ASSESSMENT
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VERBUND AG

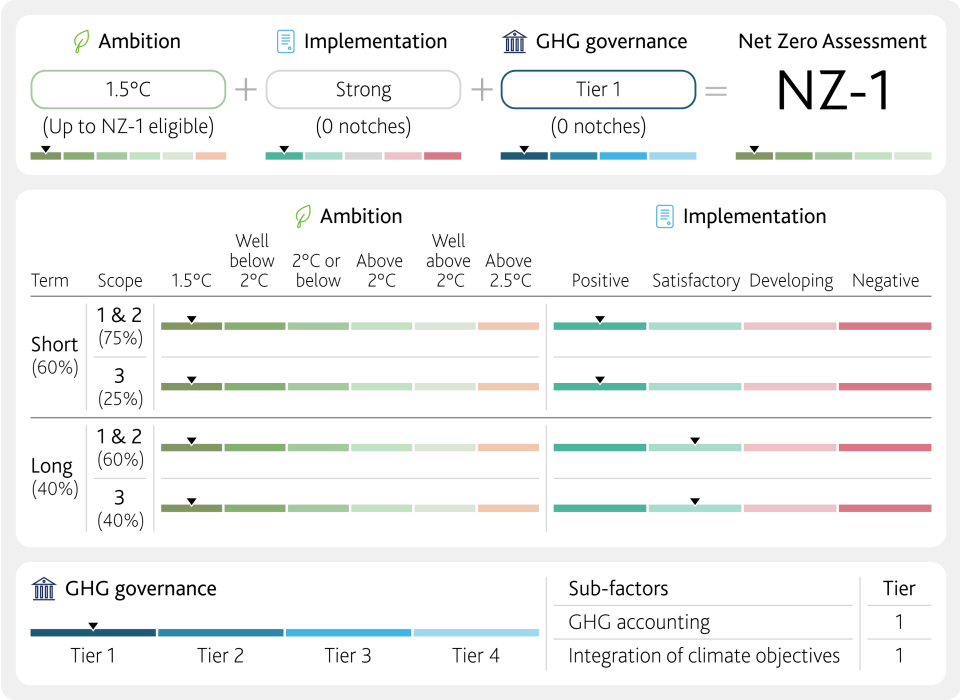
Net Zero Assessment - VERBUND AG assigned an NZ-1 score

Summary

We have assigned a NZ-1 net zero assessment (NZA) score (leading) to VERBUND AG's (VERBUND) carbon transition plan. The group's emission reduction targets are consistent with the most ambitious Paris Agreement goals of limiting temperature increases. Despite longer-term uncertainties, the implementation of its plan is strong, primarily relying on the strategic repositioning of its electricity marketing towards corporate clients, allowing the company to reach our highest level of assessment.

VERBUND has a good track record of reducing power generation emissions in recent years, focusing increasingly on its large hydropower operations and building or acquiring new renewable generation. VERBUND's transition path is largely within its own control and does not rely on the development of new technologies. It remains however subject to some uncertainty around the scope and pace of decarbonisation of some of the group's smaller activities, like gas transmission, or the availability at scale of low-cost hydrogen in Austria after 2035, which may affect the timing of the full decarbonisation of its electricity generation.

Overall, our score still reflects a significant likelihood of the company attaining emissions levels near those required under 1.5 degrees Celsius (C) scenarios by or before 2050.



NZA strengths

- Full control over its largest single decarbonisation action, the re-positioning of its business selling electricity to corporates
- High and rising exposure of its generation portfolio towards renewables (including hydro)
- No dependency or reliance on unproven technology

NZA weaknesses

- Timely and complete decarbonisation of generation activity depends in part on the implementation of the SoutH2 corridor, allowing supply of large-scale cost-efficient green hydrogen to Austria
- Some uncertainty on the evolution of the regulatory context of its gas assets, which may constrain emission reductions (of relative marginal importance in the context of the group, though)

What could strengthen or weaken the NZA?

- ▲ Although VERBUND has already reached our maximum score, the full implementation of its plan would be strengthened by a confirmation of the availability of cost-efficient at-scale green hydrogen in Austria past 2035, and/or some reassurance on the pace of growth of new renewable generation in the country ahead of that date
- ▼ Reversal, or lack of rigor in implementing the re-positioning of its business selling electricity to corporates towards green energy may adversely impact our assessment

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.

This publication does not announce a credit rating action. For any credit ratings referenced in this publication, please see the issuer/deal page on https://ratings.moodys.com for the most updated credit rating action information and rating history.

Entity profile

VERBUND AG is the leading power generation company in Austria, where it owns and operates more than 50% of the generation capacity. About 80% of its 10.5 gigawatt (GW) installed capacity mainly comprises hydropower assets in Austria (overall 8.4 GW), while the remaining installed capacity comprises renewables (wind and photovoltaic [PV]) of 1.1 GW and thermal power of 1.0 GW. In the year to March 2024, it had produced roughly 33 terawatt-hours (TWh) of electricity, around 92% from hydropower, 6% from other renewables and 2% from thermal, making it one of the largest as well as least-carbon-intensive electricity producers in Europe.

Via its 100%-owned subsidiary Austrian Power Grid AG (APG), VERBUND also owns and operates most of Austria's 3,400-kilometre (km) electricity transmission network and its international interconnections. VERBUND also controls a 51% stake in Gas Connect Austria (GCA), a small (900 km) but important part of the European natural gas high-pressure transmission network. Additionally, the company engages in electricity trading across Europe, supplies power to business customers in Austria and Germany, while also marketing electricity and gas to retail consumers in Austria. Although these last two activities are small in terms of profit contribution to the group, they accounted for 75% and 4%, respectively, of its total CO2 equivalent emissions in its 2020 base year.

VERBUND's largest shareholder is the Austrian government, which holds 51% of the company's shares. As of the end of June 2024, VERBUND had a market capitalisation of roughly €26 billion. While the company's operations and assets are predominantly concentrated in Austria and Germany, it has recently expanded its growing renewable generation activity into southern Europe, especially the Spanish and Italian markets.

Exhibit 1

GHG inventory as of 2020 base year, short-term (2030) and long-term (2040) GHG reduction targets, and latest performance

VERBUND's emissions, in kT CO2eq	2020 (base year)		2023 (most recent)		Short-term targets, by 2030, vs. 2020	Long-term targets, by 2040, vs. 2020
Total gross GHG emissions	6,252	100%	5,183	100%	- All scopes (exc. Cat 3.2): -74%	- Climate neutrality (-90% emissions, exc. Cat 3.2)
Scope 1	738	12%	292	6%	- Sc1 emissions intensity: -40% (from 20 to 12 gCO2eq/kWh)	- Sc1 emissions intensity: -90% (from 20 to 1 gCO2eq/kWh)
Scope 2 (market-based)	293	5%	258	5%		
Scope 3	5,221	84%	4,633	89%		
Category 1 Purchased goods	93	1%	73	1%		
Category 2 Capital goods	17	0.3%	226	4%		
Category 3 Energy-related activities	4,697	75%	4,021	78%	- Sc3 emissions intensity from power purchases: -90% (from 324 to 28 gCO2eq/kWh)	- Sc3 emissions intensity from power purchases: -98% (from 324 to 6 gCO2eq/kWh)
Category 6 Business travel	1	0.0%	3	0.1%		
Category 11 Use of sold products	221	4%	189	4%		
Cat 15 Affiliates	193	3%	122	2%		

Source: VERBUND and Moody's Ratings

The group does not report its emissions for some of the categories in scope 3 as they are irrelevant in the context of its main activities.

The company's scope 3 inventory does include the impact of the natural gas sold by VERBUND to its customers (a small share of the total emissions, reflected in Category 11). The group's inventory does not include the impact of the natural gas that its subsidiary GCA merely transports, but does not own or control. There is currently no consensus on accounting and target-setting for such gas. We do not add that impact as part of our assessment of ambition and implementation, although we reflect the implications of that activity in our greenhouse gas (GHG) governance assessment whenever significant.

Ambition assessment — 1.5 C

We assess VERBUND's ambition score at 1.5 C, based on its plan of being consistent with science-based pathways for its operations that limit temperature rises to 1.5 C for all its short-term and long-term targets.

VERBUND's targets include both intensity-based objectives capturing its electricity generation and marketing activities, and absolute measures encompassing all emissions of the group (apart from those linked to capital spending).

The intensity targets are meaningful, effectively reflecting the group's primary emission sources (generation and resale of electricity, overall accounting for roughly 80% of the reported emissions in the 2020 base year). However, intensity targets cover only a part of

the overall scope 1 and 2 emissions, on one hand, and of scope 3 emissions, on the other hand. That only partial coverage may have prompted us to negatively adjust our assessment.

The absolute targets are therefore an important complement to the intensity targets, as they encompass all reported emissions (apart from the impact from capital spending). By considering both sets of targets, we avoid the need for adjustments in our intensity-based assessment because of the restricted coverage, while benefitting from a more granular view. Despite presenting illustrative charts below that focus solely on intensity targets, we have not favoured one set of targets over the other; both sets of targets are consistent with each other. Furthermore, the results from our assessments on both sets have been consistent.

For VERBUND's scope 1 (electricity generated) and scope 3, category 3 (electricity purchased for resale) intensity targets, both short and long-term, we have used our electric and gas utilities global benchmark, which focuses on the carbon intensity of generation, as measured in grams of CO2/kWh produced. For the all-emissions absolute targets (excluding capital spending), we have used our sector-agnostic global benchmark, reflecting the broader diversity of emissions.

The overall absolute target is a valid representation of the company's continuing emissions, despite the exclusion of capital spending, considering the relatively low contribution of ordinary capital spending (0.3% of emissions in 2020, 5% in 2023) and its contingent and enabling nature: VERBUND's capital spending is expected to grow significantly over the next decade, although this will be temporary, primarily to enable the transition of the markets it is active in towards renewable energy, directly through incremental renewable generation assets, and also through a critical update to the electricity grid in Austria. Such a grid update is necessary to allow the full benefit of the hydropower generated in the mountainous west of the country to reach the more populated east, as well as to integrate new wind and PV assets to the grid.

Short-term scope 1 — 1.5 C
As Exhibit 2 shows, VERBUND's generation intensity performance is significantly below benchmark expectations of a net zero scenario at all times. VERBUND's target of reducing the intensity of its own generation's emissions by 40% to 12 gCO2eq/kWh from 20 between 2020 and 2030 is in line with a 1.5 C trajectory under the electric and gas utilities benchmark.

Short-term scope 3 (power purchase) — 1.5 C
Likewise, VERBUND's target of reducing the intensity of the emissions of the power it purchases for resale by 90% to 28 gCO2eq/kWh from 324 between 2020 and 2030 is also in line with a 1.5 C trajectory under the electric and gas utilities benchmark.

Short-term scopes 1, 2 and 3 — 1.5 C
The overall short-term aim of reducing overall emissions by 74% by 2030 from 2020 is compatible with the intensity-based targets, assuming a similar volume of thermal electricity is generated or sold by VERBUND at that time. This is in line with its strategy of growing renewable generation and sales of certified green energy.

The 74% reduction by 2030 from the 2020 base year is in line with a 1.5 C trajectory under our sector-agnostic benchmark.

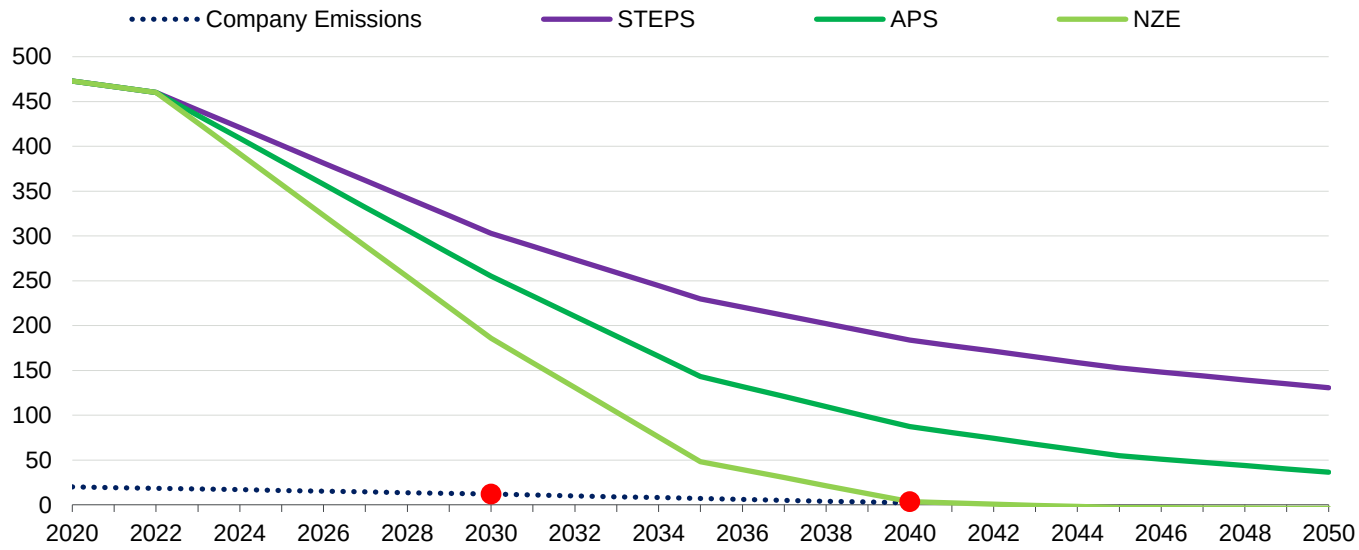
Long-term scope 1; long-term scope 3 (power purchase) — 1.5 C
We find that VERBUND's long term targets to reduce its generation intensity performance (scope 1) and its power for resale (scope 3, category 3) by 90% and 98%, respectively, from 2020 levels by 2040 (to 1 and 6 gCO2eq/kWh, respectively,) to be consistent with a 1.5 C ambition.

Long-term scopes 1, 2 and 3 — 1.5 C
The company has a headline ambition of achieving "climate neutrality" by 2040. The company defines this as reducing overall absolute emissions by no less than 90% from the base year, excluding the impact of capital spending. This is consistent with its other articulated targets, as well as with a 1.5 C ambition, using our sector-agnostic benchmark.

Exhibit 2

Scope 1 intensity targets are aligned with a 1.5 C trajectory, over both the short and long terms

VERBUND's scope 1 intensity target compared with the electric and gas utilities benchmark in gCO2eq/kWh

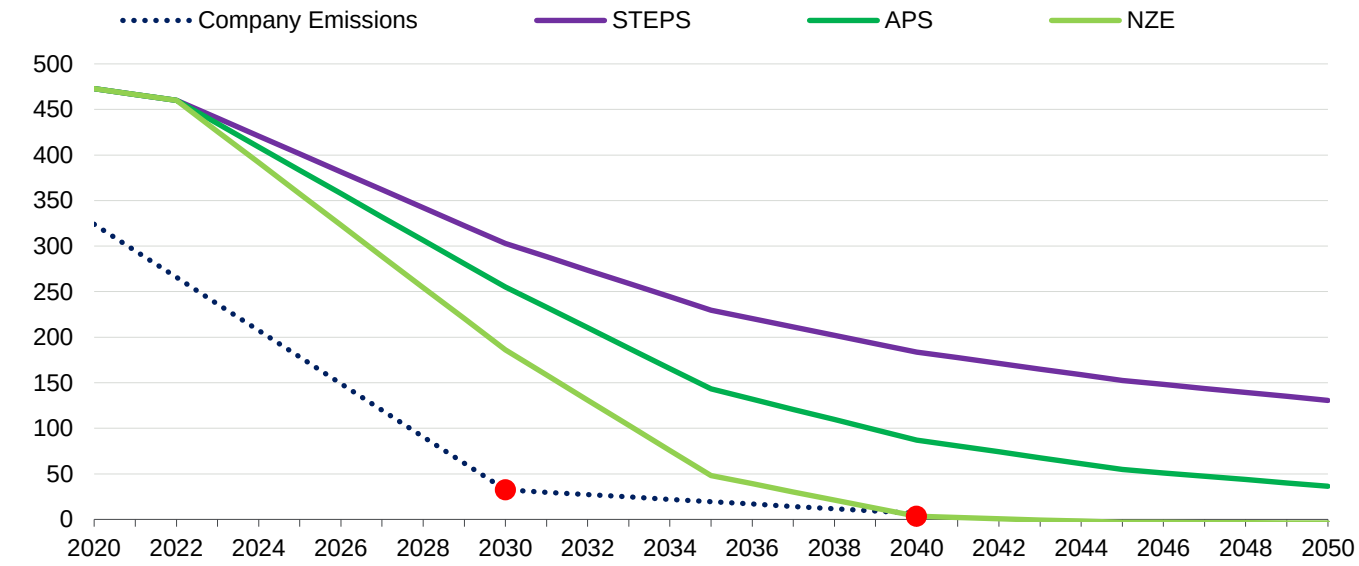


NZE = International Energy Agency (IEA) Net Zero Emissions by 2050 Scenario; APS = IEA Announced Pledges Scenario; STEPS = IEA Stated Policies Scenario.
Source: Moody's Ratings

Exhibit 3

Scope 3 intensity targets (on purchased power) are also aligned with a 1.5 C trajectory over both the short and long terms

VERBUND's scope 3, category 3 intensity target compared with the electric and gas utilities benchmark in gCO2eq/kWh



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 — Strong

VERBUND's implementation quality is strongly supportive of its ambition.

The company's transition plan does not depend for its implementation on technological innovation, although it would benefit marginally from enhanced regulatory support, be it for the overall growth of renewables in Austria or for the availability of green low-cost hydrogen at scale in the country after 2035. The company however maintains complete control over its key actions for reducing emissions. These include the commercial repositioning of its business selling electricity to corporate clients (mostly in Germany) by 2030, and the cessation of gas sales to its (small) retail customer base in Austria by 2040. The relatively small size and below-group-average profitability of those businesses support the credibility of such commercial actions.

In addition to the efforts to reduce its emissions footprint highlighted below, VERBUND's strategy includes some significant investment and commercial development in renewable electricity generation, especially in Southern Europe, as well as the local production and eventual large-scale marketing of hydrogen in Austria (subject to availability). While these projects are an important part of VERBUND's projected business development, and although the availability of hydrogen would contribute to the ultimate decarbonisation of its electricity generation, none are indispensable to the credibility of the company's plan to achieve its targets. In particular, the financing of and the return on investment of VERBUND's actions to reduce its emissions do not depend on the success or timing of these business development initiatives.

Short-term scope 1 and 2 — Positive

The carbon intensity of VERBUND's generation portfolio (which accounted for 90% of its scope 1 emissions in 2020, or roughly 10% of its overall emissions) has already decreased beyond the 2030 target (8 gCO2eq/kWh versus a target of 12 gCO2eq/kWh). The 2020 base year generation intensity figure of 20 gCO2eq/kWh includes a limited (three months) amount of coal-fired generation. The observed decrease in intensity primarily stems from the reduced operation of VERBUND's main gas-fired facility, facilitated by the progressive introduction of renewable energy capacity in the country.

However, the intensity performance has been volatile in recent years, influenced by weather conditions affecting both rainfall and wind. It should, however, continue to benefit until 2030 from the buildup of renewable capacity in Austria and, to a lesser extent in that time frame, from the upgrades of the electricity grid. These upgrades are aimed at optimising the nationwide use of hydro capacity, with full completion however not expected before 2035.

Austria has set itself the ambitious goal of covering 100% of its electricity consumption from renewable energy by 2030, on a national balance basis, in its 2021 Renewable Energy Expansion Act (REEA). Although that act has created a supportive environment for renewable energy, and the country already benefits from a notably high renewable share of 80% in its energy mix, the goal for 2030 is ambitious: it involves adding an additional 18 GW of renewable capacity (or 65% of the 28 GW overall generation capacity currently installed in the country). While achieving this level of expansion within a brief time frame may be tough, any advancements made will help reduce the reliance on gas-fired generation, including that from VERBUND's facilities.

While VERBUND aims to grow its already largely renewable generation portfolio by a further 25% of total generation with wind and solar assets by 2030, most of this development will take place in southern Europe. There is, however, no shortage of utilities in Austria looking to develop renewable energy assets. VERBUND intends to grow its local hydro capacity in the short term by nearly 19%, mostly through easy-to-implement repowering, as well as through new sites, for which permits have already been secured.

The incremental greening of the country's electricity will also continue to help decrease the bulk of scope 2 emissions, roughly 80% of which are linked to losses on the electricity grid.

Short-term scope 3 — Positive

The bulk of scope 3 emissions (81%, amounting to roughly 75% of overall emissions) come from the power purchases, that is, the electricity bought by VERBUND to service its corporate customers in the German market, especially where its generation capacity is well below its sales. The company currently sells to those corporate customers both undifferentiated electricity and, to those requiring it, electricity certified from renewable sources (which typically costs more than undifferentiated supply). It has now strategically shifted its electricity marketing to focus solely on procuring and selling low-carbon electricity. This transition will occur progressively, aligning with the renewal of existing multiyear contracts, which will then include commitments to this green initiative.

All contracts are likely to be renewed before 2030. The company would no longer contract with customers unwilling to accept the new terms. Although this may represent a commercial risk for the company, the implementation of such a repositioning is highly likely, as customers are increasingly focused on managing their own footprint. The relatively lower profitability and contribution of that activity (together with trading activities, it amounted to less than 7% of the group's EBIT) further make this strategic shift credible. Green electricity would be sourced directly or verified through certificates of origin, which we deem acceptable in the short term, considering that developing additional renewable assets inherently requires more time.

This strategic repositioning, aimed at virtually eliminating the carbon footprint associated with power purchases, is likely to be enough to achieve short-term scope 3 intensity targets. When combined with the expected reduction in scope 1 emissions, the overall amount of reduction should also meet absolute emission reduction goals, even without further decreases in other scope 3 categories.

Long-term scope 1 and 2 — Satisfactory
The targeted incremental reduction in intensity and absolute amounts of emissions from generation will be broadly met (at least to a 75% comfort level, which is what our assessment indicates), even if the company's gas plant does not fully transition to hydrogen.

This reduction will be facilitated by the continuous increase in renewable capacity, which is likely to continue beyond 2030 to align with the REEA objectives. Additionally, the full upgrade of the electricity grid, scheduled for completion by 2035 by the group's subsidiary APG, will allow the full utilisation of its hydropower, mostly located in the Alps in the western part of the country, to supply the more populated eastern regions. The significant investment (€9 billion over the 10 years ending in 2034) required for the grid update will benefit from guaranteed returns and has, in principle, been approved by the regulator, thus ensuring a high probability of project completion. Warming temperature trends may also reduce the seasonality of hydro production as a smaller proportion of precipitation accumulates as snow during the winter, allowing higher yearly utilisation. Therefore, VERBUND's investment in the repowering and extension of its hydro capacity, while not subject to regulatory returns, stands to benefit from enhanced returns because of this post-update higher utilisation and the relatively lower costs of repowering. This prospect strengthens the likelihood of such investment.

Scope 2 emissions will continue to benefit mostly from the improving mix of the electricity transported, although some of the upgrade work in the network will also drive efficiencies.

The complete decarbonisation of VERBUND's generation requires replacing the natural gas currently powering its Mellach generation plant with a low-carbon source. A promising solution is the likely influx of large supplies of cost-effective green hydrogen into Austria after 2035, facilitated by the SoutH2 pipe project (from Tunisia via Italy and Austria towards Germany). This EU-sponsored project is currently progressing through the approval stages, although its realisation remains uncertain. Even if SoutH2 did not materialise, a mix of locally produced biogas and hydrogen may allow the plant to further reduce its emissions, enabling the group to substantially achieve its targets. By 2040, Mellach's annual utilisation is likely to decrease significantly, driven by the incremental integration of renewable and hydropower sources, which may allow the implementation of solutions that are currently not available in sufficient scale.

Long-term scope 3 — Satisfactory
Beyond the repositioning of its business selling electricity to corporates, which would have already wiped out the bulk of scope 3 emissions, VERBUND would need to reduce the impact of the products it sells to retail consumers in Austria by phasing out its natural gas offering. The company will market alternatives in the mean time (for example, heat pumps), while ensuring the security of supply until 2040. Beyond this point, it may become necessary to discontinue service for a subset of customers still demanding that specific supply, assuming the option remains. The likelihood of such an adverse commercial move is strengthened by VERBUND's relatively smaller market share in this segment (fewer than half a million households), the lower profit contribution from this activity and the company's clear stance on the matter.

By 2040, the corporate market's electricity purchases are likely to be sourced from a significantly decarbonised market. In instances where VERBUND would need to specifically source green electricity for resale, though, it plans to continue to do so using a mix of physical sourcing (through physical Power Purchase Agreements) and certificates of origin. We consider such mix as potentially not ideal for meeting long-term supply requirements, as the certificates of origin may not always accurately reflect the electricity use in both time and geography.

Even considering these imperfections, VERBUND is highly likely to reach its overall and individual long-term scope 3 targets, at least to a 75% comfort level.

GHG governance assessment — Tier 1

We score VERBUND's transition-related governance practices as tier 1 (see Appendix for scorecard), the highest possible outcome. The group's practices reflect a superior performance in most aspects of our governance analysis, although some of its incentives and assurance practices remain below the optimum level of performance we recognise. These imperfections do not amount to a significant weakness in governance or disclosure.

VERBUND's GHG-related accounting and disclosure practices are solid. The impact of the gas that it ships through its GCA subsidiary, but does not own, is however not disclosed in detail nor is it reported alongside the company's GHG inventory, which we would consider best practice (although we recognise that there is no consensus regarding such accounting). The decreased volume of gas transported since the onset of the Russia-Ukraine war, combined with the uncertain future use of this segment of the European natural gas network, and its relatively minor impact within the broader scope of the group's operations, contribute to make that oversight more acceptable.

The integration of climate objectives in the group strategy also reaches our highest possible outcome. The group has clear board-level responsibility, reporting and scrutiny for its sustainability objectives. Its board appears competent on environmental matters, and includes a specialist on sustainability.

Its CEO and senior executives are not directly incentivised to achieve climate-related targets, and there is no evidence of strategic objectives or lobbying activity contradicting its stated environmental commitments. The group's transition strategy has been set by the board but not subjected to a potential shareholders' vote.

Appendix – Detailed governance scorecard

Exhibit 4

Sub-factors	Aspect	Score	Comment
GHG Accounting	Emissions reported comprehensively for all scopes	4	Reporting appears comprehensive, apart from marginal or irrelevant categories, and is based on operational control. The impact of the gas shipped through its pipes but not owned or marketed by the group is not disclosed alongside the group's inventory, though.
	The entity separately reports the carbon offsets, carbon removals and avoided emissions in its key metrics and targets	4	No offsets used currently. No offsets in targets or reporting.
	GHG disclosures for Scope 1&2 are third-party verified	4	Limited assurance (Deloitte, EY) since 2021. However, recalculated base year (2020) and most recent year (2023) not yet assured.
	GHG disclosures for Scope 3 are third-party verified	3	Limited assurance (Deloitte, EY) since 2021. However, recalculated base year (2020) and most recent year (2023) not yet assured.
	Targets are formulated based on absolute emissions	4	Although the company's main sources of emissions (Scope 1 and 3.3) are highlighted in the main communication through intensity-based targets, all scopes, whether as a total or individually, have absolute targets, which are expected to be monitored by the group.
	Progress against key material targets is tracked and reported (inc. for Scope 3)	3	Although reporting of previous, less extensive targets has been satisfactory, no current evidence of monitoring the new targets.
	Total GHG Accounting score	**22**	**Tier 1**
Integration of Climate Objectives	The entity's behaviour is coherent with its stated environmental commitments	4	Inconsistency between VERBUND's strategy, and its curent role as facilitating the use of natural gas, with no clear prospect for resolving that exposure. This is however mitigated by the marginal importance of such related emissions as part of the group's mix.
	Environmental and social risks associated with the implementation of transition plans are identified and managed	4	No specific social risk associated with Verbund's transition.
	The entity discloses evidence of board or board committee oversight of the management of climate change	4	Sustainability Committee (established in 2020), comprising four members of the Supervisory Board and two employee representatives. Its responsibilities include an annual review of the sustainability strategy and targets, to decide any adaptive measures. In 2023, the committee met three times.
	The board demonstrates experience with respect to managing climate risks	4	Chair of the Sustainability Committee benefits from a background as an academic and advisor, focused on the economics of sustainability. Vice-chair of the same committee had previous roles in sustainability and renewables development.
	Climate-related Key Performance Indicators (KPIs) are tied to CEO or other senior executive compensation plans	3	For the last available period (2022) 30% of the Executive Board's short-term variable remuneration was based on non financial information: 10% on expansion of renewable generation capacity, 10% on proportion of women among new hires, 10% occupational health and safety performance. No direct link to GHG emissions reductions identified in the current (2024) remuneration package. No current indication of change to be implemented following the adoption of new targets.
	Targets are subject to approval and oversight by owners or public authorities	2	No approval highlighted beyond company's board.
	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 C.

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 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

We assess governance 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, published on 9 November 2023.

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