Electricity Transmission, Distribution and Storage Systems Criteria

Climate Bonds Standard and Certification Scheme

Final Criteria Document

NOTE: *These Criteria can be used to certify use-of-proceeds instruments, assets and measures per the Climate Bonds Standard*

Revision	Date	Summary of changes
2	June 2026	Expanded eligibility criteria for eligible activities – to incorporate forward looking decarbonisation trajectories. New format for presentation of criteria
1.2	Mar 2022	Criteria text refined for capacity addition data and smart meter infrastructure definitions
1.1	November 2021	Addition of criteria text for Advanced Metering Infrastructure to align with EU Taxonomy
1	August 2021	Public release of the Criteria (version 1)

Climate Bond Certified

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Definitions

Aligned product/asset: A product/asset that meets the different requirements developed in the Criteria.

Applicant: The term or name for any potential bond issuer, or non-financial corporate entity, that might seek Certification under the Bioenergy Criteria.

Certified project/asset: An eligible project/asset that has demonstrated compliance with the specific requirements set out in the Criteria and therefore has been approved for certification.

Climate Bond Certification: Allows the applicant to use the Climate Bond Certification mark in relation to that bond. Climate Bond Certification is provided once the independent Climate Bonds Standard Board (CBSB) is satisfied the bond complies with the CBS.

Climate Bonds Initiative (Climate Bonds): An investor-focused not-for-profit organisation, promoting large-scale investments that will deliver a global low-carbon and climate resilient economy. Climate Bonds seeks to develop mechanisms to better align the interests of investors, industry, and government to catalyse investments at a speed and scale sufficient to avoid dangerous climate change.

Climate Bonds Standard (CBS): A screening tool for investors and governments that allows them to identify green bonds, the proceeds of which are being used to deliver climate change solutions. This may be through climate mitigation impact and/or climate adaptation or resilience. The CBS is made up of two parts: the parent standard (CBS v4.3) and a suite of sector-specific eligibility criteria. The parent standard covers the Certification process and pre-and post-issuance requirements for all Certified bonds, regardless of the nature of the capital projects. The Sector Criteria detail specific requirements for assets identified as falling under that specific sector. The latest version of the CBS is published on the Climate Bonds website.

Climate Bonds Standard Board (CBSB): A board of independent members that collectively represents USD34tn of assets under management. The CBSB is responsible for approving (i) revisions to the CBS, including the adoption of additional Sector Criteria; (ii) approved verifiers; and (iii) applications for Certification of a bond under the CBS. The CBSB is constituted, appointed, and supported in line with the governance arrangements and processes as published on the Climate Bonds website.

Climate resilience and adaptation: Measures or assessments related to protecting communities or ecosystems from the effects of climate change. Adaptation refers to protection, while resilience is the ability to adapt and recover from the impacts of climate change.

CO_2 equivalent: A unit to measure the effect of all greenhouse gases according to their global warming potential that expresses the warming effect of each greenhouse gas over a set period of time (usually 100 years) in comparison to CO_2. Thus, an amount of a greenhouse gas can be expressed by the amount of CO_2 that will have the equivalent warming effect over 100 years.

Decarbonise: Move away from energy systems that produce carbon dioxide and other greenhouse gas emissions and remove the amount of gaseous carbon compounds in the atmosphere.

Electricity system: Electricity transmission and distribution infrastructure and, related performance data, included within the defined boundaries defined for assessing the environmental performance of transmission grids. The boundaries should prove availability of that the relevant performance data (emissions intensity, % of low-carbon electricity capacity installed, low-carbon electricity curtailed…)

Eligible project/asset: Project/assets within the scope of these Criteria.

Emission intensity: Volume of emissions per unit of a representative factor in the assessed sector, which in the bioenergy sector is MJ generated, so the emissions intensity is the grams of CO_2e per MJ: gCO_2e/MJ.

Fragmented or weakly interconnected systems: Power system that are not connected to a wider power grid.

Fossil gas: A hydrocarbon fuel, mostly composed of methane produced from the decay of organic material over millions of years.

Green bond: A bond where the proceeds are allocated to environmental projects or expenditures. The term generally refers to bonds that have been marketed as green. In theory, green bonds proceeds could be used for a wide variety of environmental projects or expenditures, but in practice they have generally been earmarked for climate change projects.

Grids: Electricity transmission and distribution systems

Industry Working Group (IWG): A group of key organisations that are potential applicants, verifiers and investors convened by Climate Bonds. The IWG provides feedback on the draft Sector Criteria developed by the Technical Working Group (TWG) before they are released for public consultation.

Isolated sub-grid: Stand-alone grid that is not connected to a wider electric power transmissions and distribution system.

Life-cycle emissions assessment: A methodology for estimating or quantifying environmental emissions associated with all the stages of the life cycle of a product, from the initial design phase to disposal or recycling.

Low-carbon electricity: Electricity generated with life cycle emissions lower than 100 gCO_2e/kWh. (It might include solar power, wind power, hydropower, geothermal power, bioenergy or fossil with CCS and nuclear power plants)

Main grid: A large-scale network that allows for the distribution and transmission of electricity, enabling connections with smaller internal grids, such as microgrids, which can operate independently or in conjunction with it.

Microgrids: A small-scale system and transmission network that can operate independently or in conjunction with the main grid, featuring its own electricity generation, resources and loads for a localised area, such as a university campus, hospital complex, military base or geographical region. It can include power generation assets, energy storage systems and distribution lines

Net-zero emissions: A situation where global greenhouse gas emissions from human activity are in balance with their removal or negative emissions. To achieve this situation, human-caused emissions should be reduced as close to zero as possible.

Net-zero targets: Commitments adopted by countries or companies to achieve net-zero emissions by a specified year.

Power system: A network of electric components with the aim of generating, transmitting and distributing electricity in an efficient manner to consumers.

Renewable energy: Usable energy derived from replenishable source such as the sun (solar energy), wind (wind power), rivers (hydroelectric power), hot springs (geothermal energy), tides (tidal power), and biomass (biofuels)

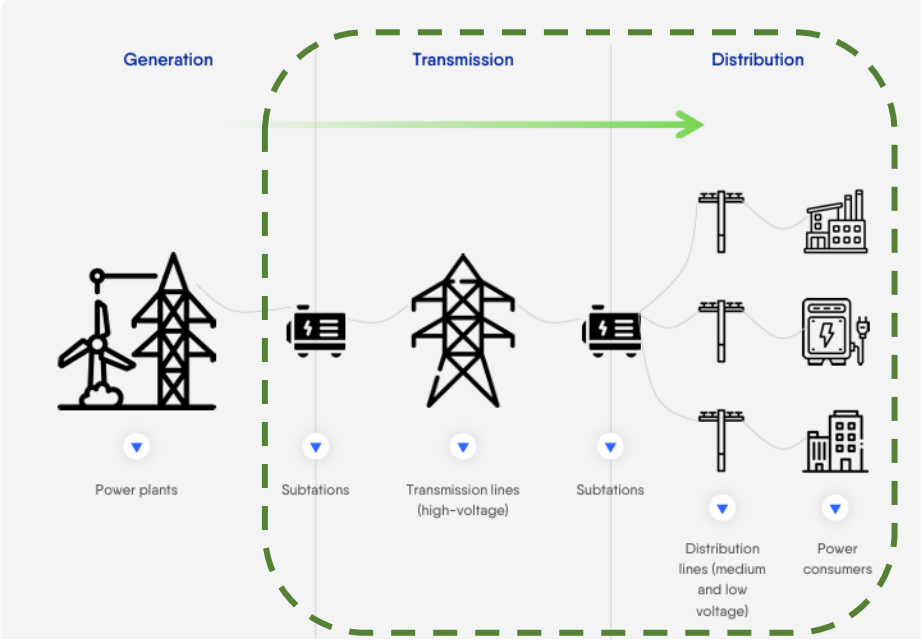
Standards Criteria Technical Working Group (TWG): A group of recognised experts from academia, international agencies, industry, and NGOs convened by Climate Bonds. The TWG develops the Sector Criteria, which are detailed technical criteria for the eligibility of projects and assets as well as guidance on the tracking of eligibility status during the term of the bond. Their draft recommendations are refined through engagement with finance industry experts in convened industry working group (see below) and through public consultation. Final approval of Sector Criteria is given by the CBSB.

Introduction

This document presents eligibility criteria relating to electricity transmission and distribution system activities and decarbonisation measures, and assets associated with those activities and/or measures.

Figure 1 depicts the electricity transmission and distribution system value chain, and the some of the infrastructure and equipment (hereafter referred to as 'assets') used in this value chain. The dotted box in Figure 1 illustrates the scope of application of these criteria. Annex II provides a fuller list of example assets used in this system that are within the scope of these criteria.

Figure 1: Electricity transmission and distribution system value chain.



Source: Eurelectric. Distribution Grids.[1]

Section 1 details criteria for the activity of electricity transmission and distribution, and (the construction, installation or operation of) the assets associated with those activities. With distinct criteria depending on whether the activity is carried out in relation to:

1.1. A main grid; or
1.2. A microgrid (which may or may not be connected to a main grid) or an isolated sub-grid.

These criteria assess the decarbonization pathway and characteristics of the electricity system in which the infrastructure operates (system-level), on the rationale that electricity transmission and distribution is an enabling activity for economy-wide decarbonisation, while the DNSH component of the criteria assesses the direct impact of the assets on the ecosystem in which they are located.

The costs associated with the construction, installation, upgrade, expansion, and general operation of the infrastructure and related equipment ('assets') used to carry out this activity are eligible for Use-of-Proceeds Certification, if the activity they are associated with meet these criteria. The assets used to carry out this activity are eligible for Asset Certification, if the activity they are associated with meet these criteria. See Annex II for example assets associated with this activity.

Section 2 details criteria for the following decarbonisation enabling measures within electricity transmission and distribution systems:

2.1. Reinforcement, expansion and modernisation of existing electricity transmission and distribution systems;
2.2. Interconnection of existing electricity transmission and distribution systems;
2.3. Connecting low-carbon energy generation to the electricity transmission and distribution system;
2.4. Reduction of renewable energy curtailment;
2.5. Connection of isolated regions previously powered by diesel or oil power generators to a grid

Some of these measures and their criteria address the impact of the asset itself, rather than the electricity transmission and distribution system in which it is deployed (project-level). Some are eligible by virtue of the system of which they are a part (system-level).

The costs associated with the implementation of these measures, including any construction, installation, expansion, upgrade, and general operation of the assets used to carry out this measure are eligible for Use-of-Proceeds Certification, if the measure meets these criteria. The assets used to carry out these measures are eligible for Asset Certification, if the measure they are associated with meet these criteria. See Annex II for example assets that may be associated with one/some of these measures.

The following further information to support applicants and verifiers is available at the Climate Bonds Initiative Electricity Transmission & Distribution website.[2]

- Electricity Transmission and Distribution Criteria Background Paper
- Electricity Transmission and Distribution Criteria Frequently Asked Questions (FAQs)

These Criteria can be used for Use-of-Proceeds and Assets Certification. The Climate Bonds Standards (CBS) contains the overarching requirements for Certification in addition to these sector-specific criteria. See in particular Part A and Part B of the Climate Bonds Standards for Use-of-Proceeds and Assets Certification respectively.[3] For more information on Climate Bonds and the Climate Bonds Standard and Certification Scheme, see Climate Bonds website.

Climate Bonds gratefully acknowledges the technical working group (TWG) members who provided their time and expertise during the development of these Criteria. The full list of members is provided in Annex III.

Special thanks are given to Dr Ana Díaz Vazquez, Global Energy Transition Lead at Climate Bonds and Francisco Moreno Castro, Energy Analyst at Climate Bonds, for coordinating the development of the Criteria through the TWG.

1 Electricity transmission and distribution activities

1.1 Electricity transmission and distribution – via main grid

Sector	Energy
ACTIVITY	Transmission and distribution of electricity via a main grid
ISIC code	3510 Electric Power Generation, Transmission and Distribution
In scope	The activity and all associated assets for this activity per Annex II.
Certification types	UoP, Asset
Technical screening criteria	
Substantial contribution to mitigation	The transmission and distribution system complies with either Option A or Option B: **OPTION A:** a. More than 67% of newly connected generation capacity in the system is located below the generation threshold value of 100 gCO_2e/kWh measured on a life cycle basis, over a rolling five-year period, **OR** b. The average system grid emission factor, calculated as the total annual emissions from power generation connected to the system, divided by the total annual net electricity production in that system, is below 100 gCO_2e/kWh measured on a life cycle basis, over a rolling five-year average period. **OR** **OPTION B:** The system is in a region or country whose electricity system is covered by legislation, official policy, or formal commitments establishing at least one of the following decarbonization objectives: a. A near net zero* aligned power system by 2050, evidenced by specific decarbonization targets for the power sector, such as energy transitions plans, renewable roadmaps, decarbonization power development plans; **OR** b. Any new coal or fossil gas-fired power plants planned, approved, or under development have an abatement rate of at least 90%, **and** an officially adopted phase-out plan is in place to eliminate coal and/or fossil gas power generation with an abatement rate of less than 90% by **2050.** * The trajectory to near net zero should align with the linear pathway from the global average CO_2 emissions intensity for electricity generation of 435 gCO_2/kWh in 2025 (as reported by the International Energy Agency (IEA)[4]) down to 100g CO_2e/kWh by 2050, utilising the Cumulative Benchmark Divergence (CBD) methodology developed by IIGCC[5] to provide for flexibility above or below that linear pathway so long as a maximum CBD threshold of 15% is met. The CBD is calculated as the ratio between: • The cumulative area where the assessed pathway lies above the linear pathway (positive deviations only); and • the cumulative area under the linear pathway over the same period. Negative deviations (i.e. where the assessed pathway performs better than the benchmark) are set to zero and do not offset previous positive deviations. $$CBD(\%) = 100 \times \frac{cumulative\ emission\ intensity\ above\ the\ benchmark}{cumulative\ benchmark\ emission\ intensity}$$

	The cumulative values are calculated as the area under the emissions intensity trajectories using the trapezoidal rule based on annual emissions intensity data. To demonstrate compliance with the Criteria, the CBD value must be calculated annually for the duration of the bond; both official data and data from EMBER website may be used.[6]
DNSH	See Annex I

1.2 Electricity transmission and distribution – via a microgrid or isolated sub-grid

Sector	Energy
ACTIVITY	Transmission and distribution of electricity via a microgrid or any other isolated sub-grid
ISIC code	3510 Electric Power Generation, Transmission and Distribution
In scope	The activity and all associated assets for this activity per Annex II.
Certification types	UoP, Asset
Technical screening criteria	
Substantial contribution to mitigation	The microgrid: a. Generates at least 90% of its electricity from solar, wind, and/or other sources with an emissions intensity below 100 gCO_2e/kWh; **AND** b. Has no long-term reliance on fossil backup systems after 2050.
DNSH	See Annex I

2 Decarbonisation enabling measures

2.1 Reinforcement, expansion and modernisation of existing electricity transmission and distribution systems

Sector	Energy
MEASURE	Re-inforcement, expansion and modernisation of existing electricity systems
ISIC code	3510 Electric Power Generation, Transmission and Distribution
In scope	Projects and assets that reinforce, expand and/or modernise an existing electricity transmission and distribution system. This might include increasing network capacity; extending grid coverage; reinforcing lines and substations; enabling connection of new users or generators. Examples of eligible assets can be found in Annex II. Examples of eligible transmission and distribution assets
Certification types	UoP, Asset
Technical screening criteria	
Substantial contribution to mitigation	The reinforcement, expansion or modernisation is undertaken in an electricity transmission and distribution system that meets the criteria in 1.1 – Electricity transmission and distribution via a main grid, or in 1.2 – Electricity transmission and distribution via a microgrid or isolated sub-grid.
DNSH	See Annex I

2.2 Interconnection of existing electricity transmission and distribution systems

Sector	Energy
MEASURE	Interconnection of existing electricity transmission and distribution systems
ISIC code	3510 Electric Power Generation, Transmission and Distribution
In scope	Projects and assets that physically interconnect two or more existing electricity transmission and distribution systems, enabling the secure and reliable transfer of electricity between them. Examples of eligible assets can be found in Annex II. Examples of eligible transmission and distribution assets
Certification types	UoP, Asset
Technical screening criteria	
Substantial contribution to mitigation	Every electricity transmission and distribution system interconnected by the project meets the criteria in 1.1 – Electricity transmission and distribution via a main grid, or in 1.2 – Electricity transmission and distribution via a microgrid or isolated sub-grid.
DNSH	See Annex I

2.3 Connecting low-carbon energy generation to the electricity transmission and distribution system

Sector	Energy
MEASURE	Connecting low-carbon energy generation to the electricity transition and distribution system
ISIC code	3510 Electric Power Generation, Transmission and Distribution
In scope	Transmission and distribution infrastructure and associated equipment that directly connect electricity generation to the main grid, isolated sub-grids or micro grids. Examples of eligible assets can be found in Annex II. Examples of eligible transmission and distribution assets
Certification type	UoP, Asset
Technical screening criteria	
Substantial contribution to mitigation	The electricity generation facility directly connected meets the mitigation component of the relevant Climate Bonds Energy Generation Criteria if that exists, or has an emissions intensity below 100 gCO_2e/kWh, calculated on a life-cycle basis if no criteria exists for the specific energy type.
DNSH	See Annex I

2.4 Reduction of renewable energy curtailment

Sector	Energy
MEASURE	Reduction of renewable energy curtailment
ISIC code	3510 Electric Power Generation, Transmission and Distribution
In scope	Dedicated grid connection infrastructure and associated equipment enabling the reduction of renewable energy curtailed in the system. Examples of eligible assets can be found in Annex II. Examples of eligible transmission and distribution assets
Certification type	UoP, Asset
Technical screening criteria	
Substantial contribution to mitigation	Information of the amount of renewable energy curtailment in MWh, avoided is disclosed
DNSH	See Annex I

2.5 Connection to the grid of isolated regions previously powered by diesel or oil power generators

Sector	Energy
MEASURE	Connection to the grid of isolated regions previously powered by diesel generators
ISIC code	3510 Electric Power Generation, Transmission and Distribution
In scope	Dedicated grid connection infrastructure and associated equipment applied in isolated zones (i.e. small islands in archipelagos or isolated off grid regions) where the supply of energy was previously mainly produced with diesel or oil power generators Examples of eligible assets can be found in Annex II. Examples of eligible transmission and distribution assets
Certification type	UoP, Asset
Technical screening criteria	
Substantial contribution to mitigation	The connection displaces or permanently replaces existing diesel- or oil-fired electricity generation, and the MW of diesel- or oil-fired generating capacity permanently retired or displaced is disclosed.
DNSH	See Annex I

Annex I. Do No Significant Harm (DNSH) criteria

The following checklist should be completed. All items should be verified in the affirmative, unless a compelling reason is given for any item being not applicable.

No.	DNSH checklist	Proof Given	Overall Assessment
		For verifier to complete	
Section 1: Climate Change Adaptation and Resilience			
1.1	Clear boundaries and critical interdependencies between the asset or activity and the system it operates within are identified.		
1.2	An assessment has been undertaken to identify the key physical climate hazards to which the asset or activity will be exposed and vulnerable to over its operating life		
1.3	The measures that have or will be taken to address those risks, mitigate them to a level such that the asset or activity is suitable to climate change conditions over its operational life have been identified and planned if not yet undertaken.		
1.4	The facilities do no significant harm to the climate resilience of the defined system they operate within		
1.5	There will be ongoing monitoring and evaluation of the relevance of the risks and resilience measures and related adjustments to those measures will be taken as needed. • Indicators for risks identified under item 1.2 in this checklist are provided. • Indicators for risk mitigation measures identified under item 1.3 in this checklist are provided. • Applicants have a viable plan to annually monitor and evaluate climate risks thresholds/triggers, climate resilience performance, and appropriateness of climate resilience measure(s) and to adjust as necessary to address evolving climate risks.		
Section 2: Sustainable use and protection of water and marine resources			
2.1	An Environmental Impact Assessment (EIA) for the activity or asset is conducted by an independent third-party expert and addresses potential impacts on water.		
2.2	Environmental degradation risks related to preserving water quality and avoiding water stress are identified and addressed with the aim of achieving good water status and good ecological potential.		
2.3	A water use and protection management plan, for the potentially affected water body or bodies, in consultation with relevant stakeholders.		
2.4	The activity does not hamper the achievement of good environmental status of marine waters or does not deteriorate marine waters that are already in good environmental status.		
Section 3: Transition to a circular economy			
3.1	The activity does not cause significant inefficiency in the use of materials or the direct or indirect use of natural resources.		
3.2.	The activity does not increase the generation of waste.		
Section 4: Pollution prevention and control			
4.1	The activity does not pose significant risk of harm to air quality, addressing pollutants such as particulate matter, carbon monoxide, ozone, nitrogen dioxide and sulphur dioxide. (When applicable, include metrics/limits based on BAT)		
4.2	The activity does not lead to a significant rise in the emission of hazardous substances into the air, water or ground or cause other environmental damage? When applicable add indicators, emissions thresholds or any other specific requirement depending on the sector		

No.	DNSH checklist	Proof Given	Overall Assessment
		For verifier to complete	
Section 5: Protection and restoration of biodiversity and ecosystems			
5.1	The activity does not significantly harm the good status or resilience of ecosystems.		
5.2	The activity does not harm the conservation status of habitats or species.		
5.3	The activity does not lead to biodiversity loss and ecosystem degradation.		
5.4	An assessment of potential land use change risks and indirect land use change risks is conducted and mitigation measures proposed.		
5.5	For sites/operations located in or near biodiversity-sensitive areas (including the Natura 2000 network of protected areas, UNESCO World Heritage sites and Key Biodiversity Areas, as well as other protected areas), an appropriate assessment, where applicable, has been conducted and based on its conclusions the necessary mitigation measures are implemented.		
5.6	The activity does not result in significant loss of carbon sinks or biodiversity areas and that therefore pose high carbon lock-in and transition risks).		

Annex II. Examples of eligible transmission and distribution assets

	Examples (non-exhaustive)
Transmission infrastructure	High-voltage overhead lines (high voltage alternating current (HVAC)/ high voltage direct current (HVDC))
	Underground and submarine cables
	Transmission towers and pylons (including HVDC converters)
	Reactive power equipment (ATATCOMS, SVC, capacitors)
	Interconnector high-voltage substations
	Power transformers (cross-border links)
Distribution infrastructure	Medium and low-voltage lines and cables
	Distribution transformers
	Secondary substations
	Switchgear and protection equipment
	Feeders and networks reinforce infrastructure
Storage assets	Battery electricity storage systems, grid-scale and distributed
	Compressed air storage
	Flywheel or capacitor storage facilities
Smart and digital assets	Smart meters
	Sensors and internet of things (IoT) devices
	Supervisory control and data acquisition (SCADA)
	Distribution management systems (DMS)
	Energy management systems (EMS)
	Communication networks (fiver, 5G for grids)
	Data platforms and cloud infrastructure
	Cybersecurity systems
	Digital twin
Interconnection infrastructure	Cross-border interconnectors
	Back-to-back HVDC links
	Grid coupling stations
	Interconnection substations
	Off-shore grid hubs
	Connection assets for integrating national and regional grids.
Grid expansion and reinforcement	Increasing network capacity
	Extending grid coverage
	Reinforcing lines and substations
	Enabling connection of new users or generators
Equipment for flexibility and demand response	Demand-side management
	Load shifting and peak shaving
	Aggregation of distributed resources
	Vehicle-to-grid (V2G)
	Ancillary services for demand or storage
Smart grid and digitalization equipment	Grids automation
	Sensors and measurement tools (meteorological sensors and forecasting systems)
	AI-based optimisation
	Interoperability
	Data integration
	Digital platforms
Monitoring and control equipment systems	Supervisory control and data acquisition (SCADA) systems
	Real-time monitoring
	Remote control of substations

	Wide-area monitoring systems (WAMS)
	Control centres and automation platforms
	Software, controls and artificial intelligence to manage multiple generation resources
	Communication and control (advance software and control rooms, automation of substations or feeders, voltage control capabilities)
Equipment for voltage regulation and power factor correction	Voltage control schemes; on-load tap chargers (OLTC)
	Capacitor banks
	Reactor banks
	Power factor correction systems
	Voltage optimization technologies
Equipment for efficiency improvements	Reducing network loses
	Voltage optimization
	Improving power quality
	Increasing asset utilization
Storage utilisation measures	Grid balancing
	Congestion management
	Frequency regulation
	Energy time-shifting
	Renewable energy firming
Equipment for customer integration and prosumers	Self-consumption
	Supporting rooftop solar and storge
	Smart appliances
	Demand response participation
	Active consumer market participation

Annex III. TWG and IWG members

Climate Bonds Coordinator:			
Francisco Moreno Castro	Energy Analyst Climate Bonds Initiative		
Technical Lead Advisor and Climate Bonds Energy Lead:			
Ana Díaz Vázquez	Energy Lead Climate Bonds Initiative		
TWG Members (Technical Working group Member))			
Lucia Fuselli	Green Grids Initiative	**William Blyth**	Imperial College London
Steve Pye	University College of London	**Adrián Mate**	Renewable Grids Initiative
Elisabeth Cremona	EMBER-ENERGY	**Juan Carlos Belza**	CIER. Comisión de Integración Energética Regional
Ryan Snowden	Green Grids Initiative	**José Miguel Acosta**	CIER. Comisión de Integración Energética Regional
Kae Takase	Renewable Energy Institute		
FWG Members (Financial Working group Member)			
Randolph Brazier	HSCB	**Max Thomas**	HSBC

End-notes

[1] Eurelectric. Distribution Grids. Distribution-Grids-Handbook.pdf
[2] Climate Bonds Initiative Sector Criteria. Electrical Grids and Storage | Climate Bonds
[3] Climate Bonds Initiative. Climate Bonds Standard Climate Bonds Standard | Climate Bonds
[4] https://www.iea.org/reports/electricity-2026/emissions
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[6] EMBER Data Tools. Electricity Data Explorer. Electricity Data Explorer | Ember