



Global Alliance for
Sustainable Energy
Enabling a sustainable value chain

Global Alliance for Sustainable Energy

WG1 - Net zero/ Decarbonization

Position Paper Outline

“Pushing the entire sector to commit to Net zero emission”



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1. Executive summary

In order to align with the 1.5 °C scenario and the net zero objective by 2050, the pathway for GHG emissions reduction, including measurable short- and medium-term goals, must be clearly defined, based on common agreed grounds and science, and must be realistic and include scopes 1, 2 and 3. In this sense, it shall ensure that all available efforts are being made to reduce direct emissions in line with the science to reach residual emissions aligned with a 1.5 °C target and clearly distinguish between the emissions reductions achieved and the role of neutralization with carbon removals. Global standards defined under environmental integrity criteria, can provide a credible and robust framework to assess corporate climate action. In this sense, the framework established by the Science Based Targets Initiative's Net-Zero Standard is a good example to look at.

Complying with Paris Agreement targets under a science-based pathway is essential but other elements are needed to provide the strategy with the appropriate credibility and robustness, such as short- and medium-term targets to enable the achievement of long-term objectives, internal coherence with business plans and corporate governance, transparent measurement, verification and reporting and actionable transition plans. The elements must demonstrate the corporate alignment with the Paris agreement and progress towards achieving the targets, as well as relevant information about the set of measures to be implemented. Urgent action is needed to decarbonize the power sector to limit the increase in global temperatures to 1.5 °C (net zero)¹. Companies in the power sector are being asked to set targets to reach net-zero no later than 2040, as decarbonizing the power sector will allow other sectors to transition to net-zero.

To reach net-zero, companies must globally address Scope 3 supply chain emissions. Decarbonization within the supply chain plays a critical role in realizing net-zero ambitions.

At the European Union level, there are already obligations for companies to publish climate related information (i.e., verified information on emissions), and the Corporate Sustainability Reporting Directive (CSRD¹) envisages the adoption of a reporting standard that specifies corporate disclosures on climate change, including their climate targets and transition plans. The CSRD areas of reporting are broadly aligned with the recommendations

¹ https://finance.ec.europa.eu/capital-markets-union-and-financial-markets/company-reporting-and-auditing/company-reporting/corporate-sustainability-reporting_en



of the Taskforce on Climate-related Financial Disclosures² (TCFD), created by the Financial Stability Board to improve and increase reporting of climate-related financial information.

The document summarizes and analyzes all the initiative mapped by the Net Zero/decarbonization working group that focus on:

- Increasing awareness of different maturity levels when it comes to measuring and defining reduction targets for GHG emissions.
- Identifying the main challenges across Scopes 1, 2 and 3, and focus particularly on value chain emissions.
- Sharing practices and strategies for addressing suppliers' ESG and carbon footprint performances.
- Achieving a common understanding on KPIs utilities will be asking suppliers to better transparency and pushing emission reductions.
- Achieving consensus on the necessity of net zero targets for all group members.

2. Global Alliance for Sustainable Energy

In September 2021 a group of global leaders from across the renewable energy value chain and the innovation ecosystem (civil society, academic institutions, sector's associations, international agencies) launched the Global Alliance for Sustainable Energy.

Renewable energy sources are already the cleanest and most sustainable solutions available for power generation and the vision shared by the members of the Alliance is that it should be regarded as fully sustainable, committed to innovation, with a mission to drive sustainability within the renewable energy sector and lead a just transition away from fossil fuels.

The need to take concrete, collaborative action, have come together to create the Global Alliance for Sustainable Energy. The initiative, launched on 16th September 2021 in a virtual event, is unique in its scope and ambition, representing the members' joint response to the urgent need to decarbonize the global energy system while ensuring its sustainability from an environmental, social and governance (ESG) perspective.

An independent global alliance opened to all stakeholders that recognizes the urgency of addressing the climate emergency according to the 'just transition' principles and the need to promote and embed sustainability and social responsibility in the renewable energy industry.

² <https://www.fsb-tcf.org/>



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The Alliance goal is a just transition towards net-zero and socially responsible energy production, achieving the ambition of The Paris Agreement to avoid the most severe impacts of climate change on people and the Planet, through:

- Defining standards and KPIs for new design, business models, and End of Life in line with the United Nations' Sustainable Development Goals (SDGs);
- Disseminating and activating funding and collaboration frameworks;
- Promoting supportive regulation;
- Launching tailored initiatives such as reports or events, drawing on the wide-ranging experience and perspectives of the Alliance's founding members and stakeholder network.

The power sector sits at the heart of the energy transition. The rapid growth of the renewable industry is challenging, but paramount to the success of the Paris Agreement. The world needs to achieve net-zero by 2050, but the power sector will need to decarbonize ten years ahead and support the decarbonization of all other sectors. Within this context, renewables and its supply chain need to ensure its full sustainability along the way. This paper focuses on the challenges of CO₂e emission reduction along the supply chain for the renewable energy sector as a critical point to drive and accelerate global decarbonization.

3. Decarbonization of the energy sector

i. Context: A scenario for energy transition, renewables and power grids

In terms of global emissions, the power sector is a key contributor to the overall level of global emissions (according to IEA data, the electricity and heat generation sector accounts for almost half of CO₂ emissions at global level (44%),³ and decarbonization is needed to achieve the transition to net zero by mid-century, both for the sector and to enable other sector to transition. In "Global Sector strategies: Investor Interventions to Accelerate Net Zero Electric Utilities"⁴ it is emphasized that urgent action is needed to decarbonize the power sector to limit global temperatures rises to 1.5 °C (net zero)". Companies in the power sector are being asked to set targets to reach net-zero no later than 2040⁵. The European Union has set itself the goal of becoming "climate neutral" by 2050 in its Climate Law, one of the first legislative proposals following the Green Deal. The Climate Law also includes the necessary intermediate steps to achieve net zero emissions in 2050: in order to keep the

³ The European House - Ambrosetti and Enel Foundation elaboration on IEA data, 2022.

⁴ [Global-Sector-Strategy-Electric-Utilities-IIGCC-Oct-21.pdf \(climateaction100.org\)](#)

⁵ [SBTI CORPORATE NET-ZERO STANDARD \(Net-Zero-Standard.pdf \(sciencebasedtargets.org\)\)](#)



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pace with the 2050 final goal, in 2030 GHG emissions are expected to decrease by 55% with respect to 1990 levels. Furthermore, in July 2021 the European Commission launched the package of proposals called “Fit for 55”⁶, which includes the Climate Law’s GHG emissions reduction target, a revision of the EU Directive on renewables (from 32% to 40% share of renewable energy sources in overall final consumption).

The energy transition requires the acceleration of renewables deployment while also the phase out of fossil fuel technologies. In particular, the transition away from coal to renewable energy sources will play a key role in accelerating it. As highlighted by the IEA Net Zero 2050 scenario⁷, all unabated coal- and oil- fired power plants need to be phased out by 2040 to be on track to achieve net zero by 2050.

At the same time, electricity is emerging as the critical energy vector and an unprecedented opportunity to foster a clean energy transition and decarbonization of energy uses. The contribution of all is necessary to achieve net zero emissions by 2050 globally and can be carried out through the electrification of end-uses sectors (the share of electricity for final consumption by sector accounts for nearly 2% in transport, 27% in building, and 42% in industry⁸).

As a means of combating coal dependence, as well as accelerating the green transition, the European Commission presented the program RePowerEU⁹ in May 2022. The major objective of the programme is to achieve 45% renewable energy penetration with a target of total capacity production of 1236 GW of new solar connections by 2030. To achieve this aim, support investments and reforms totaling €300 billion are being made. Based on three main pillars, electrification, energy efficiency and renewable, the program aims to achieve a saving of 35 MLD m³ of natural gas by 2030.

At a global level, it is expected that global electricity consumption is due to triple in this decade, which requires considerable infrastructure developments.

In this context, power grids will be fundamental platforms to enable electrification and the transition towards a decarbonized power generation. New forms of electrification will increase demand in the residential, transport and industrial sector, and digitalization of power grids will make electrified customers increasingly more active in the development of distributed renewable sources and the introduction of flexibility in electricity distribution grids.

At the same time distribution grids are becoming the entry point of power into the systems, as renewable energy plants go smaller and become more distributed. The new paradigm of a power system where electricity

⁶ [Fit for 55 - The EU's plan for a green transition - Consilium \(europa.eu\)](https://ec.europa.eu/euro-observatory/en/fit-for-55)

⁷ [Policies – World Energy Model – Analysis - IEA](https://www.iea.org/data-and-statistics/charts/share-of-electricity-final-consumption-by-sector-2019)

⁸ <https://www.iea.org/data-and-statistics/charts/share-of-electricity-final-consumption-by-sector-2019>

⁹ https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/repowereu-affordable-secure-and-sustainable-energy-europe_it#le-azioni-di-repowereu



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generation connects mainly to distribution instead of transmission grid is expected to become prevalent in a couple of decades, according to BNEF NEO 2021.

This renewable transformation will lead a fundamental change as smaller plants will connect directly to power distribution grids with one scenario set forth by Bloomberg New Energy Outlook estimating that in 2050 the average plant will be six times smaller than it is today.

Therefore, there is a need for increased renewable generation capacity to handle this growth. However, the role of electricity grids will play a crucial role in ensuring this widespread adoption of renewable energy sources while also guarantying the highest possible standards for the energy supply, ensuring robust grids that are resilient in extreme weather conditions, and promoting the engagement and interaction of grid stakeholders. Essentially, this will require a commitment to digitalization of the grid, paving the way for more efficient deployment of electricity. In addition, global grid players will have to address the upstream and downstream GHG emissions of their infrastructure to promote the highest rate of decarbonization of the electricity systems in which they operate.

According to the IEA report “World Energy Outlook 2022” the NZE Scenario requires a large increase in investment in clean energy. Energy investment accounted for just over 2% of global GDP annually between 2017 and 2021, and this rises to nearly 4% by 2030 in the NZE Scenario. Electricity generation from renewables sees one of the largest increases, rising from USD 390 billion in recent years to USD 1 300 billion by 2030. This level of spending in 2030 is equal to the highest level ever spent on fossil fuel supply (USD 1.3 trillion spent on fossil fuels in 2014).

This amount of investment will help to reduce the volatility of energy costs, which have seen an allocation of €705.5 billion¹⁰ across European countries since the energy crisis began in September 2021 to protect consumers from the rising energy costs.

ii. Impact of supply chain emissions on the energy sector

Electric utilities must account for all their emissions, both direct and indirect, throughout the full value chain. The GHG Protocol classifies indirect emissions as Scope 3 emissions,¹¹ which are defined as GHG emissions that result from a company’s activities but come from sources that are not owned or controlled by the company. Considering the complexity of tracking indirect emissions, the protocol defines 15 different categories under

¹⁰ <https://www.bruegel.org/dataset/national-policies-shield-consumers-rising-energy-prices>

¹¹ GHG Protocol: Corporate Value Chain (Scope 3) Standard ([Corporate Value Chain \(Scope 3\) Standard | Greenhouse Gas Protocol \(ghgprotocol.org\)](https://www.ghgprotocol.org/))

which scope 3 emissions can be classified and monitored. The following two categories refer explicitly to supply chain GHG emissions (suppliers focused):

- **Category 1 (Purchase goods and services):** This category includes all upstream (i.e., cradle-to-gate) emissions from the manufacture of products purchased or acquired by the reporting company in the reporting year. Products include both goods (tangible products) and services (intangible products).
- **Category 2 (Capital Goods):** This category includes all upstream (i.e., cradle-to-gate) emissions from the production of capital goods purchased or acquired by the reporting company in the reporting year

From the electric utility's point of view, reductions in their category 1 and 2 of scope 3 GHG emissions have to achieve a 90% decrease by 2040 to align with science-based pathways for reaching net-zero.

From the supplier's point of view, the requested reductions in their Category 1 and 2 depend on specific products/services provided but, at the same time, they are asked by their clients (electric utilities) to reduce the emissions of the products/services provided in order to achieve their own emission reduction targets.

iii. Decarbonization KPIs, metrics and monitoring tools

Company decarbonization performance is based on absolute GHG emissions (in units of metric tons of CO₂ equivalent) and intensity emissions: GHG emissions figure per activity (e.g., physical production (MWh), economic activity (M\$ EBITDA)).

GHG protocol¹² provide comprehensive global standardized frameworks to measure and manage greenhouse gas (GHG) emissions from private and public sector operations, value chains and mitigation actions. It is commonly accepted as the reference guide to measure GHG emissions, lastly included in EFRAG (European Financial Reporting Advisory Group) and SEC (US Securities Exchange Commission) proposed non-financial reporting frameworks.

Third party verification of emissions is key to follow up the achievement of commitments as well as to account for real reductions, always avoiding double counting and taking into consideration the different elements and specificities of the diverse sectors and actors. Credibility criteria are essential to ensure the environmental integrity of climate action towards a decarbonized economy, as well as to provide elements for comparability and coordination purposes.

¹² [Greenhouse Gas Protocol | \(ghgprotocol.org\)](https://ghgprotocol.org/)



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iv. Net Zero targets/SBTi certifications

It is international scientific consensus that, in order to prevent the worst climate damages, global net anthropogenic emissions of carbon dioxide (CO₂) need to fall by about 45 percent by 2030 from 2010 levels, reaching net zero around 2050¹³. Net zero refers to a state in which the greenhouse gases going into the atmosphere are balanced by removal out of the atmosphere. The Paris Agreement underlines the need for net zero. It requires states to ‘achieve a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of this century’.

Different terms (Carbon Neutral, Net Zero, Climate Neutral) point to different ways in which emissions sources and sinks are accounted for in context. They help to indicate what is and is not included in the calculation or a target. Net zero is the internationally agreed upon goal for mitigating global warming in the second half of the century. The IPCC concluded the need for net zero CO₂ by 2050 to remain consistent with 1.5 °C trajectory.

The IPCC considered in its Special Report on Global Warming 1.5 °C that net zero emissions “*are achieved when anthropogenic greenhouse gas emissions are balanced globally by anthropogenic greenhouse gas removals over a specific period*”.

Based on this description developed by the scientist community, the SBTi has adopted a more explicit and tailored to businesses definition. SBTi considers that “*setting corporate net-zero targets aligned with meeting societal climate goals means:*

(1) achieving a scale of value chain emissions reductions consistent with the depth of abatement at the point of reaching global net-zero in 1.5 °C pathways and

(2) neutralizing the impact of any residual emissions by permanently removing an equivalent volume of CO₂”.

SBTi is advocating companies for focusing their main efforts on abating direct and indirect GHG emissions across their entire value chain following the most ambitious temperature goal of the Paris Agreement, while using neutralization as a last resort mechanism that should not compromise the mitigation efforts.

In November 2021, the SBTi released its Corporate Net-Zero Standard¹⁴, the world’s first framework for corporate net-zero targets setting in line with climate science. It includes the guidance, criteria, and

¹³ [What is Net Zero? - Net Zero Climate](#)

¹⁴ [The Net-Zero Standard - Science Based Targets](#)



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recommendations companies need to set science-based net-zero targets consistent with limiting global temperature rise to 1.5 °C.

Rapid, deep cuts to value-chain emissions are the most effective and scientifically sound way of limiting global temperature rise to 1.5 °C. This is the central focus of the Net-Zero Standard and must be the overarching priority for companies. The Net-Zero Standard covers a company's entire value chain emissions, including those produced by their own processes (scope 1), purchased electricity and heat (scope 2), and generated by suppliers and end-users (scope 3). Most companies will require deep decarbonization of 90-95% to reach net-zero under the Standard. Complying with Paris Agreement targets under a science-based pathway is essential but requires to have other elements in place to provide the strategy with the appropriate credibility and robustness, such as short- and medium-term targets to achieve long-term objectives.

Best practices also include reporting actionable transition plans aligned with business plans and supported by an effective governance mechanism, containing verifiable and quantifiable key performance indicators, tracked regularly to demonstrate progress, and relevant information on the set of measures to be implemented¹⁵.

¹⁵ CDP, CLIMATE TRANSITION PLAN: DISCUSSION PAPER, 2021

4. Decarbonization at company level

Along with the figures supplied by the Alliance members of this Working Group¹⁶, different stages in the decarbonization process have been identified, both for GHG measuring and for emission reduction target setting. Key aspects to highlight within this companies' sample of the energy value chain includes:

- In comparison to scope 1 and 2 emissions, scope 3 emissions in the overall GHG emissions at company level are of major importance for all the supply chain actors.
- There are a lot of challenges to both measure and reduce Scope 3 emissions from supplier-based upstream emissions. Different maturity has been seen across the industry. While utilities and end users/big consumer already have defined different strategies for pushing their supplies emission reduction, only a few manufacturers of this sample are already measuring such emissions.
- Scope 2 energy consumption for manufacturers is also a key category to focus. Several commitments have been seen to reduce this GHG emission source within this sample of companies.
- Emission reduction targets, as GHG measuring, are not globally present within companies participating in this technical working group. While electric utilities and end users/large consumers have already set scope 1, 2 (and in some cases scope 3) emission reduction targets, manufacturers have not defined them yet. However, some wind turbine manufacturers express commitments to set them, whilst photovoltaic manufacturers currently shown less maturity in both – GHG emission accounting and targets definition.
- Climate neutrality commitments currently represent a focus topic of some companies, especially electric utilities, and large consumers. Electric utilities use different timeframes for their climate neutrality goals, and different scopes are addressed. For large consumer and wind turbine manufacturer, Scope 1&2 climate neutrality related goals have already been established.
- Referring specifically to a science-based net-zero target (validated by SBTi), for this sample, only three electric utilities provide information regarding their position with regard to the SBTi validation process. Another electric utility company and a wind turbine manufacturer have already committed to set this goal.

During the working sessions, it was determined that GHG emissions from the supply chain (scope 3, Category 1 and 2) presented the greatest challenge in terms of data collection, company-level consolidation, and active promotion and ambitious reduction targets.

The Alliance welcomes standardization efforts, therefore, to facilitate the collection, processing and reporting of CO₂-specific data, especially at product level. Among members and their experience along their value chain, the following key barriers were identified:

¹⁶ “Electric utilities”: Enel, EDP, Iberdrola, Eletrobras, Adani Renewables, NTPC Limited. “Manufacturers”: Goldwind, Nordex Group, Trina Solar, Risen Solar. “End users/large consumers”: 3M.



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- Carbon data collection and target setting not considered a priority in some value chain actors' business strategies, even when it can easily be collected internally easily.
- Low company climate maturity of some value chain actors due to lack of resources, capabilities, or tools, leading to inexistent internal processes for data collection
- Lack of standardization, leading to bureaucratic and inefficient data collection processes.
- Procurement IT systems of some value chain actors not prepared for CO2 data collection from product purchases, influencing data quality and limiting the ability for third-party verification.
- Lack of product-specific CO2 data availability at suppliers.

GHG emissions from downstream scope 3 also includes several challenges for the Alliance companies. Category 11 (use of sold products) and 12 (end-of-life treatment of sold products) have been highlighted as challenging in measuring and/or achieving emission reductions to achieve net zero. To that end, EU initiatives such as the product environmental footprint calculation methodology can help to streamline data use and processing.

Geographical barriers are mainly linked with different decarbonization speeds in specific regions, as country commitments are not always aligned with the most ambitious timeframes.

These differences are currently the key challenge to address global decarbonization in the energy supply chain, as electric utilities are asked to be net-zero by 2040 so that it implies an ambitious reduction in emissions from this non "carbon-maturity" supply chain.



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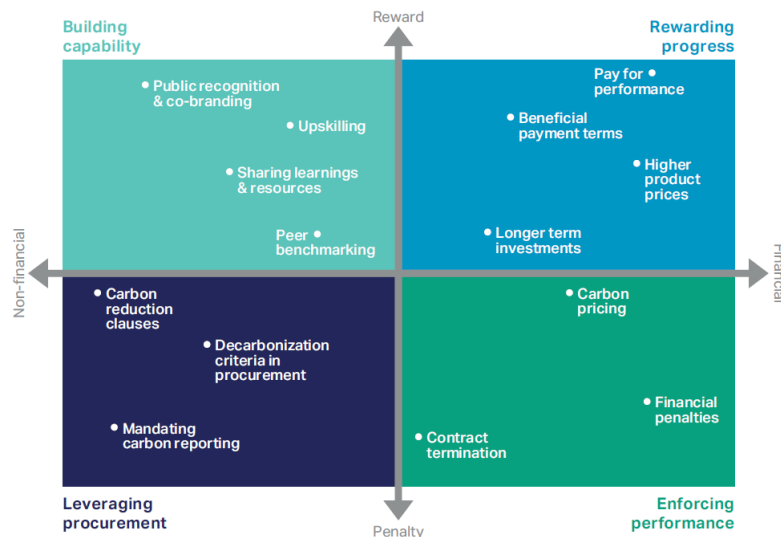
5. Supply chain climate strategies

“Corporate net zero targets will not be achieved without addressing supply chain emissions”

“As pressure grows on business, we predict a strong shift from encouraging to mandating carbon emission reporting. It's therefore important to start encouraging and upskilling your suppliers today, to ensure they are treated justly and can meet mandated reporting requests in the future”¹⁷.

Key levers and actions for incentivize supply chain decarbonization have been tackled in several contexts during the last years. In 2021, a framework for Solutions to incentivize supply chain decarbonization¹⁸ was published. It includes a complete range of suggestions divided into 4 groups:

(1) Building capability; (2) Rewarding progress; (3) Leveraging procurement; and (4) Enforcing performance.



Source: Reaching Net Zero: Incentives for supply chain decarbonization - World Business Council for Sustainable Development (WBCSD)

Further publications have been released, aiming to complete this first report.

¹⁷ (Incentivizing supply chain decarbonization by mandating carbon reporting: [Incentivizing supply chain decarbonization by mandating carbon reporting - World Business Council for Sustainable Development \(WBCSD\)](#))

¹⁸ [Reaching Net Zero: Incentives for supply chain decarbonization - World Business Council for Sustainable Development \(WBCSD\)](#)



To have a vision of some strategies focused on suppliers, examples provided by some of the member companies of the Alliance are collected below.

Enel:

As one of the first signatories of the “Business Ambition for 1.5 °C” campaign promoted by the United Nations and other institutions, we have committed to developing a business model in line with the objectives of the Paris Agreement (COP 21) to limit the average global temperature increase to 1.5 °C. In 2021, we announced the bringing forward of our Net-Zero target from 2050 to 2040, for both direct (Scope 1) and indirect (Scope 2 and 3) emissions.

This year, Enel has also calculated and introduced in the Scope 3 perimeter the values related to gas extraction and transport emissions for both its thermoelectric generation plants and for the market disclosing it in this Sustainability Report for the three-year period 2019-2021.

In addition, Enel has also calculated and disclosed, for the three-year period 2019-2021, the impact related to the Supply Chain considering supplies, works and services purchased. By now, supply chain represents around 10% of total Enel GHG emissions.

To achieve the decarbonization goals, Enel is adopting specific purchases strategies:

1. As part of its process for tenders, Enel has defined a library of rewarding elements known as “K for sustainability” factors, which relate to requisites linked to ESG and circular economy aspects. Some of the environmental K factors a supplier may have, for example, an assessment of its carbon footprint, the definition of reduction targets and the mitigating actions to curtail it. Enel has defined mandatory sustainable requirements as well, such as those relating to carbon footprint certifications. Both K factors and mandatory requirements are periodically reviewed and updated in order to cope with the maturity already achieved and the next step in the sustainability roadmap.
2. According to a portfolio approach, we set increasingly challenging emission targets in our tenders, shared with our suppliers and based on the most accredited reduction curves (i.e. the IEA curves) for materials and energy, for which we also consider the achievable contributions from innovation.
3. Enel is promoting a circular procurement approach, through which it is adopting different initiatives and mechanisms, including the requirement to core categories suppliers to release an Environmental Product Declaration (EPD), with the aim of objectively quantifying, certifying and communicating the impact generated by supplies over their entire life cycle (including GHG emissions). Furthermore, Enel is engaging with suppliers in actions to assess and improve their environmental efficiency of the production cycle.
4. For strategic product categories, we have introduced in our tenders the request of the so called “material passport”: a sheet with the origin geography and quantities of each material within the product, the recycled



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and recyclable quantities. This information allows us to reward suppliers in accordance with their recycling capabilities stimulating a circular culture.

5. Enel cooperate with suppliers to define criteria, technical requirements and solutions to further strengthen circularity and sustainability in the initial stages of the value chain. The intent of this approach is to maximize the overall value of the product: on the one hand using recycled material along the supply chain and on the other hand reducing the "Global Warming Potential", defining an improvement path that allows to reduce the emissions. Enel leverage and encourage suppliers to adopt market-enabled innovations to achieve increasingly sustainable and circular goals.

Nordex Group:

With the aim of establishing a basis for our climate strategy and identifying CO₂ hotspots, the Nordex Group has comprehensively analyzed the entire CO₂ footprint of the organization on an annual basis since 2019. In this context, the GHG emissions of all relevant emission categories of the scopes 1, 2 and 3 as classified by the GHG Protocol Corporate Standard are considered.

In 2021, a total of approximately 3,506 kt CO₂e were emitted during the business activities of the Nordex Group, including upstream and downstream processes. Of this, nearly all greenhouse gas emissions fell under the area of scope 3 at 99.3%, while direct emissions from scope 1 were just 0.6%, with indirect emissions from scope 2 making up less than 0.1% of the entire environmental footprint of the Nordex Group.

Within the Sustainability Strategy 2025, the Nordex Group focusses – among others – on the topic “Climate Change & Decarbonization”. In this context, the Company set three targets:

1. Manage and adapt to climate risks and opportunities, including the assessment of climate-related risks and opportunities in alignment with the recommendations of the Task Force on Climate-related Financial Disclosure (TCFD)
2. Define science-based targets (SBTs) in line with 1.5 °C target ambition, after already having committed to setting SBTs and achieving near-term and net-zero (long-term) GHG emissions reductions in keeping with the criteria of the Science Based Targets initiative to reach the 1.5 °C target in December 2021
3. Achieve climate neutrality (scopes 1 and 2) by 2023 and continuously improve climate impact, e.g., by developing and implementing a climate action plan covering all scopes 1, 2 and 3

These ambitions are complemented by the target “Reduce carbon emissions in the supply chain (scope 3)” in the context of the focus topic “Responsible Sourcing”. To achieve this target, the Company plans to:



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1. Define a goal for suppliers' commitment to science-based targets.
2. Ensure certification of suppliers to achieve 100% certified sustainable forest balsa wood sourcing.
3. Assess the energy consumption of suppliers and improve the share of renewable energy in the supply chain.




Iberdrola:

Since 2008, Iberdrola has calculated its carbon footprint by means of a greenhouse gas inventory. In Iberdrola, the emissions accounting is based on international standards, such as the GHG (Protocol Corporate Accounting and Reporting Standard) and ISO 14064-1: 2012 (UNE). GHG emissions associated with the supplier chain represented a 9,5% of total GHG reported in 2020.

Iberdrola's commitment to Environmental, Social and Governance (ESG) standards and their expansion to cover its main suppliers is embodied in the ambitious goal of ensuring that at least 70% of the group's main suppliers are subject to sustainable development policies and standards by 2022.

The significance of this goal is reflected by its inclusion in the 2020-2022 Strategic Bonus objective approved by General Shareholders' Meeting in 2020.

Iberdrola's suppliers ESG scoring program is based on a prerequisite to assess suppliers on their environmental, social and governance strategies and management. The supplier registration and management system are supported on a single, global digital platform. The assessment of the three pillars includes the following topics:

Environmental	Social	Governance
 40%	 30%	 30%
<ul style="list-style-type: none">• Existing Policies• Management Systems• Greenhouse Gases• Biodiversity• Climate Change• Water Management	<ul style="list-style-type: none">• Human Rights• Diversity• Management Systems• Contributions to Society• Reporting and Transparency	<ul style="list-style-type: none">• Existing Policies• SDGs• Ethics and Compliance• Sanctions• Stakeholders• Supply Chain

An "adequate" ESG scoring implies achieving more than 51/100 points (& at least 30% of the points on each of the ESG pillars). For lower scores, improvement action plans are shared with specific suppliers and monitoring of improvements are held.

The assessment includes specific questions related to carbon performance, such as for example:



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Has the calculation of the greenhouse gas inventory documented? (+Supporting documentation)

Measurement year

Group revenue

Scope 1 carbon footprint (tCO₂eq)

Scope 2 carbon footprint (tCO₂eq)

Scope 3 carbon footprint (tCO₂eq)

The supplier has certification of management of greenhouse gases (ISO 14064 or equivalent) (+Supporting documentation)

Awarding Body

Standard

Issue date

Next review or expiry date

Goldwind:

To optimize and improve the overall environmental performance of the wind power industry supply chain, enhance the usage of green energy in the wind power industry, and build a sustainable industry chain, Goldwind has taken the lead in implementing "Green Supply Chain" projects since 2016. It provides smart energy system solutions to enable suppliers to unlock energy-saving and emission reduction potential, and promotes the green transformation of the supply chain, thus enhancing the market competitiveness and sustainable development of the whole wind power industry chain.

With years of experience in green supply chain project management, the Company has compiled system documents related to green supply chain construction and evaluation, clarified requirements for green design, procurement, production and delivery, and encouraged and motivated suppliers to adopt environmentally friendly measures. In 2021, the Company continued to conduct the evaluation on green suppliers, and completed the evaluation on 142 suppliers of such components as wind turbine blades, castings, towers, yaws, bearings, and generators. Through document review and on-site evaluation, the Company comprehensively evaluated the performance of suppliers in five aspects of green design, procurement, production, delivery and management, with a total of 40 suppliers being rated as Level 4 or Level 5 Green Suppliers throughout the year. The Company awarded plaques to companies rated as Level 4 and Level 5 Green Suppliers at the China Wind Power (CWP2021) in October 2021, in recognition of their excellent performance in green supply chain.

In the context of global pursuit of carbon neutrality, it has become inevitable that enterprises conserve energy, reduce emissions and adopt green power for long-term development. The Company brings into play its advantages in wind power industry and based on years of experience in adopting green power, leads supply chain enterprises to adopt green power gradually, thus jointly exploring carbon neutral practice paths. On the



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basis of suppliers' energy demand and local clean energy endowment, the Company provides scientific planning and reasonable allocation, and integrates various types of distributed energy (wind, solar, storage, etc.), thus achieving the optimal allocation of diversified energy resources and facilitating suppliers' comprehensive use of various types of green power. With our extensive experience in the production and use of power resources, the Company assists suppliers in power transaction, green certificate trading, carbon emissions trading, mobile operation and maintenance, and comprehensive energy saving, so as to reduce energy costs and improve energy efficiency.

In 2021, the Company optimized the Green Supplier Evaluation Standard to enhance the requirements for suppliers to use green power and encourage their use of green power, with a higher weighting of the "green power use" in the evaluation system. Suppliers with the extensive use of green power will be given priority during product procurement. The Company has formulated the Evaluation Standard for Suppliers' Use of Green Power and adopted both on-site and off-site evaluation methods to evaluate suppliers' power use, green power use and amount. Among the suppliers evaluated this year, a total of 64 suppliers used green power, with a green power use ratio of 26.55%, and a green power use ratio of 54.80% for the production of Goldwind products.

In June 2021, the Company released the launch event of "Zero Carbon" Wind Power - Goldwind's Initiative for Green and Low-Carbon Development of the Wind Power Industry Chain & Green Supplier Evaluation Standard, calling on suppliers to work together with the Company to develop green wind power products, with a total of 257 suppliers signing the Carbon Reduction Initiative, so as to explore the zero-carbon road together with the Company.

Goldwind has set up the goal that by 2025, the main suppliers of Goldwind products should use 100% of green power.

EDP:

In the new 21-25 strategic plan, EDP has increased its sphere of ESG commitment, where consolidation in excellence presupposes the development of sustainable partnerships with its supply chain, by committing its suppliers to adopting the best ESG practices and extending the approach beyond Tier-1 suppliers to achieve the strategic objectives of decarbonization, gender equality and transparency. As a strategic driver of EDP's business, the promotion of sustainability in its relationships with suppliers is based on the establishment of relationships of trust, a partnership perspective, and guided by the sharing of principles such as ethics, transparency and cooperation. Sustainability as a core value of the EDP Group defines the management approach, by recognizing that suppliers are essential in working towards increased sustainability and that EDP has, in the long term, the ability to improve its supply chain. EDP has therefore adopted seven major action areas as sustainability priorities in supplier manager:



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- Align suppliers with EDP's ESG objectives
- Ensuring Human and Labor Rights
- Promoting Transparency and Reporting
- Decarbonize the Supply Chain
- Develop Strategic ESG Partnerships
- Ensuring Integrity and Compliance
- Promoting the Circular Economy

EDP's supplier management approach is based on a holistic view of the sustainable supply chain which, through the *EDPartners* program, enables the Group to ensure the integrated coordination of activities. *EDPartners* is a structured, systematic program that enables suppliers to continually improve, by identifying areas for action, and includes:

- Supplier Registration System: brings all the suppliers' information in a single platform GoSupply - aggregating general, economic, environmental, and social data, to obtain an up-to-date risk profile of EDP's suppliers.
- Qualification Systems: designed to assess the profile, capacity, and suitability of the supplier for the acquisition needs of the EDP Group, fully in accordance with the regulatory standards
- Assessment Program: measures and quantifies the contractual performance of critical supplies in a structured and systematic way, where criteria related to sustainability are included.
- Supplier Evaluation: designed to evaluate and monitor the ESG (Environmental, Social & Governance) maturity of our partners, promoting the alignment with EDP's strategic vision.

Through criticality analysis, the EDP group defines minimum and specific sustainability requirements for each contract, which all suppliers must accept and comply with. These requirements are not subject to negotiation and, depending on the specific risk of supply, audits, and certifications of systems management (quality, environment and safety at work) are required. The minimum sustainability requirements are defined in the Code of Conduct, General Conditions for the Procurement of Goods and Services and Contract Terms. To increase data visibility for all procurement people, all supplier information related to registration process, ESG assessments and performance evaluation are integrate in one-single dashboard, allowing a 360° view of the supplier. If a supplier has a low performance in one of the ESG Criteria (Evaluation and Assessments ESG), EDP encourages its continuous improvement, which leads to gradual long-term improvement in the sustainability of its supply chain.

To achieve the decarbonization targets and commitments for EDP's supply chains, including direct and indirect suppliers (Scope 3), Procurement and the different EDP's corporate areas started working in 2021 on reviewing the approach and adapting this *EDPartners* Program to the new sustainability challenges (which includes more and detailed information about CO2 emissions) in the supply chain. The result will be a new ESG assessment questionnaire implemented in 2022 and a new supplier registration questionnaire to be implemented in 2023.



The CO₂e emissions related to purchased goods and services (scope 3, category 1) and capital goods (scope 3, category 2) represent about 15% of EDP's total GHG inventory.

Trina Solar:

Trina Solar is fully committed to the net-zero ambition by 2050 and strives for using 100% renewable energy for all own manufacturing facilities by 2030. In 2021, GHG emissions for unit output of product have decreased by 32.3%, compared to 2020 figures, while power consumption per unit output of product decreased by more than 42% in the same period of time.

Trina Solar started to quantify greenhouse gas emissions from most factories in accordance with the international standard ISO 14064-1 "Greenhouse gases — Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals", including direct greenhouse gas emissions and indirect greenhouse gas emissions from imported energy, in 2011.

Given the relevance of data collection and processing, Trina works with accredited third-party partners to help the company measure and confirm our performance on key metrics of sustainable manufacturing. These reports allow us to set goals, track our progress and stay accountable to our employees, communities and customers.

To deliver on its ambitions, Trina Solar continuously works on improving energy efficiency, promoting energy efficiency, exploring and implementing energy-saving projects, and optimizing energy use. In 2015, Trina Solar successfully obtained the ISO 50001 energy management system certificate issued by the British Standards Institute (BSI).

For 2025 and 2030, Trina Solar has set the following sustainable development goals related to energy-saving and emissions reductions:

- Compared with the base year of 2020, the GHG emission intensity (tCO₂e/MW) of Category 1 and Category 2 of solar photovoltaic products shall be down 50% in 2025.
- Compared with the base year of 2020, the comprehensive energy consumption (tce/MW) of solar photovoltaic products shall drop by 40% in 2025.
- Compared with the base year of 2020, the water consumption intensity (t/MW) of solar photovoltaic products shall decrease by 20% in 2025.
- Actively promote and use renewable energy, and aim to achieve 100% renewable energy use in global manufacturing and operation by 2030.
- Establish and improve the waste "3Rs (Reduce, Reuse and Recycle)" policy to achieve the goal of "zero" landfill waste by 2030.



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- Carry out energy-saving and consumption-reduction projects, and achieve the goal of saving 100million kWh of power consumption in global manufacturing and operation from 2021 to 2030.

3M:

3M has long been a leader in addressing both challenges and opportunities presented by climate change and energy conservation. We are committed to innovate, to decarbonize industry, accelerate climate solutions, and improve our environmental footprint. Our proactive leadership is best defined by several areas of action:

- Industry-leading efforts to measure and reduce our own greenhouse gas (GHG) emissions, including a goal to achieve carbon neutrality by 2050. As of 2021, we have reduced our Scope 1 and 2 GHG emissions 75% since 2002, including 26.1% since 2019
- Executive-level commitment to these important topics and our related principles, policies, commitments, and risk-mitigation planning efforts, including membership in RE100, the global corporate initiative committed to 100% renewable electricity by 2050. We reached 50% use of renewable electricity at the end of 2021, ahead of our 2025 goal
- A decade’s-long track record of improving energy efficiency at our sites, including recent recognition in 2022 by the U.S. Department of Energy as a national award winner for Energy Management
- Serving our customers through a wide range of innovative products that help them improve energy efficiency and reduce their greenhouse gas emission, and
- Achieving synergy across our supply chain with 3M’s corporate values and goals, including environmental stewardship

Scope 1 and Scope 2 GHG emissions are difficult to calculate for a diverse, highly technical manufacturing company with more than 200 facilities in over 70 countries. Scope 3 emissions, as defined by the Corporate Value Chain (Scope 3) Accounting and Reporting Standard, are even more difficult to calculate because of the sheer number of 3M’s suppliers, products, and diverse product portfolio.

3M began developing our Scope 3 GHG emissions inventory in 2002, just after the World Resource Institute (WRI) and the World Business Council for Sustainable Development (WBSCD) published the GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard in September 2011. Even before its release, 3M participated in the pilot of the standard. 3M bases decision-making on sound science and through collaboration will help advance the science and accuracy of Scope 3 estimations.

3M works with a broad, complex global supply chain, consisting of over 55,000 suppliers in over 275 subcategories in 111 countries/regions around the world. Each step in our supply chain is an opportunity to gain alignment with our Promise to improve lives by helping solve the world’s greatest challenges. This includes benefits like employment, embracing diversity, and community building as well as mitigating risks related to



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labor, environment, health and safety, and ethical practices. We expect our suppliers to strive for and achieve the same bar we set for ourselves regarding environmental and social governance, and to be transparent about their practices, provide ideas for improvement, and work with us to transform our shared value chain.

3M follows the Organization for Economic Co-operation and Development (OECD) Due Diligence framework for all of our responsible sourcing activities. The 3M Supplier Responsibility Code (SRC) is based on 3M's corporate values for sustainable and responsible operations and aligns with the Ten Principles of the United Nations Global Compact, of which 3M is a participant. The SRC is also consistent with the Responsible Business Alliance (RBA) Code of Conduct 7.0, effective January 2022.

Our supplier vetting process includes reviewing SRC expectations and reinforcing that we expect suppliers' programs and practices, as well as those of their subcontractors, to follow SRC standards.

As stated in our supplier contracts, in addition to full compliance with all applicable laws, including environmental laws, we expect our suppliers to integrate social and environmental responsibility into their operations. Suppliers should work to minimize adverse effects on the community, environment, and natural resources while safeguarding the health and safety of workers and the public. Training is available online to help suppliers understand 3M's SRC expectations, processes, and supporting tools. While we aim to work with our suppliers to advance responsible sourcing, we disqualify new or existing suppliers that are not willing or able to meet our SRC.

We understand that our sustainability impacts extend beyond our own operations and as part of our Strategic Sustainability Framework 3M includes a supply chain focused goal:

Drive supply chain sustainability through targeted raw material traceability and supplier performance assurance by 2025

Our general supplier performance verification process begins with a SRC self-assessment questionnaire (SAQ) that focuses on the following topics: labor (including right to freedom of association and collective bargaining), health and safety, environment, ethics, and management systems. The completed SAQ helps 3M understand supplier programs and determine whether they conform to 3M expectations. An on-site assessment may be conducted by 3M or a third party to assess the supplier's level of conformance with 3M's expectations. If deficiencies are identified, they will be addressed through a SRC Corrective Action Preventive Action (CAPA) process. Verification of sustained corrections may include additional onsite assessments.

In 2022, we assessed about 10% of our higher-risk suppliers. Since 2008, we have conducted over 8,300 on-site or self-assessments of prioritized suppliers in higher-risk countries.



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Adani Green Energy:

Adani Green Energy Ltd (AGEL) firmly believes that any step towards sustainability would not be possible without its suppliers' support. AGEL's Supplier Code of Conduct (SCoC) mandates that our suppliers adhere to sustainable business practices, and they are screened on several ESG parameters before onboarding and on a periodic basis. The parameters include environmental protection, health and safety compliance, human rights, and business ethics. AGEL also checks parameters like cost effectiveness, availability of suppliers, design of model and compatibility, performance and technology of the service being offered during supplier selection. AGEL is committed to achieving 100% ESG evaluation for all existing as well as upcoming critical and important manufacturing suppliers by FY26.

AGEL has partnered with CDP for the CDP Supplier's Engagement Program. CDP provides a portal for AGEL's suppliers to disclose GHG emissions and submit their decarbonization strategies. This is a free of charge initiative for AGEL's suppliers. Through this engagement, CDP undertakes capacity building programs for AGEL's suppliers to measure and disclose their emissions and motivates them to participate to build a sustainable supply chain. About 93% of AGEL's critical suppliers and 52% of overall manufacturing suppliers had responded to the CDP questionnaire in FY22. AGEL is progressing towards decarbonizing its entire value chain and intends to achieve 100% engagement from suppliers.

To avoid disruptions in the supply chain, AGEL has invested in procurement competencies to ameliorate productivity and business orientation. AGEL has strengthened the supply chain governance by implementing modern Information Technology (IT) tools such as Artificial Intelligence and Robotic Process Automation to reduce manual intervention and augment automation. To ensure supply chain efficiency, AGEL has invested in data analytics and contract standardization. AGEL ensures the supply chain complies with all applicable national regulations along with aligning to the SCoC.

AGEL also conducts risk evaluation of the entire supply chain, that includes geopolitical risks, increase in import taxes, media issues involving human rights violations and long-term availability of raw materials and technological risks. Based on the identified risks, AGEL devises mitigation measures as required. Supply Chain Risk Assessment Committee then reviews the progress on the agreed mitigation plan against the roadmap and KPIs on regular intervals. AGEL has also established a grievance mechanism for addressing supplier concerns and issues proactively.



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6. Agreement on energy sector targets, priorities, and roadmap:

The achievement of carbon ambition reductions across all sectors requires robust and transparent measurement and reporting of carbon emissions from the beginning. Only then can ambitious targets be set. As a sector, we have different maturity levels regarding measuring and targeting, thus we have been leveraging on the collective impact of the Alliance to achieve an agreement on this topic.

“The development of sector specific question sets would enhance data standardization through simplifying and streamlining the collection process. This would not only minimize the time taken for suppliers to complete data reporting exercises, but would also ease data collation and analysis, therefore encouraging engagement”.

“Use industry frameworks or ask suppliers to provide carbon data centrally through widely used third parties to reduce the reporting burden on suppliers. Providing suppliers with a standardized reporting template will ensure data is comparable across your supply chain. If you’re aware you share common suppliers with a peer company, understand if it’s feasible to use the same reporting template”.

(Incentivizing supply chain decarbonization by mandating carbon reporting: Incentivizing supply chain decarbonization by mandating carbon reporting - World Business Council for Sustainable Development (WBCSD))

A sectorial approach to address neutralization challenges implies some ground agreements to commonly lay the foundations for both measuring and reducing emissions. Here is the first commitment of the following Alliance members:

“As signatories of the Pledge, we commit to a **Net Zero ambition** in line with **1.5°C reduction scenario** aligned with recognized international standards and, by the end of 2023, we will publicly target and update on a yearly basis this ambition across **scope 1, 2 and 3**, with **challenging milestones at 2030 and 2040.**”





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The key to promoting supply chain decarbonization and driving climate buying strategies in the coming years is to have a common understanding of what utilities should ask their suppliers. Here are some agreed KPIs that are important to provide alongside our value chain to ensure transparency and monitoring.

- A. GHG emissions at company level: tCO₂ emissions figures must be shared with buyers, clearly explained the GHG categories included in each scope (as per GHG protocol definitions) and the company boundaries included in the reported figures. The reporting year also must be included, as this is a year-on-year figure to be reported and should be updated annually. Additionally, a financial figure for the same company boundary must be shared.
- Scope 1: mandatory (by the end of 2023)
 - Scope 2: mandatory (by the end of 2023)
 - Scope 3: mandatory (by the end of 2023¹⁹)
 - Reported year: mandatory
 - Boundaries per reported figures: mandatory
 - Financial figure for same boundary: Revenues (currency): mandatory
 - Third party GHG emissions verification: mandatory for Scope 1 and 2. To be mandatory for Scope 3 in the next 2 years, at least limited verification.
- B. GHG emissions at product level:
- Certified Life Cycle Assessment (Environmental product declaration or similar) for main equipment
 - Third party verification

¹⁹ Goldwind by the end of 2025