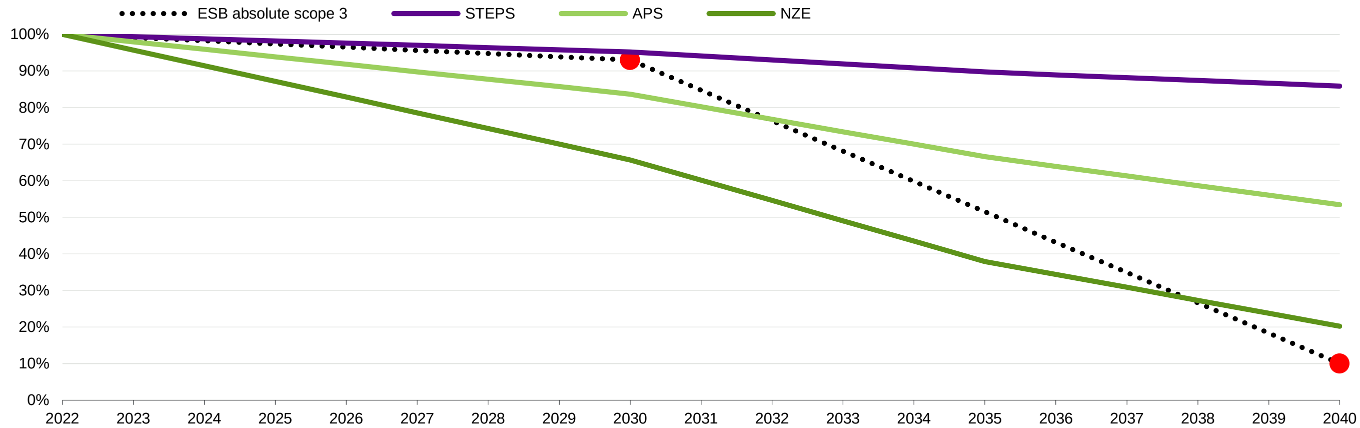
NZE = International Energy Agency (IEA) Net Zero Emissions by 2050 Scenario; APS = IEA Announced Pledges Scenario; STEPS = IEA Stated Policies Scenario

Source: Moody's Ratings

Exhibit 3

Scope 3 emissions target compared with the global sector-agnostic benchmark

Absolute emissions, tonnes of CO2 equivalent (tCO2e)



NZE = International Energy Agency (IEA) Net Zero Emissions by 2050 Scenario; APS = IEA Announced Pledges Scenario; STEPS = IEA Stated Policies Scenario

Source: Moody's Ratings

Implementation assessment — Moderate

ESB's implementation quality is moderately supportive of its ambition. The company demonstrates solid capabilities in reaching its scope 1 and 2 short-term targets, although significant uncertainties weaken potential outcomes in the long term for all scopes of emissions.

ESB's transition plan is underpinned by a number of interim objectives, including phasing out coal-fired power generation by 2030 and reaching 5 GW of net capacity in renewables by 2030, as well as various efficiency measures across its supply chain. Overall, the company's electricity generation-related emissions have decreased substantially since the first baseline set in 2005 (to 370 gCO2/kWh in 2023 from 619 gCO2/kWh in 2005) both in absolute terms and in intensity, thanks to the phasing out of peat- and coal-fired facilities. However, this reduction has not been consistent over the years. Meanwhile, both scope 2 and scope 3 emissions have increased in absolute terms since 2018, the year when comprehensive reporting began.

Short-term scope 1 and 2 — Satisfactory

We assess ESB's short-term plans for scope 1 and 2 emissions as satisfactory. This assessment is supported by the definitive plans for the closure of its remaining coal-fired plant, but tempered by some uncertainty regarding the precise timing of reaching its goal of deploying 5 GW of renewable energy by 2030.

ESB's 2030 emissions reduction from generation relies on two main levers. First, the conversion of its last coal plant (Moneypoint), which should represent 60% of the intended scope 1 emissions reduction, to oil, and its subsequent very low utilisation rate. Second, the plan relies on the expansion of its renewable generation capacities to reduce the usage of its other thermal plants, which should cover the rest of the reduction.

In 2023, ESB entered into a targeted contracting mechanism (TCM) with the transmission system operator (TSO) EirGrid for Moneypoint to serve as an emergency backup power source. Moneypoint should convert from running on coal to heavy fuel in 2025, and become a generator of last resort for the period 2025-2029. Expected utilisation rates, derived from the latest forecasts on demand and supply sources suggest that the network's reliance on Moneypoint would only be very marginal on the period. The plant is likely to run only for a minimal number of hours in its remaining life, up to its planned shutdown in 2029. Therefore, the emissions reductions expected from its gradual decommissioning are highly probable.

The rest of the reduction should arise from a lesser use of the company's gas plants through the development of additional renewable energy capacities and low-carbon electricity imports from both France and Great Britain. The current installed capacity of wind and solar is below 2 GW. Auctions secured so far by ESB would not allow it to reach its full 5 GW target, due to legal challenges and delays, especially prompted by biodiversity concerns. The country is currently experiencing setbacks in deployment, particularly in the advancement of offshore wind projects. Forthcoming rounds of auctions are expected to be subject to a prospective new legislation, though, which will aim to ease those hurdles.

Scope 2 emissions' expected reduction relies on the upgrade of the network and, to a larger extent, the decarbonisation of the electricity produced. Consequently, the effective implementation of the strategies outlined for reducing scope 1 emissions also significantly influence the achievement of this target.

Short-term scope 3 — Developing
We assess ESB's short-term scope 3 plans as developing. The company's target relies on achieving a 28% reduction in the upstream emissions from purchased fuels and capping the rise in emissions from the use of products sold to a 6% increase. These goals are likely to be achieved through the progressive decarbonisation of the electricity generated and, therefore, the short term uncertainties related to the development of new renewable energy sources, both at the company and national levels, could pose challenges in meeting these targets.

Additionally, ESB aims to decrease the volume of gas it sells in Ireland — where the company holds a 21% share of the residential gas market — by 9%. This would help reduce both upstream emissions from fuel supply and emissions from the use of sold products. Furthermore, the company aims for 10% of the gas sold to originate from renewable sources, further enhancing its environmental impact reduction efforts. Considering the regulation system, which includes the 2023 Renewable Heat Obligation mandating an increase in renewable gas sources and the prohibition of thermal boilers in new homes, this strategy for reducing emissions appears to be credible.

However, ESB also expects to grow its gas customer base by 80% in the UK (where such regulations do not exist) over the same period, which should entail an absolute increase in both these emissions categories. The company aims to limit the induced increase in GHG emissions (to a +37% increase in volume) through lower average consumption per capita and improvements in energy efficiency for customers. Increasing its number of dual-fuel UK customers may also foster a rise in upstream emissions linked with the incremental electricity sold, irrespective of it being produced by ESB or other producers.

Long-term scope 1 and 2 — Developing
We assess ESB's long-term scope 1 and 2 plans as developing.

Further scope 1 and 2 emissions reductions from 2030 to 2040 are likely linked to the progressive penetration of new renewable energy sources, which would reduce the company's reliance on thermal plants. Additionally, the expansion of energy storage solutions including batteries and dispatchable generation operating on zero or low carbon fuels such as green hydrogen, aim to replace fossil fuel based peaking plants. ESB expects fossil fuel-fired thermal generation to play only a backup role before being retired or fully decarbonised by 2040.

The rollout of renewable energy capacities appears more likely towards 2040 compared with the 2030 outlook, because of the current state auctions for renewable projects and anticipated short-term delays, particularly in the deployment of offshore wind projects. Despite long-term plans, ESB acknowledges the possibility of delays in deploying new renewable energy capacities at the national level by various energy utilities between 2030 and 2040. Such delays, coupled with an anticipated increase in power demand (2.5x higher by 2050) in Ireland, may necessitate continued dependence on the company's combined cycle gas turbines (CCGTs) during this period.

Long-term scope 3 — Negative
We assess ESB's long-term scope 3 plans as negative.

ESB's upstream fuel supply emissions should decrease as it reduces the amount of fossil fuels purchased to power its thermal generation. However, as outlined previously, there remains uncertainty up to 2040 regarding whether the company will continue to procure a significant quantity of natural gas for its CCGT plants. There is currently no information available regarding plans for plant decommissioning in the coming decades or specific details on how the increased adoption of low-carbon electricity might replace the use of thermal assets. EirGrid estimates that the total installed capacity of gas-fired plants will increase towards 2030, while the load factor for the company's plants remains uncertain.

The second-largest upstream source is the well-to-tank emissions from gas sales in Ireland, Northern Ireland and Great Britain. These emissions will increase before 2030 because of the acquisition of new gas customers. However, the company aims to reduce these emissions to zero by 2040. Currently, half of the gas consumed in the UK is used for residential heating. Projections indicate that gas demand will stabilise between roughly 550 terawatt hours (TWh) and 350 TWh by 2040, compared with the current levels of around 800 TWh. The planned reduction relies heavily on the enhancement of home insulation and the widespread adoption of heat pumps, both of which involve considerable implementation challenges within the country. At present, there is lack of visibility on a detailed strategy that would enable the company to swiftly decrease its emissions footprint by 2040, especially considering the anticipated increase in levels by 2030.

GHG governance assessment — Tier 1

We score ESB's transition-related governance practices as tier 1 (see Appendix for scorecard), the highest possible outcome. The group's practices reflect top scores in most aspects of our governance analysis.

The company reports comprehensively on all relevant GHG emissions scopes and subcategories. The company has not yet considered the use of carbon offsets. Any future utilisation will be capped at a maximum of 10% of the company's base year emissions. Most importantly, the company would not claim any offsets used as emissions reductions in their GHG inventory, in line with GHG accounting standards.

The integration of climate objectives section reaches the maximum scores on most aspects, including the fact that senior executives are incentivised to achieve climate-related targets, which are annually evaluated and clearly quantified. Regular training on climate-related topics appears to be provided to board members. None of the current independent board members reach our definition of substantial experience in managing climate risks, however.

Appendix – Detailed governance scorecard

Exhibit 4

Sub-factors	Aspect	Score	Comment
GHG Accounting	Emissions reported comprehensively for all scopes	4	The most relevant categories of scope 3 emissions are reported (categories 1-7, and 11), all relevant subsidiaries appear to be integrated to the reporting.
	The entity separately reports the carbon offsets, carbon removals and avoided emissions in its key metrics and targets	4	Use of offsets are not yet contemplated and would be capped to the remaining 10% of the company's emissions. There are no mentions of avoided emissions in the reporting.
	GHG disclosures for Scope 1&2 are third-party verified	4	The company scope 1 and 2 emissions are reported for each generation station by an external party. A limited assurance is also provided by an external reviewer to verify their greenhouse gas emissions to the ISO 14064-3 standard.
	GHG disclosures for Scope 3 are third-party verified	4	For all other Scope 1, Scope 2 and Scope 3 emissions, the company undergoes a separate verification process to ISO14064 standard, currently undertaken by Clearstream Solutions.
	Targets are formulated based on absolute emissions	4	ESB has set scope 1, 2 and 3 absolute targets (60% for scope 1 and 2 and 44% for scope 1, 2 and 3 emissions) for 2030 and net zero targets (which mean at least a 90% absolute reduction) for 2040.
	Progress against key material targets is tracked and reported (inc. for Scope 3)	4	The company publishes annually sustainability reports covering all scope of emissions and reports annually to CDP with A- in 2023.
	Total GHG Accounting score	**24**	**Tier 1**
Integration of Climate Objectives	The entity's behaviour is coherent with its stated environmental commitments	4	The company will continue invest in gas-fired plants in the future as grid equilibrium tools and the company is still planning on developing its gas customer base in the UK that should increase by 80% to 2030. Although the company has stated that the increase in gas volume used or sold would decrease on a relative basis, this may be considered as contradictory with its 2030 climate goals. However, these investments appear minor in the more significant context of the company's investment focus on low-carbon technologies.
	Environmental and social risks associated with the implementation of transition plans are identified and managed	4	As part of ESB's TCFD disclosure, risks have been identified (see page 11 of the sustainability report 2022) and detailed information on human right risks and solutions and other social risks (starting page 69 of the sustainability report 2022). The company does not seem particularly exposed, and plans are in place to mitigate the risks.
	The entity discloses evidence of board or board committee oversight of the management of climate change	4	A Safety, Sustainability and Culture Committee is in place, it monitors the management of safety, environment and climate risk and climate opportunities reporting to the board and CEO. There is also an Environment and Sustainability Leadership Team, which is a group of senior managers from across the Group, receive regular updates on environmental, sustainability and climate issues. The CEO is responsible on ESB climate strategy and performance.
	The board demonstrates experience with respect to managing climate risks	3	No board members appears to meet our threshold of a significant experience at managing climate risks. However, as per the annual report 2023 continued briefings on ESG matters, trainings on CSRD, sustainability and climate change matters are provided to the board.
	Climate-related Key Performance Indicators (KPIs) are tied to CEO or other senior executive compensation plans	4	The incentives under ESB's Senior Management Incentive Plan (incorporating bonus as % and salary increases) are linked to achieving net-zero GHG emissions by 2040 and are payable over the course of three years. The targets are annual and have been quantified by ESB.
	Targets are subject to approval and oversight by owners or public authorities	2	There is no formal oversight of the company's climate strategy by external stakeholders beyond its Board approval. ESB's investments benefit however from external review and approval by goverment representatives (for capex plans) or regulators (for network-related invesments).
	Total Integration of Climate Objectives score	**21**	**Tier 1**

Source: Moody's Ratings

Moody's Net Zero Assessment: Summary of scoring approach

The Moody's Net Zero Assessment provides an independent and comparable evaluation of an entity's carbon transition plan, consisting of the Ambition score and the Implementation score.

Ambition score

The Ambition score assesses the level of ambition in an entity's emissions reduction targets. We compare the entity's emissions targets with sector-specific decarbonisation pathways derived from scenario modelling conducted by the International Energy Agency (IEA). The most ambitious pathway considered aims to achieve global net zero emissions by 2050 and limit global temperature increases to 1.5 degrees Celsius.

We assign a score to each target based on the implied global warming, known as the Implied Temperature Rise (ITR). To determine the ITR, we project the entity's greenhouse gas (GHG) emissions using reported emissions and targets, comparing them with emissions estimates from three benchmarks (corresponding to three IEA scenarios: Net Zero Emissions by 2050, Announced Pledges Scenario and Stated Policies Scenario) in the target year. Linear interpolation is used between these three benchmarks (that imply different levels of global warming) and the entity's projected emissions in the target year, to determine the implied level of global warming in the entity's targets (the ITR).

The Ambition score is expressed on a six-point temperature scale, ranging from 1.5 C to Above 2.5 C.

Implementation score

The Implementation score evaluates the quality of an entity's transition plan implementation. We examine the actions, assumptions, and strategic coherence of the entity's emissions transition plan. A higher Implementation score indicates a higher likelihood of achieving targeted emission reductions. This score is expressed on a five-point scale.

Implementation is evaluated by scoring the same four subfactors as Ambition: Short-term Scopes 1 and 2, Short-term Scope 3, Long-term Scopes 1 and 2, and Long-term Scope 3. Each subfactor is scored on a four-point scale (positive, satisfactory, developing, negative) based on the strengths and areas requiring further development along technical, business, and financial considerations.

GHG Governance score

Governance is assessed using a predefined list of questions, assigning points for each and mapping them to a final factor score along a four-point scale of Tier 1-4.

Arriving at the final net zero assessment score

The Ambition and Implementation scores are combined to generate the final NZA score, which represents the overall assessment of an entity's carbon transition plan. The Ambition score determines the maximum NZA that a company may receive, which may be lowered on account of implementation or governance risks. The NZA is expressed on a five-point scale, ranging from NZ-1 (Leading) to NZ-5 (Limited).

For more details, please see the Net Zero Assessments framework, 9 November 2023.

REPORT NUMBER 1426219