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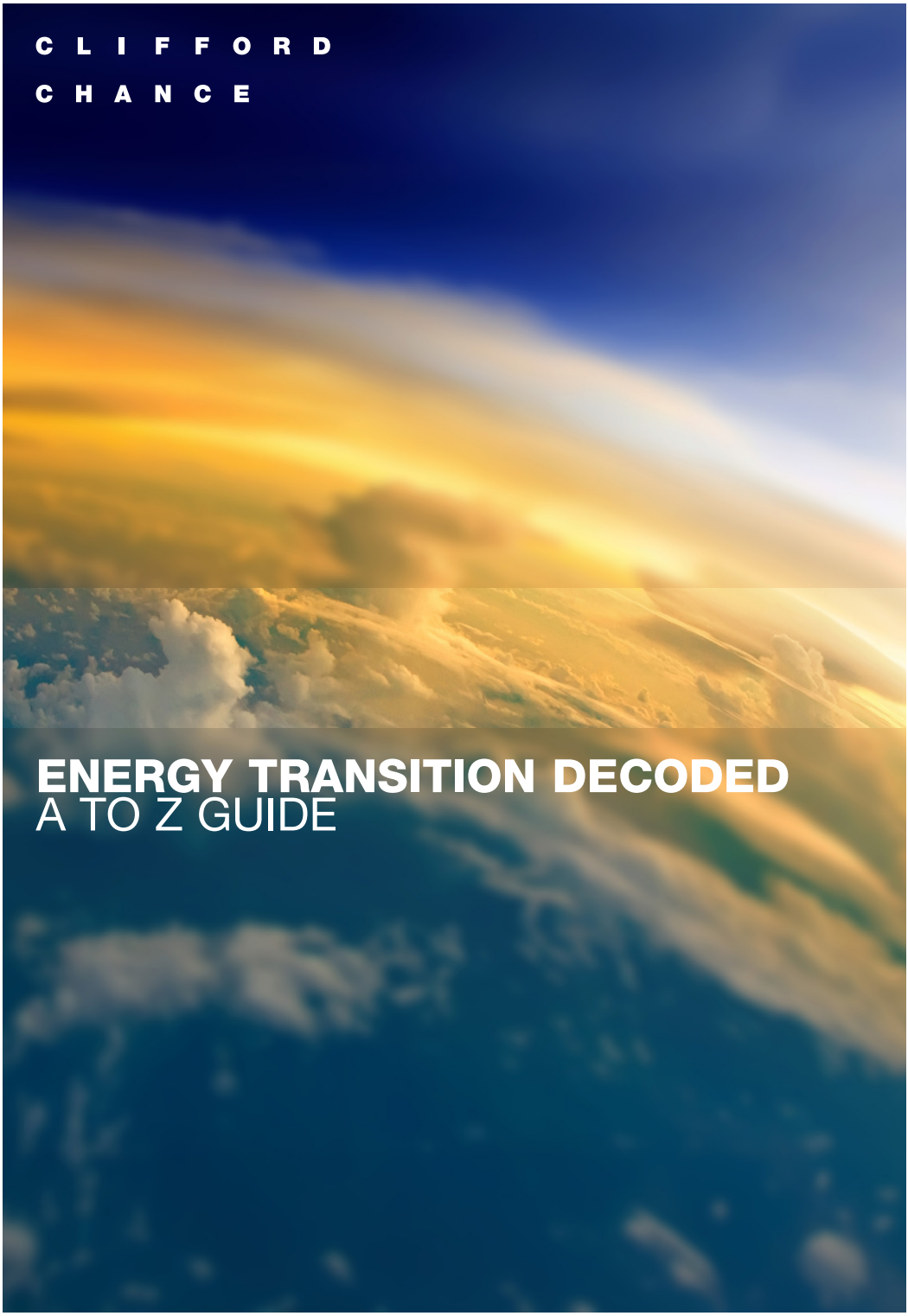


ENERGY TRANSITION DECODED
A TO Z GUIDE

Clifford Chance, Texas Tower, 845 Texas Avenue, Suite 3930, Houston, TX 77002

FOREWORD

The world of energy has always been the subject of acronyms, industry short-hand and slang. With the acceleration in energy transition, we are all learning about new technologies and developments that will assist in our journey toward decarbonisation. This has resulted in the evolution of additional "industry speak" in the area of energy transition.

The aim of this "**Energy Transition Decoded – A to Z Guide**" is to try to demystify some of the terminology we encounter in the industry. We have collected in the lexicon terminology from across our global network of 33 offices in 22 countries.

Not all jurisdictions are covered in the lexicon and not all topics are explored in great detail. The lexicon is not intended to be a definitive guide, but simply a collection of some of the most commonly encountered terms in wind, carbon capture, hydrogen, solar and other energy transition-related sectors. The guide is not intended to constitute legal advice (on what can be complex legal issues) or be relied upon as such, but is simply a tool to help navigate what is for some unfamiliar territory.

We hope this guide is of some benefit as we all work collectively towards the objective of a lower carbon world.

Craig Nethercott
Partner
London

Jonathan Castelan
Partner – Co-Head Energy Transition Group
Houston

A

ABATEMENT
refers to actions taken to reduce emissions or pollution.

ABSORPTANCE
the ratio of the radiation absorbed by a surface to the total energy falling on that surface. In solar energy systems, high absorptance of solar panels is desirable to maximise energy capture.

ACCELERATED DEPRECIATION
a form of tax incentive that allows companies to depreciate renewable energy assets more quickly, thereby reducing U.S. taxable income in the short term.

ACCEPTABLE DAILY INTAKE
the maximum amount of a chemical to which a person can be exposed every day over a lifetime without appreciable health risk. This is often considered when assessing the impact of pollutants from energy projects.

ACCOMMODATION DOCTRINE
a legal principle in oil and gas law that requires mineral rights owners to accommodate existing surface uses when extracting minerals.

ACID GAS DISPOSAL WELL
a component of the broader CCS infrastructure, these UIC Program-regulated wells are specifically designed for the injection and permanent storage of acid gases, which are a mixture of CO_2 and hydrogen sulphide (H_2S), typically produced as by-products in the processing of natural gas or from other industrial processes.

ACID RAIN
rain that contains potentially harmful amounts of nitric and sulfuric acids; commonly caused by industrial pollution.

ACOD Model
acronym for actual cost of debt model.

ACR
acronym for american carbon registry. See also carbon standard.

ACTIVE MONITORING AREA
under Subpart RR, the region that will be monitored from the initial year of the monitoring period through the final year. The perimeter of the area is determined by overlaying two specific zones:

- the first zone encompasses the expected reach of the free phase CO_2 plume by the end of the designated final year, with an additional buffer zone extending at least one-half mile in every direction. This buffer may be expanded if there are known leakage pathways that could potentially extend beyond the half-mile mark; and
- the second zone includes the anticipated extent of the free phase CO_2 plume by the end of an additional five years beyond the final year.

the combination of these two projections establishes the boundaries of the active monitoring area.

ACTIVE SOLAR ENERGY
solar energy systems that use mechanical or electrical devices, such as pumps or fans, to enhance the collection, storage, and distribution of solar energy for heating or power generation.

ACTIVITY
the number of disintegrations per unit time inside a radioactive source. Expressed in becquerels.

ACTUAL COST OF DEBT MODEL
a model used for setting the floor applicable under a cap and floor regime based on the project's actual cost of debt.

ACTUAL EMISSIONS
the rate of emissions, as of a particular date, calculated based on primary data from the production processes of goods and from the electricity consumed during those processes as determined in accordance with the applicable laws and regulations for each emitter, which equals the average rate at which a source actually emitted during a preceding period.

ACUTE EXPOSURE
a single exposure, usually not lasting more than one day, to a toxic substance which may result in severe biological harm or death.

ADDITIONALITY
in the context of carbon offset projects, GHG reductions or removals are additional if they would not have occurred in the absence of the carbon offset project and the sale of carbon credits generated by it.

ADD-ON CONTROL DEVICE
an air pollution control device, such as a carbon adsorber or incinerator, that is added

on to an existing process to reduce the amount of pollution in exhaust gas.

ADJUSTED COEFFICIENT OF PERFORMANCE

a measure of the efficiency of a heat pump; it is the coefficient of performance adjusted for the effects of external factors such as temperature variations.

ADJUSTMENT BID

an offer to increase or decrease generation or consumption in response to price signals. This can help balance supply and demand, particularly with the variable nature of renewable energy sources.

ADJUSTMENT FACTOR

means the "inflation adjustment factor" provided for under Section 45Q of the tax code (Section 45(Q)(b)(1)(A)(ii)(I)). The term may also be used outside of the Section 45Q Tax Credit context to refer to an "inflation adjustment factor" applicable to other tax credits.

ADSORBER

a device that removes gas or vapour pollution from the air through adsorption, where the pollutants adhere to the surface of solid materials.

ADSORPTION

when atoms, ions, molecules, or particles stick to the surface of the solids or liquids they touch.

ADVANCED METERING INFRASTRUCTURE

systems that can send and receive measurement information and analyses back and forth between a customer metering device and an energy company.

ADVANCED TECHNOLOGY PARTIAL ZERO EMISSION VEHICLE

a vehicle with advanced technologies that produce extremely low emissions of certain pollutants.

ADVERSE HYDRO

conditions where water supply is insufficient for hydroelectric power generation, which can be a risk factor for energy projects relying on hydro power.

AEROSOL

particles or droplets of solid or liquid matter suspended in the air. Aerosols can be pollutants emitted by combustion processes and are a concern in the context of air quality and climate change.

AFFORESTATION

the planting of new trees on land that has not been forested before or for a very long period. Afforestation can be part of energy transition strategies as a means of carbon sequestration.

AFTERMARKET

conversion devices or kits for conventional fuel vehicles.

AGGREGATOR

an entity that combines the energy demand or supply of multiple customers or generators to participate as a single entity in the energy market.

AGRICULTURAL BURNING

the intentional burning of land for vegetation management. While it can be a source of renewable energy, it is also a source of emissions.

AIR BASIN
a land area with similar meteorological and geographic conditions.

AIR DISTRICT
a jurisdictional region defined for the management and regulation of air quality. Air districts are responsible for enforcing air pollution regulations and may be involved in approving and monitoring energy transition projects.

AIR MONITORING
the systematic sampling and analysis of air pollutants to assess the air quality.

AIR POLLUTION CONTROL DISTRICT
a regulatory agency in the U.S. with authority to regulate certain sources of air pollution in certain air districts.

AIR POLLUTION
the discharge or release of pollutants to the air, including any chemical, physical, or biological agent that modifies the natural characteristics of the atmosphere. Air pollution includes unwanted particles or mist in the air from cars, factories, and other human activities.

AIR QUALITY INDEX
a numerical index used for reporting the severity of air pollution levels to the public.

AIR QUALITY MANAGEMENT DISTRICT
a type of U.S. regulatory agency for specific air districts, often encompassing several counties, responsible for managing air quality through the enforcement of state and federal air pollution standards.

AIR QUALITY MANAGEMENT PLAN
a plan developed by an air quality management district or similar body outlining strategies to achieve and maintain air quality standards. This often includes energy transition measures, such as the deployment of renewable energy.

AIR QUALITY PERMIT
permits to govern emissions and operations impacting air quality, including under the CAA and analogous state or local laws and/or regulations.

AIR QUALITY STANDARD
the level of air pollution that should not be exceeded during a specific time period to protect public health, established by both U.S. federal and state governments.

AIR QUALITY WORKING GROUPS
collaborative groups of stakeholders, including U.S. government agencies, industry representatives, and community groups, that may provide forums for discussion and coordination activities for the development and implementation of air quality control measures.

AIR TOXICS
harmful chemicals or pollutants in the air that can cause adverse health effects.

AIRBORNE TOXIC CONTROL MEASURE
a U.S. rule that reduces emissions of toxic air contaminants from specific sources. It may impact the design and operation of energy facilities.

AIRSHED
a subset of an air basin where the dispersion of pollutants away from the area is limited due to local topography and weather

conditions. The concept of an airshed is important for managing air quality over a region and is considered in the planning of energy transition initiatives.

AIR-TO-AIR HEAT EXCHANGER

a ventilation system where heat is transferred between separate air chambers, typically from exhausted indoor air to cool an incoming outdoor air stream. It improves energy efficiency by recovering heat that would otherwise be lost.

ALCOHOL FUELS

a class of liquid fuels containing one or more hydroxyl groups attached to a hydrocarbon chain, including fuels such as ethanol or methanol that are derived from the fermentation or chemical conversion of biomass. They are considered alternative fuels and can contribute to the energy transition by replacing fossil fuels.

ALKALINE FUEL CELL

a type of fuel cell that uses an alkaline electrolyte solution, typically potassium hydroxide, and is capable of converting hydrogen and oxygen into electricity and water. Most often, the electrolyte is concentrated potassium hydroxide, and the hydroxide ions are transported from the cathode to the anode.

ALL-ELECTRIC VEHICLES

vehicles without a traditional or combustion engine that are powered exclusively by a rechargeable battery which stores electric energy. See also battery electric vehicle.

ALLOWANCES

permits to emit a certain amount of a pollutant. Companies can trade these permits, providing an economic incentive to reduce emissions. See also carbon allowance.

ALLOY

a mixture containing at least one metal. Alloys are often used in the construction of energy infrastructure due to their favourable properties, such as strength, durability, and conductivity.

ALTERNATIVE ENERGY SOURCES

energy sources that are alternatives to the traditional fossil fuels (coal, oil, and natural gas), such as solar, wind, geothermal, and hydroelectric power, among others. See also renewable energy.

ALTERNATIVE FUEL

an alternative to traditional fuels such as gasoline or diesel. Examples include compressed natural gas, liquefied petroleum gas, liquefied natural gas, ethanol, methanol, and hydrogen.

ALTERNATIVE FUEL INCENTIVE PROGRAM

a program in the US, such as tax credits or grants, to incentivise the use of biofuels and high-efficiency, low-emitting vehicle technology.

ALTERNATIVE FUEL VEHICLE

motor vehicles that do not require gasoline or diesel fuel. Examples include electric vehicles, hybrid electric vehicles, and hydrogen fuel cell vehicles.

AMBIENT AIR

the air occurring at a particular time and place outside of structures. Often used interchangeably with "outdoor air."

AMBIENT AIR QUALITY STANDARDS

the maximum pollution level allowed in outdoor air during a specified period of time.

AMBIENT TEMPERATURE
the temperature of the air around where a structure is situated or a device operates, often referenced in the performance specifications of energy equipment.

AMERICAN RECOVERY AND REINVESTMENT ACT
a stimulus package enacted by the 111th U.S. Congress and signed into law in February 2009 in response to the economic crisis, with a goal to create new jobs, spur economic activity, and foster accountability and transparency in U.S. government spending. It included significant funding for energy efficiency and renewable energy projects. Also known as the Recovery Act.

AMERICAN SOCIETY FOR NONDESTRUCTIVE TESTING
the world's largest technical society for non-destructive testing professionals. It promotes the discipline of non-destructive testing and facilitates non-destructive testing research and technology applications.

ASTM INTERNATIONAL
formerly known as American Society for Testing and Materials, a non-profit organisation that provides a forum for producers, consumers and representatives of government and industry to write laboratory test standards for materials, products, systems, and services.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS
a professional association that sets codes and standards for mechanical devices, which can include those related to energy systems.

AMMONIA
a chemical compound comprised of nitrogen and hydrogen that is very soluble in water and can easily be condensed into a liquid by cold and pressure. Ammonia can be used for pollution control or as a fuel, refrigerant, hydrogen source for fuel cells in energy systems, or high-density carrier for transporting hydrogen. It is a molecule with the chemical formula NH_3 that occurs as a gas at room temperature and normal pressure. It can also be stored as a liquid at low temperatures (below -33 °C) and/or when compressed. In this case, it is called liquid ammonia.

AMP
abbreviation for ampere.

AMPERE
the unit of measurement that tells how much electricity flows through a conductor.

ANAEROBIC DIGESTION
the process by which biodegradable organic matters is broken down by bacteria into biogas. It is used to manage waste and produce biogas, which can be upgraded to biomethane or RNG.

ANCHOR SERVICE
a long-term, high-capacity transportation service provided by a pipeline operator to a key customer, often a large-scale end user or a major distributor. This customer, known as the "anchor shipper", commits to using a significant portion of the pipeline's capacity, providing a stable revenue stream that underpins the financial viability of the pipeline project. The anchor shipper's commitment is typically secured through a long-term contract, which can be crucial in obtaining financing for the construction or expansion of the pipeline. Customers receiving anchor service are typically the last to be curtailed.

ANGLE OF INCIDENCE
the angle that the sun's rays make with a line perpendicular to a surface that determines the percentage of direct sunshine intercepted by a surface. It is a critical factor in the design and efficiency of solar energy systems.

ANIMAL WASTE CONVERSION
the process of turning animal waste into energy. This is a type of biomass energy which can be used in energy production or agriculture.

ANION
a negatively charged ion; an ion that is attracted to the anode. Anions play a role in various chemical reactions and processes, including those in batteries and fuel cells.

ANNULUS
in the context of carbon dioxide geologic sequestration wells under the UIC Program, the annulus is the gap between the well tubing and casing. A leak in this space can lead to pressure build-up during CO_2 injection or when the well is closed. Continuous monitoring of annular pressure is essential for Class VI wells to prevent leaks, ensuring the integrity and safety of the well.

ANODE
the electrode at which oxidation takes place. For fuel cells and other galvanic cells, the anode is the negative terminal; for electrolytic cells (where electrolysis occurs), the anode is the positive terminal.

ANTHROPOGENIC CO_2
CO_2 emissions produced by human activities, such as burning fossil fuels and deforestation.

ANTHROPOGENIC SOURCES
made or generated by a human or caused by human activity. In the context of global climate change, the term refers to pollution and other climate-altering activities caused by humans.

APCD
acronym for air pollution control district.

AQI
acronym for air quality index.

AQMD
acronym for air quality management district.

AQS
acronym for air quality standard.

AQUACULTURE
the practice of farming in water, involving breeding, raising, and harvesting fish, shellfish, and aquatic plants.

AQUIFER
a body of rock and/or sediment that holds groundwater.

AREA LOAD
refers to the total amount of electricity used by all consumers in a utility's service territory at a given point in time. Understanding area load is important for grid management and planning.

AREA OF REVIEW
the region surrounding the geologic sequestration project where underground sources of drinking water may be endangered by the injection activity. The area of review is delineated using computational modelling that accounts for the physical and chemical properties of all phases of the injected CO_2 stream and displaced fluids, and is based on available site characterisation, monitoring, and operational data.

ARGONNE NATIONAL LABORATORY
a U.S. DOE research centre where scientists and engineers research affordable clean energy and environmental protection. The Argonne National Laboratory develops and publishes the GREET Model used in determining the lifecycle GHG emissions for clean hydrogen projects.

AROMATIC
hydrocarbons characterised by unsaturated ring structures of carbon atoms. Commercial petroleum aromatics include benzene, toluene, and xylene.

ARRAY
a number of wired-together panels or modules.

ART
acronym for Architecture for REDD+ Transactions. See also carbon standard.

ASSOCIATED GAS
natural gas found with oil underground that can be produced to provide energy or re-injected for EOR.

ATMOSPHERIC PRESSURE
a unit of pressure equal to the mean atmospheric pressure at sea level, or about 101.325 kPa (kilopascals).

ATTAINMENT AREA
a geographic area that meets the national primary or secondary Ambient Air Quality Standards set by the EPA for specified pollutants.

AUTHORITY TO CONSTRUCT
a permit granting permission to install, modify, operate, use, and/or construct equipment or processes that may cause, potentially cause, reduce, control, or eliminate the emission of air contaminants.

AUTOMATIC SHUT-OFF DEVICE
a valve that closes when a pre-determined pressure or flow value is exceeded. Shut-off devices in injection wells can automatically shut down injection activities preventing an excursion outside of the permitted values.

AUTOTRANSFORMER FEEDER SYSTEM
a system to be used for supplying power to the OLE.

AUXILIARY ENERGY SUBSYSTEM
conventional fuel-powered equipment that functions to supplement or back-up the energy output of a solar system. An auxiliary energy subsystem is often used to add to or entirely substitute the electrical output of a solar system during long overcast periods when there is not enough sunlight.

AUXILIARY EQUIPMENT
additional machinery integral to support the primary operations of a power plant or other large facility.

AVOIDED COST
the cost that a utility would incur if it did not purchase power from an independent producer. Avoided costs may be used to determine the purchase price for power from certain U.S. cogeneration and small power production facilities.

AVOIDED EMISSIONS
emissions that have been avoided by taking certain action as compared to a situation in which the action had not been taken, e.g. the emissions avoided by replacing fossil fuel energy sources with the use of solar panels or through not cutting down forests that would otherwise have been felled.

B

BACKUP POWER
an alternative power source used to provide electricity in the event of a primary power failure.

BAGHOUSE
an air pollution control device that traps particles by forcing industrial exhaust streams through large permeable fabric bags usually made of glass fibres.

BALANCE OF PLANT
various supporting and auxiliary components of a power plant system required to produce energy, such as substations, control systems, and electrical infrastructure.

BALANCE OF SYSTEM
all supporting components, equipment, structures, and services necessary to create an operational generation project. For solar projects, it includes the components of a solar photovoltaic system other than the photovoltaic panels, such as wiring, switches, a mounting system, and inverters.

BALANCED SCHEDULE
a schedule that ensures the total energy generation matches the total energy demand over a specific time period.

BARREL
a unit of measure for oil and petroleum products, equal to 42 U.S. gallons.

BARRELS OF OIL EQUIVALENT
a standard unit of measurement used to aggregate the amount of energy derived from different sources into a single figure, expressed in terms of the number of barrels of oil that would contain the same amount of energy.

BASALT FORMATIONS
igneous rock formations originating from cooled volcanic lava flows. CO_2 can be stored in these formations where it undergoes a rapid mineralisation process, effectively immobilizing the carbon within the rock structure and thus minimising the risk of leakage.

BASE LOAD
the constant amount of power required to meet a continuous minimum electricity demand.

BASE LOAD PLANT
a power-generation facility that supplies power to meet the base load. Typically, these facilities, such as nuclear power plants, produce electricity at a constant and predictable rate, as opposed to facilities that produce an intermittent output.

BASELINE
in the context of carbon offset projects, the GHG emissions that are projected to occur in the absence of the proposed carbon offset project.

BASELINE FORECAST
a projection of future energy demand, production, or emissions assuming no

significant changes in current technology, policy, or other factors.

BATTERY

a device consisting of one or more electrochemical cells that store and provide electrical energy through chemical reactions.

BATTERY ELECTRIC VEHICLE

another term for all electric vehicles.

BATTERY ENERGY STORAGE SYSTEM

a device that collects and stores the energy for later use. The batteries discharge to release energy on command and can be discharged during peak demands, power outages, or in pursuit of grid balancing.

BATTERY MANAGEMENT SYSTEM

a system that oversees and protects a battery, ensuring it is always ready to provide full power and extending its lifespan. It manages how the battery is charged and discharged, including scheduled maintenance, and ensures safety and efficiency in a BESS.

BDT

acronym for bone dry tonnes.

BECCS

acronym for bioenergy with CCS.

BECCS MODEL

a CCUS business model, which, as of May 2024, is currently under development in the U.K. and is expected to offer a tailored government support package incorporating a CfD structure aimed at incentivising private finance to develop a market and incentive for GGR technologies.

BECQUEREL
the SI unit of radioactivity, equivalent to one disintegration per second.

BEHIND THE METER
energy generation or storage systems located on the customer's side of the utility meter, typically used to offset part or all of the customer's energy consumption. These systems may include solar panels, battery storage, or energy-efficient appliances.

BENZENE
a volatile organic compound and known carcinogen. It is a component of crude oil and can be a byproduct of combustion processes.

BESS
acronym for battery energy storage system.

BEST AVAILABLE CONTROL MEASURE
as referenced by the U.S. EPA, the most effective measure, considering technological and economic feasibility, for controlling emissions from a given source in areas not meeting certain air quality standards.

BEST AVAILABLE CONTROL TECHNOLOGY
as referenced by the U.S. EPA, the most advanced and effective emission control technology that is achievable for a particular facility or type of equipment, considering economic and technical feasibility.

BEST AVAILABLE MONITORING METHOD
a method used by the GHGRP reporters for monitoring emissions or process operating parameters that is devised by a reporter as an alternative to using a monitoring method specified by the GHGRP.

BEST AVAILABLE RETROFIT CONTROL TECHNOLOGY
as referenced by the U.S. EPA, the most effective emission reduction technology, considering the environmental, energy, and economic implications for the applicable source.

BEV
acronym for battery electric vehicle.

BI-FUEL VEHICLE
a vehicle that has two distinct fuel systems that can operate on either of the two types of fuel, but not simultaneously.

BIOCHAR
a stable, carbon-rich form of charcoal produced by pyrolysis of biomass, used as a soil amendment and for carbon sequestration.

BIOCONVERSION
the process of converting organic materials, such as plant or animal waste, into usable energy forms like biogas or biofuels through biological processes.

BIODIESEL
a renewable fuel for use in diesel made from biomass materials (such as vegetable oils or animal fats) produced through a chemical process called transesterification.

BIODIVERSITY BEYOND NATIONAL JURISDICTION AGREEMENT
an agreement adopted by the U.N. to advance conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction (the high seas/ international waters), which is currently subject to ratification.

BIOENERGY WITH CARBON CAPTURE AND STORAGE

the capture and storage of CO_2 emissions from biogenic sources, for instance from heat and power generation in biomass-fuelled power plants, waste-to-energy plants and industrial applications, or from biofuel and biohydrogen production. BECCS is considered a CDR technology on the basis that plants absorb CO_2 as they grow, so capturing CO_2 emissions from biogenic sources is equivalent to removing CO_2 from the atmosphere (negative emissions).

BIOFUEL

a renewable, biodegradable fuel manufactured domestically from vegetable oils, animal fats, or recycled restaurant grease.

BIOGAS

gas primarily made up of methane and CO_2 that is produced from the breakdown of organic matter in the absence of oxygen.

BIOGENIC CO_2

CO_2 released as a result of the combustion or decomposition of organic material. Examples include CO_2 released during the combustion of wood and biogas generated by decomposition.

BIOGENIC SOURCE

a source of emissions that is directly related to biological processes, such as methane emitted from wetlands or livestock.

BIOMASS

the decomposable portion of biological-based products, waste, and by-products from agricultural activities, including plant wood pellets and animal matter, as well as from forestry and associated industries such as fisheries and aquaculture, along with the decomposable part of industrial and municipal waste derived from biological sources.

BIOMASS CONVERSION TO SYNTHETIC GASOLINE SYSTEM

a system in which biomass feedstocks undergo a chemical conversion to synthetic fuel products, providing an alternative to traditional fuel from crude oil.

BIOMETHANE

a sustainable type of natural gas made by purifying biogas to remove CO_2. It serves as a substitute for natural gas (methane obtained from fossil fuels) and has a similar impact on emissions when burned.

BIO-METHANOL

methanol produced from syngas from biomass.

BIOSPHERE

the zone at and adjacent to the earth's surface where all life exists; the worldwide sum of all ecosystems.

BIPOLAR PLATES

components used in fuel cells to separate individual cells and conduct electricity from one cell to another. The conductive plate acts as an anode for one cell and a cathode for the cell next to it. The plate may be made of metal or a conductive polymer (which may be a carbon-filled composite). They are designed with channels to allow the flow of gases and may also have features to manage the cell's temperature.

BLACK HYDROGEN

hydrogen produced from steam methane reforming powered by black coal.

BLACKOUT
a power loss affecting many electricity consumers over a large geographical area for a significant period of time. Blackouts can be caused by various factors, including system failures, extreme weather, or insufficient generation capacity.

BLM
acronym for Bureau of Land Management.

BLUE AMMONIA
ammonia produced by combining blue hydrogen with nitrogen. Also called Low-Carbon Ammonia.

BLUE BONDS
bonds which are issued and ring-fenced for specific blue projects.

BLUE CARBON
CO_2 captured and stored in the world's coastal and marine ecosystems.

BLUE CARBON CREDITS
carbon credits that are created by offset projects that use oceans and coastal ecosystems as carbon sinks.

BLUE ECONOMY
economic activities associated with the oceans and seas. Activities commonly understood to represent the blue economy include maritime shipping, fishing and aquaculture, coastal tourism, renewable energy, water desalination, undersea cabling, seabed extractive industries and deep sea mining, marine genetic resources, and biotechnology.

BLUE FINANCE
investments dedicated to finance or refinance activities where the use of proceeds or sustainability-linked loans or sustainability-linked bonds direct finance specifically towards projects and programmes that have positive impacts for the blue economy.

BLUE GROWTH
a renewed interest in the blue economy.

BLUE HYDROGEN
hydrogen produced from natural gas through steam methane reforming, with carbon emissions reduced by carbon capture and storage technologies.

BLUE IMPACT
the measurable variation in a physical, chemical, or biological variable of oceans ecosystems or water related systems as expressed by a quantitative indicator.

BLUE LOAN
a loan that is aligned to the GBP, SBP, SBG, and SLBP (read together with the U.N. Blue Bond Initiative guidance) and where the proceeds are exclusively dedicated to finance or refinance activities or guarantee, in whole or in part, new and/or existing eligible blue projects.

BLUE METHANOL
methanol produced from captured carbon and blue hydrogen.

BLUE PROJECTS
eligible projects that are commonly used types of projects supported or expected to be supported by the blue bonds market and that are aligned with the principles set forth in the U.N. Blue Bond Initiative guidance. While there is no specific definition of what constitutes a blue project, indicative blue project categories include: (a) coastal climate adaptation and resilience; (b) marine ecosystem management, conservation and restoration; (c) sustainable coastal

and marine tourism; (d) sustainable marine value chains; (e) marine renewable energy; (f) marine pollution; (g) sustainable ports; and (h) sustainable marine transport.

BOEM

acronym for Bureau of Ocean Energy Management.

BOILING WATER REACTOR

a type of nuclear reactor where water is heated to its boiling point by nuclear fission and the resulting steam drives a turbine to generate electricity.

BONE DRY TONS

a term used to measure biomass that is completely free of moisture. Quantities are typically expressed in BDT per year. One BDT equals 2,000 pounds of absolutely dry biomass.

BOP

acronym for Balance of Plant.

BOTTLED GAS

propane and butane gases that have been liquefied and stored under pressure in cylinders, with propane typically at about 125 psi and butane around 30 psi. See also LPG.

BOTTOMING CYCLE

a way to increase the thermal efficiency of a steam electric generating system by converting some waste heat from the condenser into electricity rather than discharging it into the environment.

Bq

symbol for becquerel.

BREEDER REACTOR

a type of nuclear reactor that generates more fissile material than it consumes, typically using a fast neutron reactor design.

BRITISH THERMAL UNIT

a unit of heat energy equal to the quantity of heat required to raise the temperature of one pound (1 lb) of water 1°F.

BROWN HYDROGEN

hydrogen produced from steam methane reforming powered by lignite, which also produces CO_2 as a by-product.

BROWNFIELD

a previously developed property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Brownfield sites may be targeted for redevelopment, including for energy transition projects.

BROWNOUT

a controlled power reduction where an electricity company intentionally lowers the voltage in the power lines, resulting in a reduced strength of electrical current reaching customers. This is done to manage situations where the demand for electricity is higher than the supply.

BSEE

acronym for Bureau of Safety and Environmental Enforcement.

BTU

acronym for British Thermal Unit.

BUILDING ENERGY EFFICIENCY STANDARDS

regulations that specify minimum energy efficiency requirements for new and existing buildings to reduce energy consumption and emissions.

BULK PLANT
an intermediate fuel or chemical distribution facility where substances are stored before distribution to customers.

BULK POWER SUPPLY
large-scale generation of electricity that is transmitted across the grid to distribution utilities or large industrial customers.

BUNDLED
a term used to describe a utility service where all components, including generation, transmission, and distribution, are provided, and billed together. May also refer to an energy attribute certificate that is traded with the underlying energy produced.

BUREAU OF LAND MANAGEMENT
the U.S. government agency within the Department of Interior that is responsible for management of federal land, including issuing permits for energy project development on these lands.

BUREAU OF OCEAN ENERGY MANAGEMENT
the U.S. government agency within the Department of Interior that manages the development of the nation's offshore resources in an environmentally and economically responsible way.

BUREAU OF SAFETY AND ENVIRONMENTAL ENFORCEMENT
a U.S. federal agency tasked with enhancing safety and environmental stewardship in the offshore energy sector. Its role includes overseeing the safe and environmentally responsible development of renewable energy sources, such as offshore wind, alongside traditional oil and natural gas on the U.S. Outer Continental Shelf.

BURN DAY
a day when conditions are suitable for burning waste materials without causing excessive air pollution, often regulated by local air quality authorities. The permission to burn can differ from one air basin to another on any particular day.

BURNUP
measure of thermal energy released by nuclear fuel relative to its mass, typically gigawatt days per tonne of fuel (GWd/t).

BUTANE
a hydrocarbon gas that liquifies easily when put under pressure. It is sold as bottled gas and used as a fuel, a propellant, and a refrigerant.

C

CAA
acronym for the Clean Air Act.

CAFE
acronym for the Corporate Average Fuel Economy standards implemented by the U.S. government.

CALIFORNIA AIR RESOURCES BOARD
a department of the California Environmental Protection Agency responsible for air quality standards and regulations, including those related to vehicle emissions and fuels that contribute to the state's energy transition goals.

CALIFORNIA FUEL CELL PARTNERSHIP
a collaboration of organisations, including auto manufacturers, energy companies, fuel cell technology companies, and government agencies, that work together to promote the adoption of hydrogen fuel cell vehicles in California.

CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION
the independent system operator responsible for managing the power grid and wholesale electricity markets in California.

CANADIAN CARBON CONTRACTS FOR DIFFERENCE

the CFD scheme established by the Canadian government to guarantee a set revenue for carbon credits generated by a project (which represent either carbon emission reductions or excess allowances).

CANADIAN STANDARDS ASSOCIATION

a non-profit, non-governmental standardisation organisation that develops standards for electrical products.

CANDU REACTOR

a type of heavy water reactor developed in Canada that uses deuterium oxide as a moderator.

CAP AND FLOOR

a type of regulated revenue regime available in the U.K. and Republic of Ireland designed to incentivise amongst other things, interconnector projects and that operates to provide developers with a minimum return (the floor) and limits the potential upside such developers can achieve (the cap) for a 25-year period during the operation of the asset.

CAP AND TRADE SYSTEM

a system that limits aggregate emissions from a group of emitters by setting a "cap" on maximum emissions, with the cap reducing over time. It uses a market approach to reduce overall emissions of pollutants and encourage businesses to invest in cleaner and more efficient energy. Emitters must hold carbon allowances for every ton of GHG they emit. Those not surrendering the requisite number of carbon allowances may face penalties, whereas those reducing emissions can sell or trade surplus carbon allowances.

CAPITAL GRANTS OR SUBSIDIES

a U.S. government incentive to support the establishment of renewable energy facilities, including in the form of direct financial contributions towards capital costs.

CAPTIVE CUSTOMER

a customer who must buy power from the local utility because they do not have other practical options, even if that customer is legally allowed to buy from competitors.

CAPTURE FACILITIES

the facilities or technology used for the purposes of carbon capture. The capture facilities can be based on post-combustion technology, pre-combustion technology, or oxy-fuel combustion technology. Post-combustion and oxy-fuel equipment can be fitted to new plants or retrofitted to existing facilities that were originally built without it. Pre-combustion methods require larger modifications to the operation of the facility and are therefore more suitable to new plants. CO_2 can also be captured directly from the atmosphere by drawing in air using fans and passing it through an environment consisting of solid sorbents or liquid solvents. See also direct air capture.

CAR

acronym for Climate Action Reserve. See also carbon standard.

CARBON ACCOUNTED COMMODITY

a commodity that has been checked for its carbon impact, including the GHG impact.

CARBON ACCOUNTING

the process of measuring the volume of GHG emissions attributable to a particular entity or activity over a certain period of time, often used to calculate carbon footprint.

CARBON ALLOWANCE

a certificate, permit, licence or other instrument used in compliance carbon markets that permits an entity to emit one ton of CO_2 or other GHG equivalent. See also cap and trade system.

CARBON BORDER ADJUSTMENT MECHANISM

a carbon border tax payable on imports into a country. The primary focus is to address an issue called "carbon leakage". This occurs when the production of carbon intensive goods is transferred to countries with lower emissions standards and where carbon pricing measures are less stringent. Carbon border adjustment mechanisms seek to ensure that imported goods are subject to a comparable carbon price to goods produced within the relevant country. See also E.U. CBAM and U.K. CBAM.

CARBON CAPTURE AND SEQUESTRATION

the process of capturing carbon oxides emissions from sources like power plants and then transporting and storing them in underground geological formations to prevent their release into the atmosphere.

CARBON CAPTURE AND STORAGE INFRASTRUCTURE FUND

a £1 billion infrastructure fund established by the U.K. government to support capital expenditure on T&S networks and ICC projects in the CCUS sector.

CARBON CAPTURE DEMONSTRATION PROJECTS PROGRAM

a U.S. DOE funded initiative providing $2.5 billion to accelerate the demonstration and deployment of carbon management technologies.

CARBON CAPTURE LARGE-SCALE PILOT PROGRAM

a U.S. DOE authorised program with $937 million in funding to advance transformational technologies that significantly improve the efficiency, effectiveness, costs, emissions reductions, and environmental performance of coal and natural gas use.

CARBON STORAGE ASSURANCE FACILITY ENTERPRISE (CarbonSAFE) INITIATIVE

a U.S. DOE initiative launched to evaluate and facilitate the deployment of geologic carbon storage, aiming to minimise technical risks and costs associated with large-scale saline storage projects.

CARBON CAPTURE, UTILISATION AND SEQUESTRATION

similar to CCS, but with the addition of using the captured carbon oxides in other industrial processes, such as EOR or as a feedstock for chemicals.

CARBON CREDIT

a tradeable instrument that is issued by a specific authority certifying that one ton of carbon has been reduced, avoided or removed by a project or activity, such as the building of a renewable energy plant in place of a conventionally fuelled facility.

CARBON DIOXIDE

molecules containing only one atom of carbon and two atoms of oxygen. It is the most common GHG, produced by burning fuel and other human activities such as deforestation and biomass burning.

CARBON DIOXIDE EQUIVALENT

a measure used to compare the emissions of various GHGs based on how much they warm the planet. It is often used to talk

about emissions in terms of million metric tonnes of carbon dioxide equivalent.

CARBON DIOXIDE REMOVAL TECHNOLOGIES

technologies for removing existing CO_2 from the atmosphere, including direct air capture, bioenergy with carbon capture and storage, and biological carbon sequestration, all of which are essential for achieving net-zero emissions and mitigating climate change. Also called "CDR technologies."

CARBON DIOXIDE TRANSPORTATION INFRASTRUCTURE FINANCE AND INNOVATION PROGRAM

a U.S. DOE program that provides financial support for developing CO_2 transportation infrastructure.

CARBON FARMING

any practice or process related to terrestrial or coastal management and resulting in capture and temporary storage of atmospheric and biogenic carbon into biogenic carbon pools or the reduction of soil emissions.

CARBON FOOTPRINT

the total amount of GHGs emitted into the atmosphere each year by a particular individual, organisation, or community.

CARBON FREE

when an activity does not produce any CO_2 emissions.

CARBON INTENSITY

a measure of how many GHG emissions are produced per a specified metric (e.g., kilowatt hour of electricity).

CARBON LEAKAGE

occurs when a country or region's strict environmental regulatory regime leads to the migration of carbon-intensive industries to places with less stringent environmental laws.

CARBON MARKETS

trading systems in which carbon credits or carbon allowances are sold and bought. Companies or individuals can use carbon markets to compensate or reduce liability for their emissions by purchasing carbon credits or carbon allowances from entities that remove, avoid, or reduce emissions. See also compliance carbon markets and voluntary carbon markets.

CARBON MONOXIDE

molecules containing only one atom of carbon and one atom of oxygen. It is a colourless, odourless, tasteless, poisonous gas that results from incomplete combustion of carbon with oxygen and is a major air pollutant based on weight.

CARBON NEGATIVE SHOT

a U.S. DOE initiative that aims to foster innovation in CDR technologies by extracting CO_2 from the atmosphere on a gigaton scale at a cost-effective rate, thereby advancing the nation's efforts towards a negative carbon footprint.

CARBON NEUTRAL COMMODITIES

commodities that have their emissions calculated and compensated for by using carbon credits. Carbon neutrality can be achieved by offsetting a product's emissions during its lifecycle (all the emissions through the production, transportation and use of the product or service).

CARBON NEUTRAL

when an activity does not contribute to the net amount of carbon in the atmosphere because the amount of carbon produced is negated by carbon reduction, removal, or avoidance efforts.

CARBON OFFSET

a reduction, removal, or avoidance of emissions, generally measured in metric tons of CDE, that occurs as a result of a specific project or activity.

CARBON OFFSET PROJECT

a project consisting of one or more activities aimed at reducing or avoiding GHG emissions or increasing carbon sequestration.

CARBON OFFSETTING AND REDUCTION SCHEME FOR INTERNATIONAL AVIATION

a global market-based program developed and adopted by the ICAO under which aircraft operators are required to offset any emissions from international flights above an agreed baseline (i.e., above 85% of 2019 emissions levels).

CARBON OXIDES

refers to compounds exclusively made of carbon and oxygen, including carbon monoxide or carbon dioxide.

CARBON PRICE

a cost applied to carbon pollution to encourage the reduction of emissions to the atmosphere. Carbon prices can be applied through a variety of different mechanisms such as taxes or cap and trade systems.

CARBON RATINGS AGENCY

a body that assesses carbon offset projects and issues ratings based on the likelihood that the project is delivering the GHG emissions avoidance, reduction or removal it claims (the higher the rating, the greater the likelihood the claims are being achieved).

CARBON REGISTRY

in respect of carbon credits, an electronic platform enabling the accurate recording of the issuance, holding, transfer, and retirement of such carbon credits.

CARBON REMOVAL

the process of removing CO_2 from the atmosphere. In the context of the CRCF Regulation, it covers industrial carbon removals (e.g. direct air capture), carbon farming, and binding carbon in long-lasting products and materials (e.g. wood-based construction materials).

CARBON REMOVAL CERTIFICATION FRAMEWORK

another term for the CRCF Regulation.

CARBON REMOVALS AND CARBON FARMING REGULATION

a proposed E.U. Regulation (provisionally agreed between the European Parliament and Council of the E.U. as of February 2024) that would establish the first E.U.-wide voluntary framework for certifying carbon removals, carbon farming, and carbon storage in products generated in Europe.

CARBON SINK

a natural or artificial reservoir that absorbs and stores the atmosphere's carbon with physical and biological mechanisms. This is a common term used in the context of carbon offset projects involving reforestation, soil sequestration by regenerative agriculture practice, and avoided deforestation.

CARBON STANDARD
a programme administered by a body that establishes rules, procedures, and methodologies against which carbon offset projects and carbon offsets are validated, monitored, reported, and verified. Examples of carbon standards include ACR, ART, CAR, GS, and VCS.

CARBON STORAGE
another term for sequestration.

CARBON STORAGE IN PRODUCTS
any practice or process that captures and stores atmospheric or biogenic carbon in long-lasting products and that allows on-site monitoring of the carbon stored and certified throughout the monitoring period.

CARBON TAX
an indirect tax on the use of fossil fuels in emissions-intensive sectors such as power generation, industrial production, or transportation, intended to encourage lower emissions.

CARBON TRADING
the practice of buying and selling carbon allowances or carbon offsets.

CAS
acronym for Chemical Abstract Service.

CAS REGISTRY NUMBER
for the purposes of CERCLA release notification requirements, the EPA identifies hazardous substances in the Federal Register by Chemical Abstract Service (CAS) Registry Number. These are unique identifiers assigned to every chemical substance described in the open scientific literature by the Chemical Abstracts Service.

CASING AND CEMENTING PROGRAM
programs integral to ensuring the safe and permanent storage of CO_2 in geological formations. They involve designing and constructing wells with materials that maintain integrity and prevent fluid migration, thereby safeguarding underground sources of drinking water.

CATALYST POISONING
the binding of unwanted impurities bind to a fuel cell's catalyst, making it less effective.

CATALYST
a chemical substance that speeds up a chemical reaction by lowering the activation energy required for the reaction. After the reaction, the catalyst can potentially be recovered from the reaction mixture and is chemically unchanged.

CATALYTIC CRACKING
a process in oil refining that breaks down the larger, heavier, and more complex hydrocarbon molecules into simpler and lighter molecules. Catalytic cracking uses a catalytic agent and is an effective process for generating gasoline from crude oil.

CATEGORY A PROJECTS
as defined under EP4, projects with potential significant adverse environmental and social risks and/or impacts that are diverse, irreversible, or unprecedented.

CATEGORY B PROJECTS
as defined under EP4, projects with potential limited adverse environmental and social risks and/or impacts that are few in number, generally site-specific, largely reversible, and readily addressed through mitigation measures.

CATEGORY C PROJECTS
as defined under EP4, projects with minimal or no adverse environmental and social risks or impacts.

CATHODE
the electrode in an electrochemical cell where reduction occurs. It is the positive terminal in a battery.

CATION
a positively charged ion. Cations are important in various chemical reactions and processes, including those in batteries and fuel cells.

CBAM
acronym for Carbon Border Adjustment Mechanism.

CBAM CERTIFICATE
in respect of the E.U. CBAM, a certificate in electronic format corresponding to one tonne of CO_2 of embedded emissions in goods.

CCP
acronym for the Core Carbon Principles.

CCRA
acronym for Climate Change Risk Assessment.

CCS
acronym for carbon capture and sequestration.

CCUS
acronym for carbon capture, utilisation, and sequestration.

CCUS CLUSTER
a cluster of several industrial emitters share CCUS infrastructure and knowledge. Several jurisdictions, including the U.K., have adopted a cluster sequencing approach to developing the CCUS network.

CDE
acronym for carbon dioxide equivalent or CO_2 equivalent.

CDR
acronym for carbon dioxide removal.

CEF
acronym for the Connecting Europe Facility.

CEM
acronym for continuous emission measurement.

CER
acronym for Certified Emission Reductions.

CERCLA
acronym for the Comprehensive Environmental Response, Compensation, and Liability Act.

CERTIFIED EMISSION REDUCTIONS
a type of carbon credit issued by the Clean Development Mechanism under the Kyoto Protocol.

CFD
acronym for Contracts for Difference.

CHAIN REACTION
a reaction that stimulates its own repetition, in particular where the neutrons originating from nuclear fission cause an ongoing series of fission reactions.

CHAR
the solid material that remains after light gases (e.g., coal gas) and tar have been driven out or released from a carbonaceous material during the initial stage of combustion.

CHEMICAL ENERGY
energy stored in the bonds of chemical compounds, which can be released in a chemical reaction, often producing heat as a byproduct.

CHILLER
a device that removes heat from a liquid via a vapour-compression or absorption refrigeration cycle. This liquid can then be circulated through a heat exchanger to cool equipment or another process stream.

CI
acronym for carbon intensity.

CIF
acronym for Carbon Capture and Storage Infrastructure Fund.

CIFIA
acronym for Carbon Dioxide Transportation Infrastructure Finance and Innovation Act.

CIRCUIT
the closed path that an electric current flows through.

CIRCULAR ECONOMY
an economy in which things are made and consumed in a way that minimises our use of the world's resources, cuts waste, and reduces carbon emissions. Products are kept in use for as long as possible, through repairing, recycling, and redesign, so they can be used repeatedly.

CISA
acronym for Cybersecurity and Infrastructure Security Agency.

CLAIMS CODE OF PRACTICE
guidance published by the VCMI aimed at addressing integrity in the voluntary carbon markets on the demand side by guiding companies and others on how they can credibly make voluntary use of carbon credits as part of their climate commitments and on how they communicate their use of carbon credits.

CLASS II PERMIT
a permit issued in connection with a Class II well in accordance with the requirements of the UIC Program.

CLASS II WELL
a well that is used to inject fluids associated with hydrocarbon production, such as brine (salt water), freshwater, steam, polymers, or CO_2. Class II wells may be for disposal, EOR, or hydrocarbon storage wells and are regulated by the EPA or an equivalent state agency in states with primacy.

CLASS VI PERMIT
a permit issued in connection with a Class VI well in accordance with the requirements of the UIC Program.

CLASS VI WELL
a well that is used to inject CO_2 into underground formations for secure geologic sequestration. Class VI wells are used as part of CCS. Like Class II wells, Class VI wells are regulated by the EPA or an equivalent state agency in states with primacy.

CLEAN AIR ACT
U.S. federal legislation that aims to reduce air pollution and preserve air quality by regulating emissions from stationary and mobile sources.

CLEAN ENERGY
energy generated from sources and technologies that do not produce GHG emissions.

CLEAN ENERGY TRANSITION
the process of moving away from fossil fuel generation to clean energy resources.

CLEAN FUEL VEHICLE
a vehicle that uses fuels such as natural gas, hydrogen, or electricity and that produce fewer emissions than traditional fuels, such as gasoline or diesel.

CLEAN HYDROGEN
hydrogen that is produced through environmentally friendly processes, such as electrolysis using renewable energy sources, resulting in low or zero carbon emissions.

CLEAN VEHICLE REBATE PROJECT
a government or utility-funded initiative that offers rebates for the purchase or lease of eligible clean energy vehicles.

CLEAN WATER ACT
U.S. federal legislation that regulates discharges of pollutants into "waters of the U.S." and imposes quality standards for surface waters.

CLEAN TRANSPORTATION PROGRAM
a government initiative in the state of California that develops alternative and renewable low-carbon fuels, improves alternative fuels and renewable fuels for existing and developing engine technologies, expands transit and transportation infrastructures, and establishes workforce training programs.

CLEANER BURNING GASOLINE
gasoline formulated to burn more cleanly than conventional gasoline, resulting in fewer emissions of pollutants.

CLIMATE ALIGNMENT
an assessment metric under the Poseidon Principles that measures the degree to which a vessel, policy, or portfolio's carbon intensity is in line with a decarbonisation trajectory that meets them corresponding IMO ambition. To assess climate alignment of a single vessel, the vessel's annual emission intensity is compared with the decarbonisation trajectory.

CLIMATE ALIGNMENT SCORE
a reporting metric under the Poseidon Principles that demonstrates climate alignment of a vessel, policy, or portfolio. A positive climate alignment score means a vessel is misaligned (above the decarbonisation trajectory), whereas a negative or zero climate alignment score means a vessel is aligned (on or below the decarbonisation trajectory). In shipping finance transactions financiers that are signatories to the Poseidon Principles are keen to understand the climate alignment score of each vessel being financed.

CLIMATE CHANGE ADAPTATION
adjusting to the actual or expected future climate. The goal is to reduce society's vulnerability to the harmful effects of climate change (like sea-level encroachment, more intense extreme weather events or food insecurity). Adaptation also encompasses making the most of any potential beneficial opportunities associated with climate change (for example, longer growing seasons or increased yields in some regions).

CLIMATE CHANGE MITIGATION
actions to avoid or reduce significant human interference with the climate system with the goal to stabilise GHG levels in a timeframe sufficient to allow ecosystems to adapt naturally to climate change, ensure that food

production is not threatened, and enable economic development to proceed in a sustainable manner.

CLIMATE CHANGE RISK ASSESSMENT

an assessment of physical or transitional climate change risks required pursuant to EP4 to be included in the ESIA delivered in respect of a project. A Climate Change Risk Assessment is required for all Category A Projects and, as appropriate, Category B Projects, and should include consideration of relevant physical risks as defined by the TCFD. This is also mandatory for all other projects, regardless of location, if their combined Scope 1 and Scope 2 emissions are projected to exceed 100,000 tonnes of CO_2 equivalent per year.

CLIMATE CHANGE

a change in global or regional climate patterns, particularly a change apparent from the mid to late 20th century onwards and attributed largely to the increased levels of atmospheric CO_2 produced by the use of fossil fuels.

CLIMATE FINANCE

local, national, or transnational financing drawn from public, private, and alternative sources of financing that seeks to support mitigation and adaptation actions that will address climate change.

CLOSURE OF STORAGE SITE

the definitive cessation of CO_2 injection into a particular storage site.

CO

chemical symbol for carbon monoxide.

CO_2 EMISSION FACTOR

the weighted average of the CO_2 intensity of electricity produced from fossil fuels within a geographic area. The CO_2 emission factor is the result of the division of the CO_2 emission data of the electricity sector by the gross electricity generation based on fossil fuels in the relevant geographic area. It is expressed in tonnes of CO_2 per megawatt-hour.

CO_2 EMISSIONS

the release of CO_2 into the atmosphere, including from the production of goods or the burning of fuels.

CO_2 FOOTPRINT

the total amount of CO_2 emissions that are emitted into the atmosphere each year by a person, family, building, organisation, or company. A person's carbon footprint includes GHG emissions from fuel that an individual burns directly, such as by heating a home or riding in a car.

CO_2 PLUME

the extent underground, in three dimensions, of an injected CO_2 stream.

CO_2 RELEASE

the movement of the injected CO_2 stream from the injection zone to the surface, and into the atmosphere, indoor air, oceans, or surface water.

CO_2 SOURCE

an economic or industrial operator that is responsible for CO_2 emissions.

CO_2 STREAM

the flow of captured CO_2, often from industrial sources like power plants, which includes incidental substances from the source and capture process. This stream is processed for storage or use, excluding streams classified

as hazardous waste, to support the transition to a low-carbon economy.

CO_2

chemical symbol for carbon dioxide.

CO_2E

abbreviation for carbon dioxide equivalent.

COAL CONVERSION

refers to converting coal into alternate forms of energy, including synthetic gas or liquid fuels. Gasification is a form of coal conversion.

COASTAL BLUE CARBON

carbon captured by the world's ocean and coastal ecosystems, primarily mangroves, salt marshes, and seagrasses.

COASTAL ZONE MANAGEMENT ACT

U.S. federal legislation that protects the U.S. coastal environment from growing demands associated with residential, commercial, and industrial uses through the development of state coastal management programs. The CZMA requires that any U.S. federal actions that are reasonably likely to affect any land or water use or natural resource of the coastal zone be consistent with the state coastal management program.

COGENERATION

the simultaneous production of electricity and useful heat from the same energy source.

COLLECTOR

a device that absorbs solar radiation and transfers the heat into a medium such as water for use.

COMBINED NOMENCLATURE

the classification of goods, designed to meet the needs of (a) the common customs tariff which sets import duties for products imported into the E.U., as well as the Integrated Tariff of the European Communities (Taric) which incorporates all E.U. and trade measures applied to goods imported into and exported out of the E.U.; and (b) the international trade statistics of the E.U. The combined nomenclature provides the means of collecting, exchanging and publishing data on E.U. international trade statistics. It is also used for the collection and publication of international trade statistics in ntra-E.U. trade.

COMMODITY ELECTRICITY

basic physical electricity in the absence of the technological, environmental, social, and economic benefits associated with a specific generation source.

COMMON CARRIER

a for-hire carrier that holds itself out to serve the general public at reasonable rates and without discrimination. Also used to refer to interstate distributors of gas or similar commodities.

COMMUNITY CHOICE AGGREGATION

a way for communities to choose their electricity generation sources by buying it together while still receiving transmission and distribution service from their existing provider. As of 2021, community choice aggregation is allowed in the U.S. through legislation authorised in California, Illinois, Ohio, Massachusetts, New Jersey, New York, Virginia, New Hampshire, Maryland, Rhode Island, and Washington D.C.

COMPETITIVE MARKETS
energy markets where multiple suppliers offer electricity or gas services to customers, who are free to choose their provider.

COMPETITIVE TRANSMISSION CHARGE
a fee charged to electricity suppliers or consumers for the use of transmission services in a competitive market.

COMPLIANCE CARBON MARKETS
carbon markets governed by mandatory carbon reduction regimes at regional, national, or international levels, primarily targeting energy-intensive industries like iron and steel production, oil refining, power generation, and aviation.

COMPOSITE
a material created by combining different substances to obtain specific characteristics and properties. The constituents retain their identity; they can be physically identified, and they exhibit an interface among one another.

COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION AND LIABILITY ACT
U.S. legislation, administered by the EPA, that grants federal authority to investigate, cleanup, and apportion responsibility and liability for sites contaminated with hazardous substances, also known as "superfund sites."

COMPRESSED HYDROGEN GAS
hydrogen gas compressed into a smaller space at high pressure and stored at ambient temperature for storage and transport.

COMPRESSED NATURAL GAS
natural gas that has been compressed to less than 1% of its volume at standard atmospheric pressure.

CONCENTRATED SOLAR POWER PARABOLIC TROUGH AND LINEAR FRESNEL
generating stations based on line-focusing technologies that capture the irradiative energy from the sun with large mirrors that reflect and focus the sunlight onto a linear receiver tube.

CONCENTRATED SOLAR POWER TOWERS
a large number of flat, sun-tracking dual-axis mirrors (heliostats) focusing sunlight onto a solar receiver at the top of a concentrated solar power tower.

CONCURRENT LAND USE
the use of land for multiple purposes at the same time, such as agricultural production and solar energy generation.

CONDENSER
a part of a cooling system that turns gas to liquid.

CONFERENCE OF THE PARTIES
the annual international meeting of the decision-making body of the United Nations Framework Convention on Climate Change, also known as the United Nations Climate Change Conference.

CONFINING LAYER
a dense, non-permeable geological layer or series of layers that sit above an injection zone and act as a barrier to prevent upward leakage of CO_2. See also confining zone.

CONFINING ZONE
another term for confining layer.

CONGESTION
a condition that occurs when demand for electricity transmission capacity exceeds the available transmission capacity.

CONGESTION MANAGEMENT
alleviation of congestion by the ISO.

CONGESTION RENT
the main source of interconnector revenues on the wholesale market, such revenues arise when power is transferred between connected areas with different power prices.

CONNECTING EUROPE FACILITY
E.U. funding programme supporting cross-border CO_2 transport networks and storage facilities.

CONNECTION AND USE OF SYSTEM CODE
the U.K. code that sets out the process for connection to and use of the transmission systems.

CONSERVATION
steps taken to use less energy. These steps may involve acts to improve efficiency, avoid waste, and reduce consumption, including installing equipment (such as a computer to ensure efficient energy use), modifying equipment (such as making a boiler more efficient), adding insulation, and changing behaviour patterns.

CONSTRUCTION MANAGEMENT AGREEMENT
a contract, typically between the project company and a professional manager or a joint venture party, that outlines the services and responsibilities related to the management of the construction of a facility.

CONTAINMENT BUILDING
a structure enclosing a nuclear reactor designed to prevent the release of radiation in the event of an accident.

CONTINENTAL SHELF
the portion of the sea bottom that slopes gradually from the edge of a continent. Usually defined as areas where water is less than 200 metres or 600 feet deep. The continental shelf is significant for potential wind and tidal energy developments.

CONTINGENCY PLANNING
the process of preparing for and responding to an unexpected event or set of circumstances. In energy projects, contingency planning is crucial for addressing potential risks such as equipment failure, supply disruptions, or accidents.

CONTINUOUS EMISSION MONITOR
a system that continuously collects and records emissions data from industrial sources, monitoring operation of the control equipment, ensuring compliance with environmental regulations, and helping to manage and reduce pollution.

CONTINUOUS SAMPLING DEVICE
an instrument used to continuously measure and record the quality of air, water, or other media, often used in environmental monitoring associated with energy projects.

CONTRACT FOR DIFFERENCE
a contractual mechanism used in the U.K. and elsewhere to incentivise investment in low-carbon electricity generation. Under a CfD arrangement, a power generator will sell electricity into the market and if the market price for that electricity falls below the strike price agreed in the CfD, the CfD counterparty will pay the difference to the generator. If the

market price rises above the strike price, the generator will pay the difference to the CfD counterparty. With a CfD arrangement, developers of power plants are assured of a stable revenue stream at an agreed price for the term of the CfD, which is a long-term contract. In the U.K., the government has established the LCCC to act as CfD counterparty. Payments by the LCCC are funded in part by a statutory levy on all U.K. licensed electricity suppliers.

CONTRACT PATH

the hypothetical path electricity takes from the generator to the consumer, or the route that gas takes through pipelines. It is a conceptual tool used in the scheduling and accounting of energy transmission.

CONTROL AREA

a geographic region of the power system where a single entity coordinates and integrates the operation of the electrical system to ensure reliability and stability.

CONTROL RODS

rods used in a nuclear reactor to control the fission rate of uranium and plutonium by absorbing neutrons.

CONTROL TECHNIQUES GUIDELINES

guidance documents issued by EPA that define reasonably available control technology to be applied to existing facilities that emit excessive quantities of air pollutants to reduce air pollution; they contain information both on the economic and technological feasibility of available techniques.

CONTROLLED AREA

an area outside a restricted zone but within the site boundary of a nuclear facility. Access to such an area can be limited by the licensee or the responsible organisation for any reason.

CONVENTIONAL GAS

natural gas that is produced from reservoirs using traditional drilling, pumping, and compression techniques.

CONVENTIONAL POWER

electricity generated from traditional energy sources, such as coal, natural gas, oil, or nuclear power, as opposed to renewable sources.

CONVERSION FUEL FACTOR

a factor used to convert one type of energy measurement to another, such as from kilograms of hydrogen to gallons of gasoline.

CONVERSION

the process of changing one form of energy to another, such as converting kinetic energy into electrical energy in a wind turbine.

CONVERTED VEHICLE

a vehicle originally designed to operate on conventional oil-based fuel that has been modified or altered to use a different fuel which typically produces fewer emissions.

COOLANT

when used in reference to nuclear reactors, fluid circulating through a nuclear reactor to remove or transfer the heat generated within the reactor core.

COOLING TOWER

a structure that removes heat from water (from an industrial process or air conditioning system) by evaporative cooling.

COOPERATIVE

a local electricity provider owned by its customers, often in rural areas, that may also offer energy-saving services. They typically

become involved in ancillary services such as energy conservation, load management, and other demand side management programs to serve their customers at less cost.

COP
acronym for Conference of the Parties.

CORE CARBON PRINCIPLES
a set of ten science-based principles developed by the ICVCM for identifying high-quality carbon credits which create real, verifiable climate impact, based around three key themes of governance, emissions impact, and sustainable development.

CORPORATE AVERAGE FUEL ECONOMY
the U.S. CAFE standards regulate the average fuel efficiency of a car manufacturer's fleet, based on city and highway fuel economy measurements performed as part of the federal emissions test procedures.

CORPORATE SOCIAL RESPONSIBILITY
a model or concept whereby a company integrates social and environmental considerations into its governance frameworks, policies, and procedures.

CORPORATE SUSTAINABILITY REPORTING DIRECTIVE
Directive (EU) 2022/2464 of the European Parliament and of the Council of 14 December 2022 which sets out rules about the social and environmental information companies need to report. Under this Directive, companies are required to report not only on how sustainability issues might create financial risks for the company (financial materiality) but also on the company's own impacts on people and the environment (impact materiality).

CORRECTIVE ACTION
UIC Program-director approved methods to for wells within the Area of Review that are used to prevent or eliminate the migration of fluids into underground sources of drinking water.

CORRECTIVE MEASURES
any measures taken to correct significant irregularities or to close leakages in order to prevent or stop the release of CO_2 from the storage complex.

CRCF REGULATION
acronym for Carbon Removals and Carbon Farming Regulation.

CRITERIA AIR POLLUTANT
six air pollutants that are known to harm human health and the environment and for which the EPA has established air quality standards under the CAA. These include carbon monoxide, lead, ozone, nitrogen dioxide, particulate matter, and sulphur dioxide.

CRITICALITY
the condition in which a nuclear reaction is self-sustaining.

CRYOGENIC LIQUEFACTION
the process of cooling a gas to a temperature where it becomes a liquid at atmospheric pressure. This process is often used for the storage and transport of natural gas as LNG.

CRYOGENIC
when used in reference to a gas production facility, an industrial facility that produces a high-purity stream of gas through the use of distillation at cryogenic temperatures.

CSP
acronym for Concentrated Solar Power.

CSR
acronym for corporate social responsibility.

CSRD
acronym for Corporate Sustainability Reporting Directive.

CUBIC FEET PER MINUTE
a measure of the flow rate of a gas or air volume, indicating how many cubic feet pass by a stationary point in one minute.

CUBIC FOOT
the most common unit for measuring natural gas volume in the U.S. It equals the amount of gas required to fill a volume of one cubic foot under stated conditions of temperature, pressure, and water vapor.

CURIE
a unit for measuring how much radioactivity is present, defined as the amount of any radioactive substance that undergoes 37 billion disintegrations per second.

CURRENT COLLECTOR
the conductive material in a fuel cell that collects electrons (on the anode side) or disburses electrons (on the cathode side). Current collectors are microporous (to allow fluid to flow through them) and lie in between the catalyst/electrolyte surfaces and the bipolar plates.

CURTAILMENT
the act of reducing the output of a power plant, the flow of a pipeline, or the consumption of electricity by end-users, typically as a response to an imbalance between supply and demand.

CWA
acronym for the Clean Water Act.

CYBERSECURITY AND INFRASTRUCTURE SECURITY AGENCY
the U.S. federal agency responsible for developing and enforcing certain cybersecurity rules, standards, and programs for covered entities and promoting the security and resilience of U.S. critical infrastructure, including in the energy sector.

CYCLONE
an air pollution control device that removes larger particles generally greater than one micron from an air stream, gas, or liquid steam using vortex separation (without the use of a filter). cyclones are often used in combustion processes to remove pollutants.

CZMA
acronym for Coastal Zone Management Act.

D

DAC
acronym for direct air capture.

DACCS
acronym for direct air capture with storage.

DCO
acronym for Development Consent Order.

DECARBONISATION
the process of removing or reducing CO_2 and other GHG emissions stemming from human activity, requiring a shift to low-carbon energy sources.

DECARBONISATION TRAJECTORY
a representation of the amount of emissions a single marine vessel can produce to move one ton of goods one nautical mile over a given time. There are two decarbonisation trajectories under the Poseidon Principles – one for 50% reduction in carbon emissions and the other for 100% reduction in carbon emissions.

DECARBONISING
the process of reducing CO_2 emissions, typically from energy production and consumption, as part of efforts to combat climate change and transition to a low-carbon economy.

DECAY
disintegration of atomic nuclei resulting in the emission of alpha or beta particles (usually with gamma radiation). Also, the exponential decrease in radioactivity of a material as nuclear disintegrations take place and more stable nuclei are formed.

DECONTAMINATION
the reduction or removal of contaminants, including radioactivity, from any structure, area, object, or person. Decontamination may be accomplished by treating the surface to remove or decrease the contamination.

DEEP SALINE RESERVOIRS OR SALINE AQUIFERS
porous and permeable rock layers filled with saline water, located both onshore and offshore, representing a significant potential for CO_2 storage.

DEEP SEA MINING
the process of retrieving mineral deposits from the ocean floor below depths of 200 metres.

DEGRADATION RATE
the rate at which a product, such as a solar panel, loses its effectiveness or efficiency over time.

DELIVERABILITY
the ability of a system to deliver energy or fuel to the end-user. In natural gas markets, it refers to the capability of a gas field or infrastructure to supply gas to meet contractual obligations.

DEMAND RESPONSE
a program to encourage customers to use less electricity during peak energy demand times to help balance supply and demand, often in response to price signals.

DEMAND RISK GUARANTEE
a guarantee that actual demand will meet forecast demand and if there is a shortfall, the guarantor will make a payment to the beneficiary of the difference.

DEPARTMENT OF DEFENSE
the part of the U.S. government that deals with the military and defense.

DEPARTMENT OF ENERGY
a U.S. government agency that oversees, among other things, U.S. national energy policy and energy production, exports of natural gas, LNG, and electricity from the United States, the research and development of nuclear power, energy-related research, and energy conservation.

DEPARTMENT OF TRANSPORTATION
the part of the U.S. government that manages transportation and infrastructure.

DEPLETED OIL AND GAS RESERVOIRS
hydrocarbon-bearing geological formations that have been depleted through primary and secondary oil and gas recovery. A producer may achieve incremental production from depleted reservoirs through EOR operations, including through the use of CO_2 injection, or the depleted reservoirs can be utilised for CO_2 storage.

DEVELOPMENT CONSENT ORDER
permission from the U.K. government (not the local authority) to develop a project. Development consent orders are particularly relevant for offshore wind development and large infrastructure projects.

DIRECT AIR CAPTURE

a CO_2 capture technology directly extracting CO_2 from the ambient air through chemical reactions that bind CO_2 for utilisation or sequestration.

DIRECT EMISSIONS

emissions occurring from sources that are controlled or owned by an organisation/ reporting entity. See also Scope 1 emissions.

DIRECT METHANOL FUEL CELL

a type of fuel cell in which the fuel is methanol in gaseous or liquid form. The chemical energy in methanol is converted directly into electricity without combustion.

DIRECT OCEAN CAPTURE

a method of capturing CO_2 directly from ocean water to reduce atmospheric CO_2 levels.

DIRECT PAY

a U.S. financial mechanism where tax-exempt and governmental entities and, in certain circumstances, taxpayers can receive a payment equal to the full value of tax credits, as opposed to utilising such tax credits to offset tax liabilities.

DISPATCHABLE GENERATION

energy sources that can be scheduled and controlled by grid operators to provide power as needed, such as natural gas plants or hydroelectric facilities. These sources of electricity can be used on demand to meet market needs.

DISPATCHABLE POWER AGREEMENT

a private contract between a government and a carbon emitting electricity generator that sets out terms for carbon capture and storage. By compensating electricity generators, Dispatchable Power Agreements are meant to incentivise generators to capture and store carbon that would otherwise be emitted into the atmosphere.

DISPERSION

the process by which pollutants spread through the environment. In energy projects, dispersion models may be used to predict the spread of emissions from a power plant.

DISTRIBUTED ENERGY RESOURCES

small-scale units of local generation connected to the grid at distribution level, such as solar panels, wind turbines, and combined heat and power systems.

DISTRIBUTED GENERATION

small, modular, decentralised, grid-connected or off-grid energy systems located near the place where energy is used, as opposed to centralised generation at large power plants.

DISTRIBUTION

the final phase of the process of the delivery of electricity to consumers through a system of substations, transformers, and lines that lower the voltage for use by homes, businesses, and other entities.

DOE

acronym for the U.S. Department of Energy.

DOE LOAN
debt financing from the U.S. DOE's Loan Programs Office to support high-impact, large-scale energy infrastructure projects in the U.S..

DOUBLE COUNTING
the practice of counting the same emission reductions, energy savings, or renewable energy generation more than once.

DPA
acronym for Dispatchable Power Agreement.

DPA MODEL
a CCUS business model developed in the U.K. offering a tailored government support package incorporating a DPA aimed at incentivising private finance to enable CCUS to play a valuable mid-merit role in the U.K.'s power generation mix.

DRY CASK STORAGE
a method of storing high-level radioactive waste, such as spent nuclear fuel that has been cooled in a pool for at least one year.

DRY STEAM GEOTHERMAL PLANT
a type of geothermal power plant that uses steam extracted from underground resources to turn turbines and generate electricity.

DUAL FUEL
a system or an engine capable of operating on two different fuels, typically one conventional fuel such as petrol or diesel and one alternative fuel such as natural gas or biofuel.

E

E.U. CBAM

the CBAM for the E.U. which imposes a carbon import tax on the embedded carbon emissions of certain goods imported into the E.U. within the following sectors: aluminium, cement, electricity, fertiliser, hydrogen, iron, and steel. The transitional phase of the E.U. CBAM commenced on 1 October 2023. The definitive phase commences on 1 January 2026.

E.U. CBAM REGULATION

CBAM Regulation (EU) 2023/956 of the European Parliament and of the Council of 10 May 2023 establishing a Carbon Border Adjustment Mechanism.

E.U. CCS DIRECTIVE

Directive 2009/31/EC of the European Parliament and of the Council, establishing a legal framework for the safe geological storage of CO_2 in the E.U. It regulates CCUS activities by implementing a permit regime and setting out minimum requirements for the selection of CO_2 storage sites.

E.U. EMISSIONS TRADING SYSTEM

a carbon market where a cap which reduces yearly is set on the total amount of certain greenhouse gases that can be emitted by installations, aviation, and maritime transport covered by the system. Within that cap companies receive or buy tradable emission

allowances, each of which gives the holder the right to emit one ton of carbon dioxide or the equivalent amount of another greenhouse gas. After each year, a company must either surrender enough allowances to cover its emissions or pay a fine.

E.U. ETS

acronym for Emissions Trading Scheme in the E.U.

E.U. ETS COMPLIANCE CYCLE

the annual procedure for monitoring, reporting, and verification of emissions in accordance with the E.U. ETS legal requirements, together with all the associated processes.

E.U. HYDROGEN BANK

an initiative to guarantee the purchase of hydrogen by using resources from the Innovation Fund, with an investment of EUR 3 billion to ensure demand for hydrogen producers and stimulate the market.

E.U. RED I

the initial legislative act of the E.U. aimed at promoting the use of energy from renewable sources by setting mandatory national targets for the overall share of renewable energy in energy consumption, and specific targets for renewable energy use in transportation. The directive included measures for the support of energy production from renewable sources, provisions on the certification of renewable energy, and the removal of barriers to renewable energy development in the electricity market and has now been succeeded by E.U. RED II.

E.U. RED II

the updated legislative framework of the E.U. that promotes the use of energy from renewable sources which came into force in December 2018 and replaced E.U. RED I. It sets a binding E.U. target for the overall share of energy from renewable sources and establishes non-binding national level targets for individual member states based on their pre-existing level of renewable energy use.

E.U. RED III

a proposed legislative framework by the E.U. to further promote the use of energy from renewable sources by building on E.U. RED I and E.U. RED II with more ambitious targets and measures to facilitate the transition to renewable energy and achieve the E.U.'s climate goals.

E.U. TAXONOMY FRAMEWORK

a set of regulations in the E.U. that defines which economic activities the E.U. considers environmentally sustainable. The E.U. taxonomy is a cornerstone of the E.U.'s sustainable finance framework and an important market transparency tool. It helps direct investments to the economic activities most needed for the transition, in line with the European Green Deal objectives.

EAC

acronym for energy attribute certificate.

ECONOMIC REGULATORY REGIME

a framework that provides an annual allowed revenue to a company with an ERR licence.

E-DOCKETS

online repositories for official documents filed with a regulatory agency, such as a public utilities commission or an environmental agency. The online systems are used to file comments and share information.

EEZ
acronym for exclusive economic zones.

E-FUELS
synthetic fuels typically produced from CO_2 and water using renewable energy sources. They are considered a potential low-carbon alternative to fossil fuels.

EIA
acronym for Environmental Impact Assessment. See also ESIA.

E-KEROSENE
see electro-kerosene.

ELECTIVE PAY
see Direct Pay.

ELECTRIC GENERATOR
a facility that produces electricity, measured in either kilowatt hours or megawatt hours. This includes power stations run by electric companies as well as those operated by other businesses that produce power.

ELECTRIC POWER GRID
a network that links electricity suppliers and consumers through transmission and distribution lines, managed by at least one control centre.

ELECTRIC POWER PLANT
a station containing prime movers, electric generators, and auxiliary equipment for converting mechanical, chemical, and/or fission energy into electric energy.

ELECTRIC RELIABILITY COUNCIL OF TEXAS, INC.
the independent system operator for the region that manages the flow of electric power to Texan customers.

ELECTRIC SYSTEM RELIABILITY
how well the components of the electricity network ensure that power reaches customers consistently and in the quantity they need. It considers how often customers experience power cuts and the length and duration of such cuts.

ELECTRIC UTILITY
any corporation, agency, authority, or other legal entity or instrumentality aligned with distribution facilities for delivery of electric energy for use primarily by the public. Included are investor-owned electric utilities, municipal and state utilities, federal electric utilities, and rural electric cooperatives.

ELECTRICITY GENERATION
the process of producing electric energy or the amount of electric energy produced by transforming other forms of energy, commonly expressed in kilowatt hours or megawatt hours.

ELECTRICITY INTERCONNECTION
the physical linking of power systems or grids, which allows the sale and transfer of electricity between systems, the integration of renewable energy sources, and large-scale maintenance and stabilisation of the grid.

ELECTRICITY INTERCONNECTOR
electricity transmission assets which can be used to trade electricity between two markets or two grids in the same market.

ELECTRICITY SUPPLIER
a company that sells electricity to consumers. In states with restructured electricity markets, customers can choose from various suppliers offering different kinds of electricity, including green power.

ELECTRICITY SYSTEM
the entire network involved in the generation, transmission, distribution, and sale of electricity, including power plants, storage systems, transmission lines, distribution networks, and all associated infrastructure.

ELECTRICITY SYSTEMS OPERATOR
an entity that manages the balancing of electricity supply and demand, develops markets, and advises on network investments.

ELECTRIFICATION
the process of powering by electricity and, in the context of energy transition, often refers to replacing technologies that currently use fossil fuels with those that use electricity.

ELECTRODE
a material that allows electrons to flow into or out of a conductor, often found in batteries and fuel cells, with the anode being the negative side and the cathode being the positive side.

ELECTROFUELS
a carbon-based fuel that is obtained from CO_2 and water, using renewable electricity as the primary source of energy.

ELECTRO-KEROSENE
a type of sustainable aviation fuel produced through the Fischer-Tropsch process.

ELECTROLYSER
technology that uses electricity to split water into hydrogen and oxygen through the process of electrolysis. It is considered critical for producing low-emission hydrogen from renewable or nuclear energy.

ELECTROLYSIS
a technique that uses a direct electric current to drive a chemical reaction that would otherwise be non-spontaneous. The creation of hydrogen through electrolysis involves splitting water into hydrogen and oxygen using electricity. When this electricity comes from renewable sources, the resulting hydrogen is called "green", and when it is from nuclear power, it is known as "purple".

ELECTROLYTE
a substance that, when dissolved in a polar solvent like water, yields a solution capable of conducting electricity, allowing charged particles to move between two electrodes within a fuel cell, a battery, or an electrolyser, enabling electrical current to flow.

ELECTRO-METHANOL
methanol produced from green hydrogen and captured CO_2.

EMBEDDED EMISSIONS
the sum of the emissions as a result of producing a product, from the initial stage of extracting the raw materials needed to make it, all the way through to transportation and disposal.

EMERGENCY AND REMEDIAL RESPONSE PLAN
a mandatory plan for Class VI well owners or operators outlining measures to address potential risks to drinking water sources during various project phases.

E-METHANOL
see electro-methanol.

EMINENT DOMAIN
the U.S. government's power to expropriate private property for public use without the owner's consent, provided fair compensation is given, as required by the Fifth Amendment to the U.S. Constitution, which may be used by certain energy projects in the U.S.

EMISSION
the production and discharge of gases and particles into the atmosphere that have an environmental impact. Such gases may include GHGs, but can also include other pollutants such as nitrogen oxides, sulphur oxides, CFCs, etc.

EMISSION FACTOR
the average emission rate of a GHG relative to the activity data of a source stream assuming complete oxidation for combustion and complete conversion for all other chemical reactions.

EMISSION SOURCE
a separately identifiable part of an installation, process, or an activity from which relevant emissions are emitted.

EMISSION STANDARDS
legal requirements that limit air pollution. Emission standards set quantitative limits on the permissible amount of specific air pollutants that may be released from specific sources over specific timeframes.

EMISSIONS REDUCTION SCHEME
a strategic framework designed to reduce the emission of GHGs.

EMISSIONS TRADING SCHEME
the system for emissions allowance trading within a jurisdiction in respect of specified activities and industries. The E.U. ETS is currently the largest of these markets, followed by California's cap and trade system, but China's new ETS is set to become the biggest. See also E.U. ETS and U.K. ETS.

EMITTER
an entity that is responsible for emissions. See also CO_2 source.

ENDANGERED SPECIES ACT
U.S. legislation that establishes protections for fish, wildlife, and plants that are listed as threatened or endangered and provides for additions and deletions to the list of threatened and endangered species, preparing and implementing plans for species recovery, interagency cooperation to avoid taking of listed species, and issuing permits for otherwise prohibited activities.

ENDOTHERMIC
a process or chemical reaction that absorbs energy from its surroundings (usually in the form of heat).

END-USER
the person or business that uses the energy produced.

ENERGY ACT 2008
U.K. legislation establishing a framework for CCS-related activities, requiring a licence for the controlled storage of CO_2. It also regulates offshore CO_2 sequestration, the decommissioning of oil and gas installations, and introduces incentives for energy suppliers to promote the wide-scale use of renewable energy.

ENERGY ACT 2023
U.K. legislation providing a comprehensive framework for energy production, regulation, and security. It has three key objectives: (a) attracting private investment in energy infrastructure, (b) reforming the energy sector to better protect consumers, and (c) bolstering energy security and resilience in the U.K.

ENERGY ATTRIBUTE CERTIFICATE
a contractual instrument that represents the property rights to the environmental and other non-power attributes of renewable electricity generation for a unit of energy.

ENERGY ATTRIBUTES
characteristics or properties of an energy source, such as its renewable nature or carbon intensity. These can be bought and sold through contracts.

ENERGY BALANCE
the balance of incoming and outgoing energy flows at a facility or within a specific area, accounting for energy production, import, export, purchase, sale, transportation, transformation, and consumption.

ENERGY BURDEN
the percentage of a household's gross income spent on energy costs.

ENERGY CARRIER
any substance or system that holds energy derived from primary sources, which can be converted into other forms of energy elsewhere or at a later time.

ENERGY CHARGE
the price consumers pay for electricity (or natural gas), typically stated in terms of cost per kilowatt hour for electricity or a per-term basis for natural gas.

ENERGY COMMUNITY TAX CREDIT BONUS
a bonus of up to 10% (for production tax credits) or 10 percentage points (for investment tax credits) for renewable energy projects, facilities, and technologies located in "energy communities," as defined in the IRA, including brownfield sites and communities historically dependent on fossil energy jobs and tax revenues.

ENERGY CONTENT
the amount of energy stored in a fuel or energy source.

ENERGY DENSITY
the amount of power that can be obtained from fuel relative to its size or weight. See Gravimetric Energy Density and Volumetric Energy Density.

ENERGY EFFICIENCY DESIGN INDEX
a measure for the energy efficiency of a ship's design designed to facilitate the reduction in emissions from ships.

ENERGY EFFICIENCY
using less energy to achieve the same or a better result. Energy efficiency saves energy, saves money on utility bills, and helps reduce the demand for electricity.

ENERGY GRID
the infrastructure used to transport energy from where it is produced to the final consumers. For electricity, the classic structure includes two grids: first, the transmission grid, which transports high-voltage electricity from the power plants to the primary substations; second, the distribution grid, which takes the electricity from these substations, lowers the voltage, and delivers it to homes and businesses.

ENERGY INFRASTRUCTURE

a facility, and associated equipment, used for (a) the generation or transmission of electric energy; or (b) the production, processing, and delivery of fossil fuels, fuels derived from petroleum, or petrochemical feedstocks. The term covers a wide variety of facilities, including decommissioned or operating power plants, related transmission interconnections, oil and gas infrastructure including pipelines, refineries, and gas stations or refuelling terminals.

ENERGY INTENSITY

a measure of how much energy a country or an area uses in relation to a certain activity, such as the size of its economy, which shows how much energy is needed to produce a certain amount of economic output, or Gross Domestic Product.

ENERGY MARKETERS

companies that buy and sell electricity or natural gas, often in the deregulated market.

ENERGY PERFORMANCE OF BUILDINGS DIRECTIVE

Directive (EU) 2024/1275 of the European Parliament and of the Council of 24 April 2024 on the energy performance of buildings (recast), which allows building owners to declare the carbon storage capacity of their structures on their Energy Performance Certificate.

ENERGY RECOVERY UNIT

a device that captures and reuses the energy from exhaust gases to improve the overall efficiency of a power plant. It captures heat and moisture from outgoing air and uses it to adjust the temperature and moisture level of the air coming in, without letting any harmful substances pass through.

ENERGY SERVICE PROVIDER

an energy entity that provides service to a retail or end-use customer, including supply and demand management.

ENERGY STAR

a U.S. federal programme designed to help consumers and businesses use less energy by marking products and services that are energy efficient.

ENERGY TRANSITION

a shift from using non-renewable sources of energy, such as coal and oil, to renewable sources.

ENGINEERING, PROCUREMENT, & CONSTRUCTION CONTRACT

a construction agreement regulating the relationship between the owner and the EPC contractor for the completion of the design, procurement, construction, commissioning, and handover of the project.

ENGINEERING, PROCUREMENT, & CONSTRUCTION MANAGEMENT CONTRACT

a construction agreement regulating the relationship with a contractor that is responsible for the detailed design and overall management of a project, where the owner or principal retains greater control over the project and contracts directly with contractors for the performance of other work on the project, including the physical construction.

ENHANCED OIL RECOVERY

the process of injecting a fluid (e.g., brine (salt water), freshwater, steam, polymers, or CO_2) into an oil or gas bearing formation to recover residual oil or natural gas. One method of EOR involves the injection of CO_2 into depleted oil reservoirs to assist in the displacement of residual oil.

ENRICHMENT
the process of increasing the proportion of the isotope uranium-235 in uranium, usually to make it more suitable as fuel for a nuclear reactor.

ENVIRONMENT
the natural environment and social environment.

ENVIRONMENTAL AND SOCIAL ACTION PLAN
an action plan to be prepared by the project company (with assistance from consultants and external experts) where applicable environmental and social standards are not met to the satisfaction of the relevant EP4 financier to the project. The Environmental and Social Action Plan is intended to identify gaps and commitments to meet the relevant EP4 financier's requirements in line with the applicable environmental and social standards for the project.

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT
an impact assessment required by EP4 financiers to be prepared by the project company (with assistance from consultants and external experts) to adequately, accurately, and objectively evaluate and present the environmental and social risks and impacts in connection with the project.

ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN
a management plan required by EP4 financiers to be prepared by the project company (with assistance from consultants and external experts) to address issues raised in the ESIA process and incorporate actions required to comply with the applicable environmental and social standards. There are often two separate ESMPs prepared in respect of a project – one in relation to the construction phase and the other in relation to the operations phase.

ENVIRONMENTAL APPEALS BOARD
an entity within the UIC Program that oversees public input on draft permits for CO_2 geologic sequestration wells, including comments, public hearings, and appeals.

ENVIRONMENTAL ATTRIBUTE
renewable energy credits associated with the generation of electricity by a renewable energy facility, offsets, or similar benefits, or any emissions, air quality, or other environmental attribute, aspect, characteristic, claim, credit, benefit, reduction, offset, or allowance, including tax credits.

ENVIRONMENTAL IMPACT ASSESSMENT
generally refers to the assessment of the effects of certain public and private projects on the environment.

ENVIRONMENTAL JUSTICE
the just treatment and meaningful involvement of all people, regardless of income, race, colour, national origin, Tribal affiliation, or disability, in decision-making and other activities that affect human health and the environment so that people are fully protected from disproportionate and adverse human health and environmental effects and hazards, including those related to climate change, and have equitable access to a healthy, sustainable, and resilient environment.

ENVIRONMENTAL PROTECTION AGENCY

the U.S. federal agency responsible for creating and implementing standards promoting public health and environmental protection. It conducts environmental assessment, research, and education; it also has the authority to enforce environmental laws by sanctioning or fining individuals or organisations that violate regulations.

EOR

acronym for enhanced oil recovery.

EP

acronym for Equator Principles.

EP4

acronym for the most recent version of the Equator Principles, which was published in July 2020.

EPA

acronym for the U.S. Environmental Protection Agency.

EPBD

acronym for Energy Performance of Buildings Directive.

EPC

acronym for engineering, procurement, and construction. See engineering, procurement, and construction contract.

EPCM

acronym for engineering, procurement, & construction management. See engineering, procurement, & construction management contract.

EQUATOR PRINCIPLES

a set of voluntary guidelines adopted by financial institutions to ensure that development, construction, and operation of large-scale projects appropriately take into account the associated impacts on the environment and the affected communities. The Equator Principles are intended to serve as a common baseline and risk management framework for financial institutions to identify, assess, and manage environmental and social risks when financing projects and are intended to provide a minimum standard for due diligence and monitoring to support responsible decision-making. The Equator Principles apply globally to all industry sectors and to five financial products, namely: (a) project finance advisory services; (b) project finance; (c) project-related corporate loans; (d) bridge loans; and (e) project-related refinance and acquisition finance.

ERR

acronym for economic regulatory regime.

ESAP

acronym for Environmental and Social Action Plan.

ESG INCORPORATION

as referenced in PRI's Investor Reporting Framework, the process of assessing, reviewing, and considering ESG factors in existing investment practices through a combination of three approaches: (a) ESG integration; (b) ESG screening; and (c) thematic investing. ESG incorporation generally functions alongside, or in combination with, stewardship.

ESG INTEGRATION
as referenced in PRI's Investor Reporting Framework, the process of including ESG factors in investment analysis and decisions to better manage risks and improve returns. It is often used in combination with ESG screening and thematic investing.

ESG POLICIES
ESG considerations that entities take into account when making decisions and assessing the impact of these decisions on the environment, society, and stakeholders. These factors are also used by investors and third parties to evaluate an entity's sustainability and ethical practices.

ESG SCREENING
as referenced in PRI's Investor Reporting Framework, the process of applying filters to lists of potential investments, ruling borrowers, and issuers in or out of contention for investment based on an investor's preferences, values, or ethics. Filters are typically based on including or excluding certain sectors, issuers, or securities based on ESG performance relative to industry peers or specific ESG criteria.

ESG
acronym for environmental, social and governance.

ESIA
acronym for Environmental and Social Impact Assessment.

ESMP
acronym for Environmental and Social Management Plan.

ESO
acronym for the Electricity systems operator in Great Britain.

ETHANOL
a clear, colourless, flammable alcohol. Ethanol is a renewable fuel typically produced from biomass feedstocks such as agricultural crops and cellulosic residues from agricultural crops or wood. Ethanol is used as a fuel additive to reduce air pollutants and as an alternative to petrol.

ETS DIRECTIVE
Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a system for greenhouse gas emission allowance trading within the Union and amending Council Directive 96/61/EC. It is the key piece of legislation governing the E.U. ETS.

EuGB
acronym for European Green Bond.

EuGBS
acronym for European Green Bond Standard.

EUROPEAN GREEN BOND LABEL
the label given to green bonds that comply with the full requirements under the E.U. Green Bond Regulation, including using at least 85% of their proceeds in economic activities aligned with the E.U. Taxonomy Framework (i.e. European Green Bonds). The EuGB label is only for "use of proceeds" green bonds and does not cover other types of ESG bonds such as social bonds or sustainability-linked bonds.

EUROPEAN GREEN BOND REGULATION (EU) 2023/2631

the regulation setting out the requirement of the E.U.'s Green Bond Label which comes into force from 24 December 2024.

EUROPEAN GREEN DEAL

a set of policy proposals that aim to advance the E.U.'s goal of becoming climate neutral by 2050 and promote the transition to a more sustainable economic model. Through various funding mechanisms, the European Green Deal is designed to attract at least €1 trillion needed to fund the specified policy initiatives.

EUROPEAN PRESSURISED REACTOR

a type of pressurised water reactor with improved safety and performance features compared to earlier pressurised water reactor designs. It is a third-generation nuclear reactor design.

EXCLUSIVE ECONOMIC ZONES

an area of the sea in which a sovereign state has exclusive rights regarding the exploration and use of marine resources, including energy production from water and wind. This generally extends 200 nautical miles beyond a state's coastline and is the area to which ocean-related regulations apply.

EXHAUST EMISSIONS

materials released into the air from the engine of a vehicle or a combustion process, including water, small solid particles, and harmful chemicals.

EXOTHERMIC

a chemical reaction that gives off energy in the form of heat.

EXPORT CABLES

electrical cables connecting a wind farm's offshore substation to onshore transmission equipment. These cables can be hundreds of kilometres in length.

EXTRACTION WELL

a well that is used to remove fluids, such as water, brine, or hydrocarbons, from underground.

F

FABRICATED FUEL
fuel assemblies composed of an array of fuel rods loaded with pellets of enriched uranium dioxide.

FACILITIES SHARING AGREEMENT
an agreement between parties for the shared use of an asset or facility.

FAILURE MODE AND EFFECTS ANALYSIS
the process of reviewing as many components, assemblies, and subsystems as possible to identify potential failure modes in a system and their causes and effects.

FAST REACTOR
a type of nuclear reactor in which the fission chain reaction is sustained by fast neutrons.

FATTY ACID METHYL ESTER
a biodiesel component produced by reacting fats with methanol in a process called transesterification. It is used as a renewable alternative fuel and in detergent manufacturing, offering benefits like reduced engine corrosion and improved fuel quality. FAME has physical properties similar to those of conventional diesel. It is also non-toxic and biodegradable.

FCEV
acronym for fuel cell electric vehicle.

FEDERAL ENERGY REGULATORY COMMISSION
a U.S. agency tasked with regulation of transmission and sale of gas and power in interstate commerce, hydroelectric licensing, oil pipeline rates, and certification of interstate natural gas pipelines.

FEDERAL LOAN PROGRAM FOR CARBON DIOXIDE TRANSPORTATION
a government loan programme designed to support the development of infrastructure necessary for transporting captured CO_2.

FEDERAL POWER ACT
a U.S. federal law regulating hydroelectric licensing and interstate transmission and wholesale sales of electricity.

FEDERAL POWER COMMISSION
the former U.S. agency replaced by the DOE and FERC.

FEDERAL REGION
geographic areas defined by the U.S. government for federal agency field organisation structure and administrative purposes.

FEEDER LINE
an electrical line that distributes power from a substation to a local area.

FEED-IN PREMIUM OR FEED-IN TARIFF
a financial incentive for renewable energy where producers get a pre-established premium on top of the market price. The payment of this premium is guaranteed for a certain period linked to the economic life of the relevant renewable project.

FEED
acronym for front-end engineering and design.

FEEDSTOCK
raw material that can be processed into other products.

FEED-WATER
water used to remove heat from a reactor and produce steam to drive turbine generators.

FERC
acronym for Federal Energy Regulatory Commission.

FINAL ORDER
the last decision made by FERC that terminates an action, decides some matter litigated by the petitioning parties, operates to some right, or completely disposes of a particular issue.

FIP
acronym for feed-in premium.

FIRM SERVICE
a guaranteed commitment to deliver power supply or power production capacity, or to provide pipeline capacity, that should be available at all times, even under adverse conditions.

FISCHER TROPSCH
a process in which a collection of chemical reactions converts a mixture of carbon monoxide and hydrogen into liquid hydrocarbons. These reactions occur in the presence of metal catalysts, typically at high temperatures and pressures, and are primarily used to produce synthetic fuels and lubricants.

FISSION
splitting an atomic nucleus to release energy, used in nuclear reactors.

FIT FOR 55
a package of policy proposals designed to revise E.U. legislation and develop new initiatives to align E.U. laws with the goal of reducing GHG emissions by at least 55% by 2030. The 'Fit for 55' proposals form part of the European Green Deal.

FIXED CARBON
the part of coal that does not burn away and is not obtained by prescribed methods of destructive distillation of coal. Fixed carbon is the part of the total carbon that remains when coal is heated in a closed vessel until all matter is driven off.

FLASH STEAM GEOTHERMAL PLANT
a type of small-scale power station that extracts a mix of water and steam from a well, separates the steam, and uses it to drive a turbine, thereby generating electricity.

FLASHPOINT
the lowest temperature at which a substance will burn.

FLAT PLATE PUMP
a medium-temperature solar thermal collector that typically consists of a metal frame, glazing, absorbers (usually metal), and insulation and that uses a pumped liquid as the heat-transfer medium, predominantly used to heat water.

FLEXIBLE FUEL VEHICLE
a vehicle that can run on various fuel blends within the same tank, such as gasoline mixed with ethanol.

FLEXICOKING
a thermal cracking process that turns heavy hydrocarbon feed stocks into lighter hydrocarbons. Feed stocks can be any pumpable hydrocarbons such as oil, tar, distillation residue, or any other pumpable hydrocarbons, including those containing high concentrations of sulphur and metals.

FLOATING FOUNDATION
one of a number of floating platform technologies to support offshore wind turbines without a direct mechanical attachment to the seabed (although the floating platforms are tethered to the seabed by cables).

FLOATING OFFSHORE WIND
turbines mounted to a floating foundation or platform that is anchored to the seabed with mooring lines where bodies of water are too deep for "fixed-bottom" wind turbine foundations that are secured to the sea floor.

FLOW CONTROL
when used in reference to the direction of waste, the laws, regulations, and economic measures implemented by the relevant authority or manager to ensure that waste generated in a specific geographic area is directed to a designated landfill, recycling, or waste-to-energy facility.

FLOWING WATER HYDROELECTRIC PLANT
a facility that produces electrical power by harnessing the potential and kinetic energy of flowing water, using a hydraulic turbine, with the power output dependent on the vertical distance (drop) between two points in a waterway.

FLUE GAS DESULPHURISATION
equipment that removes sulphur oxides from the combustion gases of a boiler plant to reduce pollution. Also referred to as scrubbers.

FLUE
an enclosed pipe that carries products of combustion to the atmosphere.

FLUE-GAS PARTICULATE COLLECTOR
equipment that removes ash from the combustion gases of a boiler plant to reduce pollution. Particulate collectors include electrostatic precipitators, mechanical collectors (cyclones), fabric filters (baghouses), and wet scrubbers.

FLUID CATALYTIC CRACKING
a refining process using a catalytic agent to break down heavy and complex hydrocarbons, such as crude, into lighter products like gasoline.

FLUID COKING
a thermal cracking process utilising the fluidised-solids technique to remove carbon (coke) for continuous conversion of heavy, low-grade oils into lighter products.

FLUIDISED-BED COMBUSTION
a method of burning particulate fuel, such as coal, in which the amount of air required for combustion far exceeds that found in conventional burners. The fluid-like movement of particles results in more efficient combustion.

FLUX
a measurement of the rate at which particles or energy pass through a given area, typically quantified as the number of particles or the amount of energy per square centimetre per second.

FMEA
acronym for Failure Mode and Effects Analysis.

FOOTAGE DRILLED
the total length of all wellbores drilled, including new and deeper drilling.

FORESTRY
the management and conservation of forests for environmental and human benefits.

FOSSIL CARBON
inorganic and organic carbon that is not biomass.

FOSSIL FRACTION
the ratio of fossil and inorganic carbon to the total carbon content of a fuel or material, expressed as a fraction.

FOSSIL FUEL
hydrocarbon fuels such as coal, oil, and natural gas formed from deposited organic matter.

FOSSIL FUEL ELECTRIC GENERATION
electricity generation using internal combustion engines or turbines powered by fossil fuels.

FOSSIL FUEL PLANT
a power plant that uses fossil fuels such as coal, oil, or gas.

FRACTIONATION
a process to separate hydrocarbons such as propane and butane from natural gas using differences in physical properties such as boiling points.

FREE ALLOCATIONS
in cap-and-trade systems, a set number of emissions allowances given to certain sectors for free.

FRONT-END ENGINEERING AND DESIGN
preliminary engineering work to firm up the design and project costs and schedule prior to detailed engineering and construction.

FRONTHAUL
the optical network connection between RRU / RRH and the BTS / BBU.

FUEL
any material that can be burned or converted to produce energy.

FUEL CELL
an electrochemical cell capable of continuously producing electricity through the conversion of chemical energy from a fuel into electricity, occurring via an electrochemical reaction of hydrogen fuel with oxygen or another oxidising agent. Fuel cells are different from batteries in that they require a continuous source of fuel and oxygen (usually from air) to sustain the chemical reaction, whereas in a battery the chemical energy comes from chemicals already present in the battery.

FUEL CELL ELECTRIC VEHICLE
a vehicle that uses a fuel cell to generate electricity for propulsion.

FUEL CELL POISONING
a reduction in a fuel cell's performance due to impurities in the fuel.

FUEL CELL STACK
a series of connected fuel cells to increase the voltage and power output.

FUEL PROCESSOR
a device that produces hydrogen from various fuels for use in fuel cells.

FUEL RODS
rods containing pellets of fissionable material, which are used to fuel a nuclear reactor.

FUEL SWITCHING
replacing coal with cleaner energy sources such as natural gas.

FUGITIVE EMISSIONS
gases or vapours that unintentionally leak from equipment or facilities during industrial processes. These emissions typically escape through faulty seals, joints, pipes, or other unintended release points within a system, rather than being released through a stack or vent that is designed for emissions.

FUNGIBILITY
nuclear materials are considered fungible on the basis that they are mutually interchangeable.
In practice, this means that enriched uranium produced for a customer by a company providing enrichment services will not necessarily be derived from the actual uranium feedstock the customer in question originally supplied to the enricher – as long as the quantity of enriched uranium supplied and, of course, its quality, match what was originally agreed between the parties.

G

GAR
acronym for the Green Asset Ratio.

GAS DIFFUSION
a physical process where gas molecules spread from an area of high concentration to an area of low concentration. In the context of energy transition, understanding gas diffusion is important for the safe and efficient operation of technologies such as fuel cells and hydrogen storage systems.

GASIFICATION
a process that converts organic or fossil-based carbonaceous materials into carbon monoxide, hydrogen, and CO_2. This is achieved by reacting the material at high temperatures, without combustion, with a controlled amount of oxygen and/or steam. The resulting gas mixture is called syngas, which can be used for power generation or as a basic chemical feedstock and is considered in energy transition strategies for its potential to convert waste or biomass into cleaner fuels.

GASOLINE GALLON EQUIVALENT
a standard unit of measurement used to aggregate the amount of energy derived from different sources into a single figure, expressed in terms of the number of gallons of gasoline that would contain the same amount of energy.

GBP
acronym for the Green Bond Principles.

GCD
acronym for Green Claims Directive.

GENERATION
the process of producing energy, particularly electricity, from various sources such as fossil fuels, nuclear, or renewables like wind, solar, and hydro.

GENERATOR NAMEPLATE CAPACITY
the manufacturer's rated capacity of a generator to produce electricity under specific conditions. It serves as a maximum output rating and is used to quantify the potential electricity generation of a unit.

GENERATOR
a device that converts mechanical energy into electrical energy.

GEOLOGIC SEQUESTRATION DATA TOOL
the EPA's online system for managing and storing data submitted by Class VI well owners or operators regarding geologic sequestration projects, which must be submitted electronically regardless of the project's state location.

GEOLOGICAL STORAGE OF CO_2
injection accompanied by storage of CO_2 streams in underground geological formations.

GEOTHERMAL ENERGY
heat derived from the Earth's interior. It is a renewable energy source that can be harnessed for heating and cooling or to generate electricity with minimal carbon emissions.

GEOTHERMAL FLUID
the hot water or steam (and any mixture thereof) extracted from geothermal reservoirs in the Earth's crust. It is used to transfer heat energy to the surface for electricity generation or direct use applications.

GEOTHERMAL PLANT
a facility that converts the thermal energy produced by the Earth's heat into electricity. It typically involves drilling wells to access geothermal fluid, which is then used to drive turbines connected to generators.

GEOTHERMAL POOL
a small pool of water heated naturally from below by geothermal energy. These pools can be used for recreational purposes or as part of a geothermal heating system.

GGE
acronym for Gasoline Gallon Equivalent.

GGR BUSINESS MODEL
acronym for Greenhouse Gas Removals Business Model.

GGR
acronym for greenhouse gas removal.

GHG PROTOCOL
abbreviation for the Greenhouse Gas Protocol.

GHG
acronym for greenhouse gas.

GIGAWATT
a unit of power equivalent to one billion watts or one thousand megawatts. It is used to express the output of large power plants or the electrical capacity of large energy projects.

GLO
acronym for the Texas General Land Office.

GLOBAL REPORTING INITIATIVE
an independent, international organisation that helps businesses and other organisations to take responsibility for their impact on the climate by providing them with the sustainability reporting standards to enable them to communicate those impacts.

GLOBAL WARMING POTENTIAL
a measure of how much energy the emissions of one ton of a gas will absorb over a given period of time, relative to the emissions of one ton of CO_2. The larger the GWP, the more that a given gas warms the Earth compared to CO_2 over that time period. The time period usually used for GWPs is 100 years. For example, methane is estimated to have a GWP of 27-30 over 100 years and nitrous oxide has a GWP 273 times that of CO_2 for a 100-year timescale.

GLP
acronym for the Green Loan Principles.

GOLD HYDROGEN
hydrogen found in its natural form underground.

GOLD STANDARD
one of the main carbon standards. See also Verified Carbon Standard.

GOS
acronym for Guarantees of Origin.

GRAPHITE
a form of carbon known for its conductivity, high-temperature resistance, and lubricating properties. It is used in various applications, including as an electrode material in batteries, which are essential for energy storage in renewable energy systems.

GRAVIMETRIC ENERGY DENSITY
the amount of energy stored in a material per unit of mass. It is a critical property for materials used in batteries and fuel cells, where higher gravimetric energy density translates to longer energy storage and usage.

GRAVITY BASED FOUNDATIONS
in the context of an offshore wind project, a large concrete foundation which sits upon the seabed to support an offshore wind turbine.

GRAVITY DAM
a large dam that resists the horizontal thrust of water entirely by its own weight. Such dams are used for hydroelectric power generation.

GREEN AMMONIA
ammonia produced by combining nitrogen and green hydrogen through an industrial process.

GREEN ASSET RATIO
a ratio based on the E.U. taxonomy that can be used to identify whether banks are financing sustainable activities, such as those consistent with the Paris Agreement goals.

The GAR shows the proportion of assets that are environmentally sustainable, contribute substantially to the objectives of climate change adaptation and climate change mitigation, or that enable other activities to contribute substantially to those objectives.

GREEN BONDS

bonds which are issued and ring-fenced for specific green projects.

GREEN BOND PRINCIPLES

principles set out by ICMA that are aimed at supporting bond issuers in financing green projects. The four core components of the GBP are: (a) use of proceeds; (b) process for project evaluation and selection; (c) management of proceeds; and (d) reporting.

GREEN CLAIMS DIRECTIVE PROPOSAL

proposal for a new law in the E.U. to address greenwashing and protect consumers and the environment.

GREEN FINANCE

investments dedicated to finance or refinance activities where the use of proceeds of green bonds or green loans directly finances green projects.

GREEN HUSHING

the act of not making claims or statements about sustainability goals for fear of being accused of greenwashing.

GREEN HYDROGEN

hydrogen produced through the electrolysis of water using electricity from renewable energy sources, such as wind or solar, resulting in reduced carbon emissions from the production process.

GREEN LOAN PRINCIPLES

a high-level framework of market standards and guidelines, published by the LMA together with the APLMA and LSTA, providing a consistent methodology for use across the green loan market. The four core components of the GLP are: (a) use of proceeds; (b) process for project evaluation and selection; (c) management of proceeds; and (d) reporting.

GREEN LOANS

any type of loan instruments and/or contingent facilities (such as bonding lines, guarantee lines or letters of credit) made available exclusively to finance, re-finance, or guarantee, in whole or in part, new and/or existing eligible green projects and that are aligned to the four core components of the GLP.

GREEN METHANE

methane produced in a sustainable manner, typically through the process of biomethanation where organic matter is broken down by microorganisms in the absence of oxygen. It is considered a renewable energy source.

GREEN METHANOL

see electro-methanol and bio-methanol.

GREEN POWER

electricity produced from renewable energy sources, such as solar, wind, geothermal, biomass, and hydroelectric facilities. It is considered environmentally friendly due to its low emissions and minimal impact on the environment. Green power may also be referred to as "green electrons" in energy transition projects.

GREEN POWER MARKETERS

companies that buy green power from producers and sell it to consumers, often in the form of renewable energy certificates or guarantees of origin, to offset their electricity consumption with renewable sources.

GREEN POWER PRODUCT

an energy product that is offered to consumers and businesses seeking to purchase power from renewable energy sources. These products often involve the sale of RECs or GOs.

GREEN POWER PURCHASING

the act of buying electricity generated from renewable energy sources, generally including associated RECs, to reduce the environmental impact of a consumer's or an organisation's electricity use.

GREEN PRICING

a utility service that offers consumers the option to pay a premium on their electricity bill to support additional electrical production from renewable energy sources.

GREEN PROJECTS

projects supported or expected to be supported by the green finance market, such as energy efficiency or renewable energy initiatives, and that are aligned with the principles set forth in the Green Bond Principles.

GREEN STEEL

steel produced using methods that emit less CO_2 than traditional steelmaking processes. Such methods may involve using renewable energy sources or new technologies such as hydrogen reduction instead of coal.

GREEN TAGGING

a systematic process where banks identify the environmental attributes of their loans and underlying asset collateral as a tool for scaling up sustainable finance. The green tagging of bank assets allows for easier access to green bond markets and better tracking of green loan performance and provides greater transparency of climate risks and portfolio resilience.

GREEN TAXONOMY

the classification of assets and activities that deliver on green or sustainable objectives with specific thresholds and targets set out.

GREENFIELD

an undeveloped piece of land. Greenfield projects refer to new energy infrastructure projects built on land not previously developed or polluted, as opposed to brownfield projects which repurpose existing sites.

GREENHOUSE EFFECT

a natural process where GHGs in the Earth's atmosphere trap heat, keeping the planet warm enough to support life. However, human activities have increased the concentration of these gases, leading to more heat being trapped and contributing to climate change.

GREENHOUSE GAS

the gases that contribute most to the Earth's greenhouse effect. The main gases responsible for the greenhouse effect include CO_2, methane, nitrous oxide, and fluorinated gases.

GREENHOUSE GAS PROTOCOL

an initiative developed by the World Resources Institute and the World Business Council for Sustainable Development, which establishes comprehensive global standardised frameworks to measure and manage emissions from private and public sector operations, value chains, and mitigation actions.

GREENHOUSE GAS REMOVALS BUSINESS MODEL

a CCUS business model currently under development in the U.K. to attract private investment in a portfolio of engineered GGR technologies including direct air capture.

GREENHOUSE GAS REPORTING PROGRAM

a program administered by the EPA that requires reporting of GHG data and other relevant information from large GHG emission sources, fuel and industrial gas suppliers, and CO_2 injection sites. Facilities are required to report their emissions annually, and the reported data is made available to the public in October of each year.

GREENWASHING

the practice of making misleading or unsubstantiated claims about the environmental or sustainability benefits of a product, service, or company to present an environmentally responsible public image.

GREET MODEL

the Greenhouse Gases, Regulated Emissions, and Energy Use in Technologies model developed by the Argonne National Laboratory to determine the well-to-gate life cycle greenhouse gas emissions of a facility.

GREY EMISSIONS

emissions associated with the design, engineering, and construction process of an energy transition project. Grey emissions include the entire carbon footprint of the project, including CO_2, other GHGs, and any other emissions necessary to complete a lifecycle assessment of a project.

GREY HYDROGEN

hydrogen produced from natural gas through steam methane reforming, but without capturing the carbon emissions. It is the most common type of hydrogen production today but is not considered sustainable due to the associated CO_2 emissions.

GRGRP

acronym for the Greenhouse Gas Reporting Program.

GROUND MOUNT PV

photovoltaic systems held in place by racks or frames that are attached to ground-based mounting supports.

GS

acronym for Gold Standard. See also carbon standard.

GSDT

acronym for Geologic Sequestration Data Tool.

GUARANTEES OF ORIGIN

certificates that prove that a given amount of electricity was generated from renewable energy sources. They are used to track and trade green energy and ensure transparency in the market.

GWP

acronym for Global Warming Potential.

H

H_2 GLOBAL

a support mechanism aimed at advancing the international market in green hydrogen and its derivatives through a double-auction model managed by the Hydrogen Intermediary Network Company GmbH (HINT.CO), which agree long-term purchase contracts on the supply side and short-term sales contracts on the demand side for green hydrogen and PtX products, and compensates the difference.

HAZARDOUS LIQUID PIPELINE ACT

U.S. legislation that regulates pipelines transporting hazardous materials, including CO_2.

HAZARDOUS MATERIAL SUBSTANCE

any substance, material, or waste that poses a risk to health, safety, property, or the environment due to its quantity, concentration, or physical or chemical characteristics, including but not limited to those substances listed under CERCLA.

HEALTH, SAFETY, AND ENVIRONMENT PLAN

a document outlining the policies, procedures, and processes to manage health, safety, and environmental issues in a project.

HEAT EXCHANGER
a device that transfers heat between two or more fluids without mixing them. Heat exchangers are used in various applications, including waste heat recovery systems, district heating, and as part of renewable energy systems like solar thermal plants.

HEAT PUMP (GEOTHERMAL)
a central heating and/or cooling system that transfers heat to or from the ground. It uses the earth as a heat source (in the winter) or a heat sink (in the summer). This technology is highly efficient and can significantly reduce the carbon footprint of heating and cooling in buildings.

HEATING VALUE (TOTAL)
the total heating value, also known as the higher heating value, is the amount of heat released by a unit mass of fuel when it is burned, including the heat of condensation of water vapour in the combustion products. It is a measure of the energy content of a fuel and is important for the design and operation of energy systems in energy transition projects.

HELIOSTATS
sun-tracking dual-axis mirrors which concentrate sunlight onto a receiver at the top of a tower.

HETEROJUNCTION TECHNOLOGY
a type of solar cell technology that combines crystalline silicon with amorphous silicon layers to create a heterojunction. This technology can achieve higher efficiencies than traditional silicon solar cells and is becoming increasingly important in the production of photovoltaic modules for renewable energy generation.

HEV
acronym for hybrid electric vehicle.

HHV
acronym for higher heating value.

HIGH SEAS TREATY
another term for the BBNJ.

HIGH VOLTAGE DIRECT CURRENT
an electrical power transmission system that uses direct current at a high voltage to reduce the energy lost in resistance of the wires.

HIGH-ENTHALPY GEOTHERMAL
the production of energy from the Earth's heat in volcanic zones or places where the Earth's plates meet, where temperatures exceed 150 °C. High-enthalpy geothermal resources are typically used for electricity generation through steam-driven turbines.

HIGHER HEATING VALUE
the total amount of heat released when a fuel is burned, and the water vapour produced during combustion is condensed. It is a comprehensive measure of a fuel's energy content and is used in energy transition projects to assess the efficiency and performance of various fuels.

HOURLY MATCHING
the process of ensuring that electricity consumption is matched with renewable energy generation on an hourly basis. This is a more precise method of matching supply and demand than annual or monthly matching and can lead to a more sustainable and reliable energy system. See three pillars and temporal matching.

HP SAUCE
a British brown sauce the main ingredients of which are tamarind and tomato. Named after the Houses of Parliament and best served with a full English breakfast.

HPB MODEL
acronym for Hydrogen Production Business Model.

HSE PLAN
acronym for Health, Safety, and Environment Plan.

HUB HEIGHT
a dimension of the size of a wind turbine, measured from the ground (or sea level) to the mid-point of the hub of the turbine (where the three turbine blades meet in the middle). The hub height of modern large capacity turbines can be as much as 200 metres (Vestas V-172-7.2MW).

HVDC
acronym for High Voltage Direct Current.

HYBRID ELECTRIC VEHICLE
a type of vehicle that combines a conventional internal combustion engine system with an electric battery. They rely on gasoline or diesel fuel for power and can also be plugged into an electric power source. The battery packs are charged by the engine and through braking. The presence of the electric powertrain is intended to achieve better fuel economy and lower emissions than a conventional vehicle.

HYBRID POWER PLANTS
power plants that combine different types of power generation technologies, typically renewable energy sources like wind and solar, with conventional generators such as diesel or gas. These plants can provide more reliable power by compensating for the variability of renewable energy sources.

HYDRAULIC FRACTURING
a technique that enhances the extraction of oil and natural gas by creating fractures in rock formations through the high-pressure injection of fluids, which may include water, proppants, and chemical additives.

HYDRAULIC TURBINE
a turbine that converts the energy of flowing water into mechanical energy, which is then converted into electricity by a generator. These turbines are a key component of hydroelectric power plants, including small-scale and high-enthalpy geothermal projects.

HYDRIDES
chemical compounds formed when hydrogen gas reacts with metals. Metal hydrides are often used for hydrogen storage, as they can absorb and release hydrogen gas through a reversible chemical reaction, which is useful for fuel cell applications.

HYDRO (SMALL-SCALE)
hydroelectric power systems with a small output, typically less than 1 MW. These systems are often used in rural or remote areas and can be an important part of localised renewable energy solutions.

HYDRO
electricity produced by the force of fast-moving water such as rivers or waterfalls.

HYDROCARBON
organic compounds consisting entirely of hydrogen and carbon. They are the primary components of fossil fuels and are significant because the combustion of hydrocarbons is a major source of carbon emissions.

HYDROELECTRIC POWER
electricity generated by harnessing the energy of falling or flowing water. It is a renewable energy source that plays a significant role in the energy transition, particularly in regions with abundant water resources.

HYDROGEN
a lightweight, high-energy fuel that, when consumed in a fuel cell, produces only water. It is considered a key energy carrier for the future, with potential applications in transportation, power generation, and as a feedstock for industrial processes.

HYDROGEN HUB
a regional ecosystem that brings together hydrogen production, storage, distribution, and usage.

HYDROGEN MIDSTREAM
the part of the hydrogen value chain that involves the transportation, storage, and trading of hydrogen, connecting the producers and consumers of hydrogen, often through a network of pipelines and storage facilities, and includes the services necessary to manage the flow and sale of hydrogen as a commodity.

HYDROGEN PRODUCTION BUSINESS MODEL
a CCUS business model developed in the U.K. offering a tailored government support package to incentivise investment in low carbon hydrogen production and use.

HYDROGEN USE CASE
the potential uses for hydrogen and its products, including chemical processing, aviation, shipping, land transportation, and heating.

HYDROGEN VALLEYS
geographical areas where several hydrogen applications are combined into an integrated ecosystem that covers the entire value chain by linking hydrogen production, distribution, and usage.

HYDROGEN-RICH FUEL
a type of fuel that has a high content of hydrogen. It can be used in combustion engines or fuel cells to produce energy with lower carbon emissions compared to conventional hydrocarbon fuels.

IAEA
acronym for the International Atomic Energy Agency.

ICAO
acronym for International Civil Aviation Organisation.

ICC
acronym for Industrial Carbon Capture. See also Industrial Carbon Capture Model.

ICE
see Internal Combustion Engine.

IEA
acronym for International Energy Agency.

IFC
acronym for International Finance Corporation.

IFC EHS GUIDELINES
as referred to in the IFC Performance Standards, the Environmental, Health and Safety guidelines are technical reference documents that cover both general and sector-specific good international industry practice. The IFC EHS Guidelines contain the performance levels and measures that are normally acceptable to the World Bank Group and are generally considered to be

achievable in new facilities at reasonable costs by existing technology. Borrowers and clients are expected to comply with these guidelines in respect of their projects.

IFC PERFORMANCE STANDARDS

"Performance Standards on Environmental and Social Sustainability" as published by the IFC, dated 1 January 2012, as amended from time to time, together with accompanying guidance notes. The IFC Performance Standards, which are part of the IFC Sustainability Framework, provide guidance on how to identify risks and impacts. They are designed to help avoid, mitigate, and manage risks and impacts as a way of doing business in a more sustainable way. The IFC Performance Standards are often used as benchmarks for ensuring environmental and social compliance by borrowers in project finance transactions.

IFC SUSTAINABILITY FRAMEWORK

articulates the IFC's strategic commitment to sustainable development and includes the IFC Performance Standards, IFC Sustainability Policy and Access to Information Policy.

IFC SUSTAINABILITY POLICY

policy on Environmental and Social Sustainability issued by the IFC, most recently in 2012. It is part of the IFC Sustainability Framework and outlines IFC's commitments, roles and responsibilities related to environmental and social sustainability. The policy establishes that proposed investments that are determined to have moderate to high levels of environmental and social risk, or the potential for adverse environmental and social impacts, will be carried out in accordance with requirements of the IFC Performance Standards.

IFRS

acronym for the International Financial Reporting Standards.

IFRS SUSTAINABILITY DISCLOSURE STANDARDS

sustainability reporting standards issued by the ISSB on 26 June 2023, namely: (a) General Requirements for Disclosure of Sustainability-related Financial Information (IFRS S1), which is the core framework for the disclosure of material information about sustainability-related risks and opportunities across an entity's value chain; and (b) Climate-related Disclosures (IFRS S2), which is the first thematic standard and sets out requirements for entities to disclose information about climate-related risks and opportunities.

IIJA

acronym for the Infrastructure Investment and Jobs Act.

IMO

acronym for the International Maritime Organisation.

IMO 2023

new regulations issued by the IMO which require the global maritime shipping industry to reduce GHG emissions for new and existing ships to meet the IMO GHG Strategy.

IMO 2030 CARBON INTENSITY

the target set by the International Maritime Organisation to reduce carbon intensity by at least 40% by 2030.

IMO GHG STRATEGY

2023 IMO Strategy on Reduction of GHG Emissions from Ships or Resolution MEPC.377(80), which states that emissions from international shipping should reach net-

zero by or around 2050 compared to 2008 levels, with interim targets in 2030 and 2040, and considers full lifecycle emissions in a well-to-wake CO2e perspective.

IMPURITIES
unwanted chemicals or substances present within a fuel source or material that can affect the efficiency, safety, or environmental impact of energy production. For example, impurities in biogas or hydrogen must be removed to meet fuel quality standards.

INDEPENDENT CERTIFIER
a suitably qualified professional technical or engineering firm not affiliated to any party to the project contracts who will undertake all work necessary to permit the issue of any certificate(s) of practical completion, commissioning completion certificate(s) and snagging notice(s) in accordance with and as required by the project contracts.

INDEPENDENT SYSTEM OPERATOR
a federally (U.S.) regulated organisation that coordinates, controls, and monitors the operation of an electrical power system, often spanning over large regions.

INDEPENDENT TESTER
see independent certifier.

INDEPENDENT VERIFIER
a third-party entity that assesses and confirms the accuracy of data, such as emission reductions or energy savings reported by energy transition projects. This role is crucial for maintaining transparency and trust in the reported outcomes of such projects.

INDIRECT EMISSIONS
emissions that result from an organisation's activities but are actually emitted from sources owned or controlled by other entities. These include the use of purchased electricity, steam, heat, or cooling. See also Scope 2 emissions.

INDUSTRIAL CARBON CAPTURE MODEL
a CCUS business model developed in the U.K. offering a tailored government support package incentivising the deployment of carbon capture technology for industrial users who often have no viable alternatives available to achieve deep decarbonisation.

INDUSTRIAL GASES
man-made gaseous materials produced in large quantities for industrial uses. Industrial gases like hydrogen or CO_2 might be used in processes such as energy storage, carbon capture and storage, or as feedstock for synthetic fuels.

INFLATION REDUCTION ACT
a piece of legislation in the U.S. aimed at curbing inflation by reducing the deficit, lowering prescription drug prices, and investing in domestic energy production while promoting clean energy. It includes provisions that support the energy transition through tax credits and subsidies for renewable energy and carbon capture technologies.

INFRASTRUCTURE INVESTMENT AND JOBS ACT
a U.S. federal law that invests $1.2 trillion for improving the quality of the nation's infrastructure across various sectors, including transportation, water infrastructure, and energy systems, with provisions that support the transition to cleaner energy sources.

INFRATECH
the integration of technology into infrastructure development. Infratech can include smart grid technology, advanced energy storage solutions, and the use of data analytics to improve the efficiency and integration of renewable energy sources.

INGOTS
large, pure blocks of crystalline silicon that are a key component in the manufacturing of solar cells.

INHERENT CO_2
CO_2 that is part of a source stream.

INITIAL PROJECT ASSESSMENT
a high-level assessment of project costs undertaken by the regulator to establish a needs case and how the project will impact consumers and suppliers.

INJECTATE
the fluids (e.g., brine (salt water), freshwater, steam, polymers or CO_2) injected for ECBM or EOR purposes.

INJECTION
the process of introducing substances into geological formations or systems, including the injection of CO_2 into underground reservoirs for carbon capture and storage or EOR and injection of water into geothermal wells to enhance energy production.

INJECTION FACILITIES
the facilities to inject captured CO_2 into sequestration sites, often using Class VI wells as part of CCS.

INJECTION PRESSURE
the pressure at which fluids are injected into a well or reservoir, often for the purpose of EOR or waste disposal.

INJECTION WELL PLUGGING PLAN
details the procedures for safely sealing and abandoning an injection well previously used for waste disposal or EOR. The injection well is "plugged" when a well previously used for pumping fluids deep underground is closed by way of stopping unwanted fluid movement. Such plans are critical for preventing contamination and ensuring environmental safety.

INJECTION ZONE
a geologic formation, group of formations, or part of a formation that is of sufficient areal extent, thickness, porosity, and permeability to receive CO_2 through a well or wells associated with a CCS project.

INNOVATION FUND
E.U. funding programme for the deployment of net-zero and innovative technologies including CCS.

INSPECTION AND LEAK DETECTION PLAN
a strategic plan implemented to detect, monitor, and repair leaks in CCUS systems and sequestration sites, setting out programs for regular inspections to mitigate leakage risks.

INSTRUMENT SOCIETY OF AMERICA
now known as the International Society of Automation, it is a professional body that sets standards and provides education and training for automation professionals. ISA standards may apply to the automated control systems used in energy production and distribution.

INTEGRATED DISTRIBUTION PLAN

a strategic plan developed by a utility company that outlines how it will manage and invest in its distribution system infrastructure. It includes considerations for integrating distributed energy resources, such as solar and wind, as part of the broader energy transition.

INTER-ARRAY CABLES

a series of electrical cables connecting a number of offshore or onshore wind turbines to each other and potentially also an offshore substation.

INTERNAL COMBUSTION ENGINE

an engine in which the combustion of a fuel such as gasoline, diesel, biofuels, or natural gas occurs with an oxidiser (usually air) in a combustion chamber, generating mechanical power. ICEs are being replaced by electric motors in vehicles to reduce greenhouse gas emission.

INTERNATIONAL ATOMIC ENERGY AGENCY

an international organisation that seeks to promote the peaceful use of nuclear energy and to inhibit its use for any military purpose.

INTERNATIONAL CODE COUNCIL

an organisation that develops model codes and standards used in the design, build and compliance process to construct safe, sustainable, affordable, and resilient structures. Such codes may govern the installation of energy-efficient technologies and renewable energy systems.

INTERNATIONAL CONVENTION FOR THE PREVENTION OF POLLUTION FROM SHIPS

adopted on 2 November 1973 at IMO, MARPOL is the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes.

INTERNATIONAL ELECTROCHEMICAL COMMISSION

a global organisation that prepares and publishes international standards for all electrical, electronic, and related technologies. These standards are essential for energy transition technologies such as solar panels, wind turbines, and batteries.

INTERNATIONAL FUEL GAS CODE

a code that regulates the design and installation of fuel gas systems and equipment and establishes prescriptive and performance requirements for gas systems and gas-fired appliances. The code is relevant to the safe and efficient use of natural gas and hydrogen as transitional or backup energy sources.

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

an independent, non-governmental international organisation that develops and publishes a wide range of proprietary, industrial, and commercial standards, including those that apply to energy management systems, environmental impact assessments, and quality management in energy transition projects.

INTERRUPTIBLE SERVICE

a type of service in an agreement between a utility or other supplier or offtaker and a customer that allows the interruption of supply or offtake of electricity or gas to the customer during peak times or when the system is under stress. Customers typically receive a discounted rate in exchange for agreeing to this service, which can help integrate variable renewable energy sources into the grid.

INTERSTATE

activities or transactions that cross U.S. state boundaries, such as the transmission of electricity or transportation of fuels.

INTERVENOR

a party that enters into a legal proceeding or regulatory hearing with the permission of the court or regulatory body. Intervenors may participate in hearings concerning the siting of new energy infrastructure or rate cases for utilities.

INTRASTATE

activities or transactions occurring within a single U.S. state's boundary. Projects limited to a particular state fall outside of the jurisdiction of federal regulation either under the Natural Gas Act or the Natural Gas Policy Act, depending on their interconnections.

INVESTMENT TAX CREDITS

a form of U.S. tax incentive that allows for a percentage of the eligible cost of installing renewable energy systems to be credited against the tax liability of the taxpayer. Under the IRA, they are available to individuals for residential improvements and to businesses that invest in all types of generation facilities and energy storage systems that are anticipated to have zero GHG emissions.

INVESTOR REPORTING FRAMEWORK

an ESG reporting framework developed by PRI for use by institutional investors when reporting on investments by asset class and strategy.

INVESTOR-OWNED UTILITY

a private enterprise that provides retail electricity or natural gas to customers and is owned by investors and operated for profit, as opposed to other public utilities. They are regulated by the public utilities commission and play a significant role in the energy transition as they invest in and operate renewable energy assets and infrastructure.

IOC

acronym for international oil company. Sometimes also referred to as an international energy company.

ION

an atom or molecule with a net electric charge due to the loss or gain of one or more electrons. Ions are an important part of battery chemistry and the electrochemical reactions that occur in energy storage systems.

IONISATION

the process of adding or removing one or more electrons from atoms or molecules, thereby creating ions. Ionisation can occur because of high temperatures, electrical discharges or nuclear radiations.

IPCIS
acronym for Investment Policy and External Commercial Insurance.

IRA
acronym for the U.S. Inflation Reduction Act.

IRC
acronym for the U.S. Internal Revenue Code of 1986.

IRRADIANCE
the power of electromagnetic radiation per unit area (radiative flux) incident on a surface (essentially the amount of light energy received by a surface per unit time). It is measured in watts per square metre (W/m^2). Solar irradiance is a critical factor in determining the potential output of solar photovoltaic systems.

ISA
acronym for Instrument Society of America.

ISO
acronym for independent system operator. May also refer to the International Organization for Standardization.

ISO / ANSI STANDARD
ISO / ANSI Standard 27916:2019, Carbon Dioxide Capture, Transportation and Geological Storage -- Carbon Dioxide Storage Using Enhanced Oil Recovery (ISO / ANSI standard) (26 C.F.R. § 1.45Q-3(b)(2)(ii)) – a reporting standard to quantify and document the total CO_2 stored in EOR projects. This standard uses mass balance accounting and includes requirements for monitoring, containment assurance, and documentation and reporting.

ISO NEW ENGLAND, INC.
the independent system operator responsible for managing the power grid and wholesale electricity markets in the New England region of the U.S.

ISOTOPE
variants of a particular chemical element which differ in neutron number and, consequently, in nucleon number.

J

JACKET
a steel structure attached at several points to the seabed and supporting an offshore wind turbine - suitable for medium depth waters (50 - 80m).

JACK-UP VESSEL
a ship used to install large equipment on offshore wind turbines. The vessel is able to lower metal legs onto the seabed and lift itself above the water to enable precise work on the turbine.

JAPANESE HYDROGEN CONTRACTS FOR DIFFERENCE
the ¥3 trillion scheme announced by the Japanese government in December 2023 to subsidise the difference between the fluctuating reference price and the guaranteed "strike price" of hydrogen.

JAPANESE HYDROGEN SOCIETY PROMOTION BILL
a bill passed by the Japanese government that aims to promote the supply and utilisation of low-carbon hydrogen, defined by reference to an emissions threshold which is lower than that in the E.U. and U.K., through a business plan approval scheme, support measures, and regulatory exemptions.

JOULE
a unit of energy equal to the amount of work done when a force of one newton is applied over a distance of one meter, used to quantify energy production, consumption, or savings, particularly when assessing the efficiency and impact of different energy technologies and measures.

K

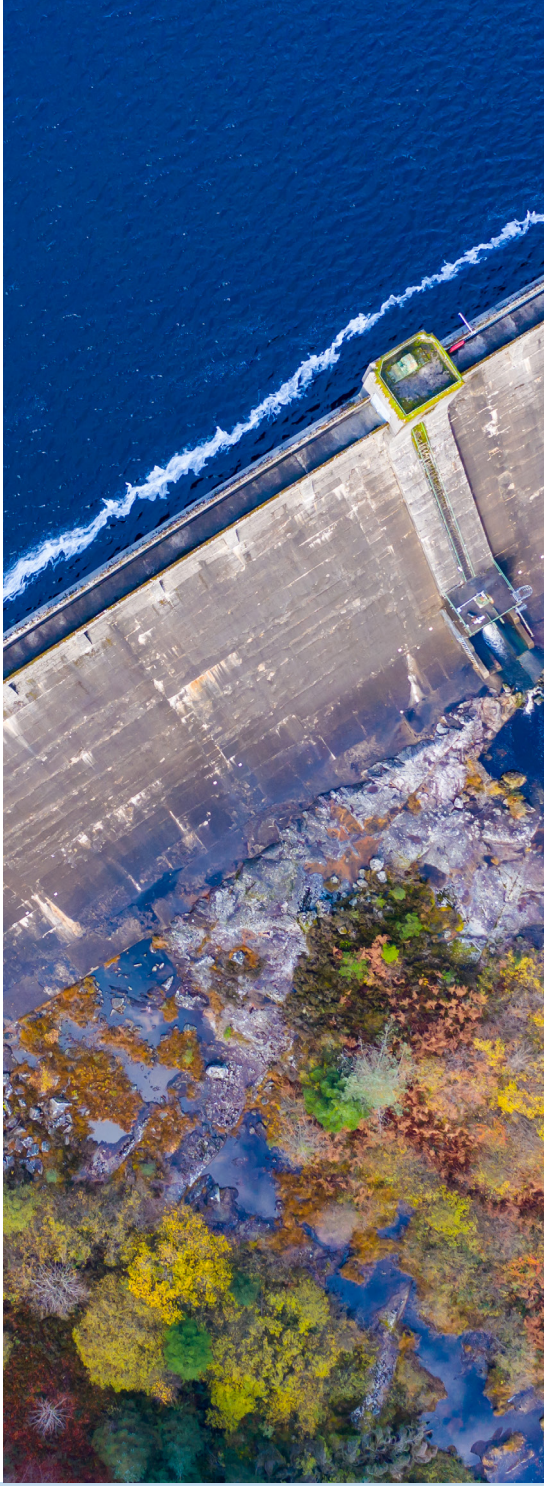
KAPLAN TURBINE
a type of water turbine used for electrical power generation that is particularly well-suited for low-head hydroelectric power plants, where the water flow is substantial, but the hydraulic head is not.

KILOWATT
a unit of power equivalent to 1,000 watts that represents the rate at which energy is generated or consumed. The power capacity of energy-generating equipment, such as solar panels or wind turbines, is often expressed in kilowatts.

KILOWATT-ELECTRIC
a unit of power equivalent to 1,000 watts of electric capacity. This term is used to specify the electrical power output of a generator or the electrical power capacity of a particular device, distinguishing it from thermal or mechanical power.

KOREAN CLEAN HYDROGEN CERTIFICATION SYSTEM
a system established by the Korean government to certify that the process of producing or importing hydrogen is below a certain emissions standard and thereby eligible for support measures including financial incentives and regulatory support.

KOREAN HYDROGEN CONTRACTS FOR DIFFERENCE
the scheme being finalised by the Korean government, which is expected to be issued in 2024, to require projects to meet a carbon intensity threshold in order to be eligible for financial support.



LANDFILL GAS
a natural byproduct of the decomposition of organic material in landfills. It is composed of roughly 50% methane, which can be captured and used as an energy source, contributing to energy transition by utilising waste to generate power.

LATENCY
the time a unit of data takes to travel between two points on a network, the higher the latency the longer it will take to complete an online function.

LCCC
acronym for Low Carbon Contracts Company.

LCFS
acronym for Low Carbon Fuel Standard.

LCOE
acronym for Levelised Cost of Energy.

LEAK
the unintended release of gases, often methane or other GHGs, from energy infrastructure. This is a significant concern in terms of environmental impact and safety in projects involving natural gas.

LEAKAGE
any release of CO_2 from the storage complex.

LEVELISED COST OF ENERGY
a key metric of various generation technologies describing the net present value of the cost of energy generated by that technology over the course of its expected lifetime (expressed as £ / MWh). As generating technologies mature and the related supply chains become more established, their LCOE tends to fall; this has been particularly pronounced in solar PV and offshore wind.

LFG
acronym for landfill gas.

LHV
acronym for lower heating value.

LIFE-CHANGING ACCIDENT
a severe accident that results in significant and lasting impacts on an individual's life. In the
context of energy transition projects, they are a focus of health and safety regulations and risk management strategies.

LIFECYCLE GHG EMISSIONS
all GHG emissions or benefits from the entire lifespan of a product, material, or service, no matter in which sector or where such emissions or benefits occur.

LIFECYCLE GHG EMISSIONS ACCOUNTING
a method of accounting used to evaluate lifecycle GHG emissions associated with a specific material, product, or service.

LIFECYCLE RESERVE
a reserving regime based on the timing and cost of replacement in order that funds are available as and when required to comply with lifecycle obligations.

LINEAR FRESNEL REFLECTOR
flat or slightly curved mirrors mounted on trackers on the ground that are configured to reflect sunlight onto a receiver tube filled with heat transfer fluid fixed in space above the mirrors. A small parabolic mirror is sometimes installed at the top of the receiver to further focus the sunlight.

LIQUEFIED HYDROGEN
hydrogen that has been cooled to a point where it becomes a liquid. This form of hydrogen is used in energy transition projects for its higher energy density compared to gaseous hydrogen, making it suitable for storage and transport.

LIQUEFIED NATURAL GAS
natural gas that has been cooled to a liquid state for ease of storage or transport. LNG provides a cleaner-burning alternative to other fossil fuels and enabling long-distance gas transport.

LIQUEFIED PETROLEUM GAS
a mixture of propane and butane that is stored as a liquid under pressure. It is used as a fuel for heating, cooking, and vehicles and is considered a transitional fuel in the move towards lower-carbon energy systems.

LIQUEFIED PETROLEUM GAS-AIR MIXTURE

a mixture of LPG and air that can be used as a substitute for natural gas in various applications. It can be relevant in energy transition contexts where infrastructure for natural gas is not available.

LITHIUM

a chemical element used in the manufacture of batteries, including those for electric vehicles and energy storage systems.

LNG

acronym for liquefied natural gas.

LOAD

the amount of electrical power required at any given moment or over a period of time. Effective load management is crucial in energy transition projects to ensure a balance between electricity supply from renewable sources and consumer demand.

LOS ALAMOS NATIONAL LABORATORY

a U.S. DOE national laboratory that serves as a nuclear weapons design agency and a nuclear weapons production agency, addresses nuclear threats, and conducts multidisciplinary research.

LOW CARBON ALUMINIUM

aluminium produced using processes that emit significantly less CO_2 compared to traditional methods. It is part of the broader shift towards low carbon commodities in the energy transition.

LOW CARBON COMMODITIES

goods produced with a lower carbon footprint. Low carbon commodities are sought after to reduce GHG emissions across various industrial sectors.

LOW CARBON CONTRACTS COMPANY

a private company established and owned by the U.K. government to support low carbon policy goals in the electricity sector. The primary function of the LCCC is to operate the U.K. government's Contracts for Difference scheme, providing long-term revenue support for low-carbon electricity generators.

LOW CARBON FUEL STANDARD

an emissions trading regulation that requires fuel suppliers to reduce the carbon intensity of transportation fuels in a given jurisdiction. It is used in Oregon, Washington, and California (in addition to Canada's British Columbia) to encourage the use of cleaner fuels and reduce GHG emissions through its annual CI benchmarks, which are reduced continuously over time, for gasoline, diesel, and other replacement fuels.

LOW CARBON GAS

gases used for energy that have a lower carbon content or are associated with lower GHG emissions during their lifecycle compared to conventional fossil fuels.

LOW CARBON HYDROGEN AGREEMENT
a long-term contract between the LCCC and a hydrogen producer providing revenue support to hydrogen producers by bridging the cost gap between low carbon hydrogen and high carbon fuels.

LOW EMISSIONS STEEL
see green steel.

LOW METHANE GAS
natural gas that has undergone processing to reduce its methane content, thereby reducing its GHG emissions when used as a fuel.

LOW-CARBON AMMONIA
see blue ammonia.

LOW-CARBON ENERGY SOURCES
energy sources producing minimal GHG emissions, such as wind, solar, hydroelectric, and nuclear power.

LOW-ENTHALPY GEOTHERMAL
resources that have lower temperatures compared to high-enthalpy resources. Low-enthalpy resources are often used for direct heating applications or electricity generation with binary cycle power plants.

LOWER FLAMMABILITY LIMIT
the lowest concentration of a gas or vapor in air that can ignite and sustain a flame.

LOWER HEATING VALUE
total amount of energy released as heat by combusting a specified quantity of fuel and returning the combustion products' temperature
to 150 °C.

LPG
acronym for liquefied petroleum gas.

LULUCF
acronym for land-use, land change and forestry.

M

MARINE PROTECTION, RESEARCH AND SANCTUARIES ACT
a U.S. federal law prohibiting the oceanic disposal of materials, under which the EPA, U.S. Army Corps of Engineers, the National Oceanic and Atmospheric Administration, and the Coast Guard have responsibility.

MARPOL
acronym for International Convention for the Prevention of Pollution from Ships.

MAST
a trackside column, normally steel, that supports the OLE.

MAXIMUM MONITORING AREA
under Subpart RR, the area equal to or greater than the area expected to contain the free phase CO_2 plume until the CO_2 plume has stabilised plus an all-around buffer zone of at least one-half mile that must be monitored under U.S. law.

MAXIMUM POSSIBLE AVAILABILITY
the rated capacity multiplied by the number of hours in each relevant year (being 8766, unless adjusted to account for partial years).

MBTA
acronym for the Migratory Bird Treaty Act.

MCF
acronym for molten carbonate fuel.

MEASUREMENT, MONITORING AND VERIFICATION PLAN
a strategy for the geologic storage of CO_2 at sequestration sites establishing principles to effectively measure the amount of CO_2 stored, monitor the site for signs of storage deterioration, and verify that the CO_2 stored is not harmful for the surrounding ecosystem.

MEGAWATT ELECTRIC
a unit of electric power equal to one million watts of electrical output.

MEMBRANE ELECTRODE ASSEMBLY
the core component of a fuel cell where the electrochemical reactions occur, consisting of a proton exchange membrane sandwiched between two electrodes.

MEMBRANE SYSTEMS
carbon capture mechanisms that permit the passage of CO2 while blocking other gases, effectively separating CO_2 from the rest of the gas mixture.

MEMBRANE
the separating layer in a fuel cell that acts as electrolyte (an ion-exchanger) as well as a barrier film separating the gases in the anode and cathode compartments of the fuel cell.

METHANE INTENSITY
a measure of the amount of methane emitted by an oil or gas operation relative to the amount of product (oil or gas) produced.

METHANE PERFORMANCE CERTIFICATES

certificates that may be issued to recognise and quantify the successful reduction of methane emissions by a company or project.

METHANE SLIP

any methane leakage that occurs throughout gas production, either through pipeline transport, bunker transfer, or via emissions that fail to burn during the combustion process.

METHANE

a colourless, odourless, and flammable gas that is the simplest alkane and the main component of natural gas, often targeted for emissions reductions in energy transition projects due to its potent greenhouse effect.

METHANOL

the simplest alcohol (containing one carbon atom), used as a feedstock in the production of chemicals, fuel in internal combustion engines and fuel cells, and as a hydrogen carrier.

METRIC TON

a unit of mass equal to 1,000 kilograms, or approximately 2,204.62 pounds.

MI CABLE

mass-impregnated cable. An existing electrical cable technology commonly used for power transmission and distribution, which has an insulation system consisting of lapped kraft paper tapes impregnated with a high viscosity compound.

MIDCONTINENT INDEPENDENT SYSTEM OPERATOR, INC.

the organisation that oversees and coordinates the reliable operation of, and equal access to, high-voltage power lines for the use of the transmission system and electric grid in 15 U.S. states and the Canadian province of Manitoba.

MIGRATORY BIRD TREATY ACT

a U.S. federal law that prohibits taking, attempting to take, capturing, killing, selling/purchasing, possessing, transporting, and importing of migratory birds, their eggs, parts, and nests, except when specifically authorised by the U.S. Department of the Interior.

MILES PER GALLON EQUIVALENT

a measure used by the U.S. EPA to compare the energy consumption of alternative fuel vehicles, electric vehicles, and plug-in hybrids with the fuel economy of conventional internal combustion vehicles.

MJ

abbreviation for megajoule.

MMD

acronym for Monitoring Methodology Documentation, the processes and strategies in place to routinely track and assess the impact of a programme or initiative.

MMV

acronym for measurement, monitoring and verification activities related to CO_2 storage and sequestration. See Monitoring, Reporting and Verification Plan.

MODAPP

acronym for Modification Application.

MODERATOR

a material used in a reactor to slow down the fast neutrons produced by fission to speeds at which they are more likely to induce additional fissions, thus maintaining the chain reaction.

MODULE

a self-contained unit of a system, such as a solar photovoltaic panel that converts sunlight into electricity.

MOLTEN CARBONATE FUEL CELL

a type of fuel cell that operates at high temperatures and uses a molten carbonate salt mixture as its electrolyte.

MONITORING AND REPORTING REGULATION

Monitoring and Reporting Regulation (Commission Implementing Regulation (EU) 2018/2066 of 19 December 2018 on the monitoring and reporting of emissions pursuant to Directive 2003/87/EC of the European Parliament and of the Council and amending Commission Regulation (EU) No 601/2012. It establishes rules for monitoring and reporting GHG emissions and other data in accordance with the requirements of the ETS Directive.

MONITORING, REPORTING AND VERIFICATION PLAN

a document that outlines the procedures to monitor, report, and verify emissions or energy savings from a project, ensuring that they are accurately measured and reported.

MONITORING WELL
a well that may be required under a Class VI well permit for the monitoring of specific information about the geologic sequestration project, including injection rate and volume, geology, the presence of artificial penetrations, and other factors.

MONOAXIAL TRACKERS
solar trackers, or support structures on which the solar panels are placed, that rotate on a single axis to follow the sun's path, maximising the solar energy that can be harvested by the panels.

MONOPILE
a steel and concrete foundation driven into the seabed to support an offshore wind turbine. Monopiles are suitable for shallow to medium depth waters, but recent "XXL monopiles" can potentially be installed in water depths up to 70 m.

MPA
acronym for maximum possible availability.

MPRSA
acronym for Marine Protection, Research and Sanctuaries Act.

MRR
acronym for Monitoring and Reporting Regulation.

MRV
acronym for measurement, reporting and verification of CO_2 stored in CCUS projects.

MSDS
acronym for material safety data sheets.

MT
abbreviation for metric ton.

MUNICIPAL UTILITY
a publicly owned utility that provides services such as electricity, water, or sewage treatment to the residents of a municipality.

MW
abbreviation for megawatt.

MWAC
megawatt alternating current, a unit of power used to measure the output of power plants, or the amount of power delivered to the grid.

MWE
acronym for megawatt electric.

N

NAAQS
an acronym for National Ambient Air Quality Standards.

NAFION
a brand name for a type of proton exchange membrane made by Chemours. It is commonly used in fuel cells and water electrolysis applications, which facilitate the use of hydrogen as a clean energy carrier.

NATIONAL AMBIENT AIR QUALITY STANDARDS
standards established by the U.S. EPA for the maximum allowable concentrations of criteria air pollutants.

NATIONAL ENVIRONMENTAL POLICY ACT
a U.S. federal law that requires the assessment of the environmental, social, and economic impacts of proposed actions, specifically most federal actions, including policies, plans, and projects that use federal funding.

NATIONAL EVALUATION SERVICES
organisations that provide evaluation services at a national level, evaluating the safety, efficiency, or environmental impact of energy technologies or projects.

NATIONAL FIRE PROTECTION ASSOCIATION
a global nonprofit organisation that works to eliminate death, injury, property, and economic loss due to fire, electrical, and related hazards.

NATIONAL HYDROGEN ASSOCIATION
an organisation that promoted the use of hydrogen as a clean energy source in the U.S. It has been succeeded by the Fuel Cell and Hydrogen Energy Association.

NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY
a U.S. federal agency that develops technology, metrics, and standards to drive innovation and economic competitiveness.

NATIONAL OFFSHORE PETROLEUM SAFETY AND ENVIRONMENTAL MANAGEMENT AUTHORITY
an Australian government agency that regulates the safety, environmental management, and structural integrity of offshore petroleum facilities. Its role in energy transition involves overseeing the decommissioning of offshore oil and gas infrastructure and the development of offshore renewable energy projects.

NATIONAL OFFSHORE PETROLEUM TITLES ADMINISTRATOR
an Australian government agency responsible for the administration of petroleum and GHG storage titles in Commonwealth waters.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
a permit system that controls water pollution under the CWA by regulating point sources that discharge pollutants into "waters of the U.S."

NATIONAL RENEWABLE ENERGY LABORATORY

a U.S. government research laboratory dedicated to the research, development, commercialisation, and deployment of renewable energy and energy-efficient technologies.

NATURAL GAS

a fossil fuel used for heating, electricity generation, and as a feedstock for industrial processes. It is considered to have lower carbon emissions than coal or oil when combusted, but it is still a source of GHGs. Energy transition projects may seek to reduce reliance on natural gas or replace it with lower-carbon alternatives.

NATURAL GAS ACT

U.S. legislation applicable to natural gas pipelines that gives the FERC jurisdiction to regulate transportation and wholesale sales of natural gas in interstate commerce.

NATURAL GAS VEHICLE COALITION

an advocacy group that promotes the use of natural gas as a transportation fuel.

NATURE-BASED CARBON CAPTURE

the process of capturing and storing atmospheric CO_2 through natural processes and biological systems, such as forests, wetlands, and soils.

NATURE-BASED SOLUTION

the use of natural processes and ecosystems to address societal challenges, such as climate change, water security, and disaster risk. In the context of energy transition, this could include preserving and restoring ecosystems to sequester carbon.

NAVIGABLE WATERS
a U.S. designation defined as "waters of the U.S." and subject to interpretation, which currently includes relatively permanent, standing or continuously flowing bodies of water that have a continuous surface connection with or are otherwise indistinguishable from traditional navigable water (e.g., bodies of water in the U.S. subject to the ebb and flow of the tide and used currently or historically, or potentially usable, for transporting interstate or foreign commerce).

NEPA
acronym for National Environmental Policy Act.

NET METERING
a billing mechanism that credits solar energy system owners for the electricity they add to the grid. If a residential customer has a photovoltaic system on their home, net metering allows them to use any excess electricity they generate to offset their electricity bill.

NET ZERO
the balance between the amount of GHG that is produced and removed from the atmosphere.

NET ZERO HYDROGEN FUND
an initiative by the U.K. government worth approximately £240 million, designed to foster the growth of low carbon hydrogen by supporting the commercial development of new low carbon hydrogen production projects.

NET ZERO INDUSTRY ACT
E.U. Regulation that is part of the European Green, which aims at promoting investments in the production capacity of specific products and technologies that are key in meeting the E.U.'s climate neutrality goals such as batteries and storage, CCS, electrolysers, fuel cells, grid technologies, renewable energy technologies, etc.

NETL CARBON STORAGE PROGRAM
U.S. government initiative offering financial support to research and development projects selected through competition that are advancing technologies for the safe, cost-effective, and secure storage of captured CO_2 in deep geological formations. Projects that enhance storage efficiency, minimise cost and risk, reduce geological uncertainties, and ensure safe, economically sound, and environmentally responsible operations are eligible.

NETL
acronym for National Energy Technology Laboratory.

NEUTRAL HOST INFRASTRUCTURE
telecoms network infrastructure owned by a third party, which can support multiple wireless carriers or mobile network operators simultaneously.

NEUTRON ABSORBER
a material that absorbs neutrons, thereby controlling the rate of the nuclear reaction.

NEUTRON
an uncharged atomic particle found in the nuclei of atoms, which can cause fission in some atoms.

NEW GENERATION VEHICLES
vehicles that are powered by alternative fuels, such as natural gas, biogas, or electricity. These vehicles are part of the shift towards cleaner transportation options in the energy transition.

NEW NUCLEAR
the development of new nuclear power plants that are designed to be safer and more efficient than traditional nuclear reactors.

NEW RENEWABLES
renewable energy sources that have become commercially viable more recently, such as wind, solar, and bioenergy, as opposed to "old" renewables like hydroelectric power.

NEW SOURCE PERFORMANCE STANDARDS
technology-based pollution control standards issued by the U.S. EPA under the CAA for new, modified, and reconstructed sources of air pollution, including sources that cause an increase in emissions or a change in the types of emissions present.

NEW YORK INDEPENDENT SYSTEM OPERATOR, INC.
the organisation that manages the electricity grid and wholesale electricity markets for the state of New York, integrating renewable energy sources into the grid and ensuring reliability.

NFRD
acronym for Non-Financial Reporting Directive.

NITROGEN OXIDES
a group of gases that are produced during combustion processes and are significant air pollutants that can contribute to smog and acid rain.

NITROGEN
a colourless, odourless, tasteless, and mostly inert diatomic gas that constitutes 78% of the Earth's atmosphere.

NOC
acronym for national oil company.

NON-DISPATCHABLE GENERATION
sources of electricity that cannot be turned on or off, or whose output cannot be varied according to demand, such as wind or solar power. See also non-plannable generation.

NON-FINANCIAL REPORTING DIRECTIVE
a directive from the E.U. regarding the disclosure by an issuer of non-financial and diversity information as they relate to the company.

NON-PLANNABLE GENERATION
acronym for non-dispatchable generation.

NORTH SEA TRANSITION AUTHORITY
a private company owned by a Secretary of State of the U.K. for Energy and Net Zero regulating the exploration of the U.K.'s oil and gas resources to maximise economic recovery. It also aims to advance the ambition of a net zero economy through harnessing new and emerging technologies.

NOTIONAL MODEL
model for setting the floor applicable under the cap and floor regime that is based on notional financial inputs (rather than the actual cost of debt specific to the particular project).

NPDES
acronym for National Pollutant Discharge Elimination System.

NSPS
acronym for New Source Performance Standards.

NSTA
acronym for North Sea Transition Authority.

NUCLEAR ENERGY (FINANCING) ACT 2022

legislation passed by the U.K. Parliament to facilitate the financing of new nuclear power stations. It introduces a RAB model for nuclear projects, which allows investors to receive returns before the projects are completed, with the aim of attracting private investment and reducing the cost of financing nuclear energy.

NUCLEAR ENERGY

the energy released during nuclear fission or fusion.

NUCLEAR FISSION

the process by which the nucleus of an atom splits into two or more smaller nuclei, along with a few neutrons and a large amount of energy. This is how nuclear power plants create nuclear energy.

NUCLEAR FUEL CYCLE

the series of industrial processes that involve the production of electricity from uranium in nuclear power reactors.

NUCLEAR FUSION

the process of fusing two or more atoms to form a heavier atom, releasing large amounts of energy.

NUCLEAR POWER PLANT

a facility that generates electricity using heat from nuclear reactions.

NUCLEAR REACTOR

a device used to initiate and control a sustained nuclear chain reaction.

NUCLEAR SAFETY CULTURE

the assembly of characteristics and attitudes in organisations and individuals that establishes, as an overriding priority, that nuclear plant safety issues receive the attention warranted by their significance.

NUCLEAR SITE LICENCE

a licence required for the operation of a nuclear installation in the U.K. It is granted by the ONR and contains conditions that the licensee must comply with to ensure the safe operation of the nuclear installation.

NUCLEAR STEAM SUPPLY SYSTEM

the component of a nuclear power plant that includes the nuclear reactor and the equipment which produces and controls the steam that will drive the plant's turbines and generator. It is a critical part of the power generation process in a nuclear power plant.

NULL POWER

the underlying power that's left over after the environmental attributes associated with the Renewable Energy Certificates have been sold separately. Null power is not considered renewable because it represents a blend of electricity from various sources, mirroring the general characteristics of the power system's mix.

NZHF

acronym for Net Zero Hydrogen Fund.

O

OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION

a U.S. Department of Labor agency responsible for ensuring safe and healthful working conditions for workers by setting and enforcing standards and by providing training, outreach, education, and assistance. OSHA regulations ensure the safety of workers involved in the construction and maintenance of energy facilities. OSHA can enforce a variety of whistleblower statutes and regulations that protect workers who report unsafe working conditions.

OCEAN ALKALINITY ENHANCEMENT

a method of increasing the alkalinity of seawater to increase carbon sequestration and reduce atmospheric CO_2 levels.

OCEAN ECONOMY

another term for blue economy.

OCEAN ENERGY SYSTEMS

technologies designed to generate electricity from the ocean. This can include wave energy, tidal energy, ocean thermal energy conversion, and offshore wind energy.

OCEAN-BASED CDR

CO_2 removal strategies including enhanced biological or chemical processes that allow for carbon storage in the ocean.

OECD
acronym for Organisation for Economic Co-operation and Development.

OECD ARRANGEMENT
arangement on Officially Supported Export Credits is a "gentlemen's agreement" amongst export credit agencies from Australia, Canada, the European Union, Japan, Korea, New Zealand, Norway, Switzerland, Turkey, the United Kingdom and the United States. The OECD Arrangement provides a framework for export credit financings in general together with certain sector-specific rules applicable to (a) the climate change sector, (b) nuclear sector, (c) aircraft sector, and (d) ship sector.

OFFICE FOR NUCLEAR REGULATION
the U.K.'s independent regulator for nuclear safety, security, and conventional health and safety at nuclear sites. It is responsible for providing oversight and enforcing legal requirements for the nuclear industry.

OFFICE OF ENERGY EFFICIENCY AND RENEWABLE ENERGY
an office within the U.S. DOE that focuses on advancing affordable and reliable energy to promote sustainable economic growth and energy security. It supports research, development, and deployment of energy efficiency and renewable energy technologies.

OFFICE OF GAS AND ELECTRICITY MARKETS
the U.K.'s energy regulator.

OFFSETS
carbon credits or other mechanisms that compensate for emissions of GHGs by providing for an equivalent reduction, removal, or avoidance of emissions elsewhere. Offsets may be part of a strategy to achieve net zero emissions, directed principally at addressing residual emissions that are hard to abate.

OFFSHORE HYBRID ASSET
assets that combine the transmission of electricity generated by (and directly connected to) offshore generation assets (such as wind farms) with cross-border interconnection between the power grids of nearby countries. OHA is an umbrella term covering both MPIs and NSIs.

OFFSHORE INJECTION WELLS
injection wells located offshore. In the U.S., offshore injection wells situated in federal waters are not subject to the jurisdiction of the EPA's UIC Program.

OFFSHORE OIL AND GAS EXPLORATION, PRODUCTION, UNLOADING AND STORAGE (ENVIRONMENTAL IMPACT ASSESSMENT) REGULATIONS 2020
U.K. statutory instruments designed to ensure that EIAs are conducted for offshore oil and gas projects.

OFFSHORE TRANSMISSION OPERATOR
the owner and operator of the export cable and related transmission infrastructure.

OFFSHORE WIND
wind farms installed in bodies of water, usually on the continental shelf, to generate electricity from wind resources. These installations can take advantage of stronger and more consistent winds than those on land.

OFGEM
acronym for the Office of Gas and Electricity Markets.

OFTO
acronym for Offshore Transmission Operator.

OHA
acronym for Offshore Hybrid Asset.

ONR
acronym for Office for Nuclear Regulation.

ONSHORE WIND
wind turbines located on land to generate electricity from wind energy. It is one of the most common and mature forms of renewable energy used in the energy transition.

ON-SITE RENEWABLE GENERATION
the production of renewable energy directly at the site of consumption, such as solar panels on a building's roof or a small wind turbine on a property. This can reduce the need for energy transportation and provide energy security for the site.

OPERATIONS & MAINTENANCE (O&M) AGREEMENT
a contract, typically between the project company and a professional manager or a joint venture party, that outlines the services and responsibilities related to the operations and maintenance of a facility. It ensures that the facility is managed and maintained to optimise performance and longevity.

OPRED
acronym for Offshore Petroleum Regulator for Environment and Decommissioning, a regulatory body overseeing environmental and decommissioning activities related to offshore oil and gas projects on the U.K. continental shelf.

ORGANIC-RICH SHALE BASINS
shale formations characterised by low porosity and permeability that have the capacity to adsorb CO_2 on their surfaces.

OSHA
an acronym for Occupational Safety and Health Administration.

OXIDANT
a substance that has the ability to oxidise other substances, meaning it can accept electrons from them. Oxidants are involved in chemical reactions that are fundamental to many energy storage and generation processes, including combustion and fuel cell reactions.

OXIDATION
the chemical reaction that involves the transfer of electrons from one substance to an oxidising agent.

OXY-FUEL COMBUSTION TECHNOLOGY
a technology for carbon capture that involves burning a fuel with almost pure oxygen to produce CO_2 and steam, with the released CO_2 subsequently captured. See also capture facilities.

OXYGEN
a diatomic molecule that is essential for combustion and is a key reactant in many energy-related processes, including oxidation reactions in fuel cells and conventional thermal power plants. Oxygen is a colourless, tasteless, odourless gas that makes up about 21% of air.

P

P50
in wind and solar projects, it refers to the annual energy projected to be produced by the project meeting or exceeding the estimated production value 50% of the time. P50 is commonly used by equity investors.

P90
in wind and solar projects, it refers to the annual energy projected to be produced by the project meeting or exceeding the estimated production value 90% of the time. P90 is a more conservative projection and typically forms the basis of debt sizing models.

PACIFIC NORTHWEST NATIONAL LABORATORY
a U.S. DOE research facility focusing on R&D related to energy production, sustainability, and national security.

PAI
acronym for principal adverse impact.

PANEL
see photovoltaic panel.

PARABOLA-SHAPED RECEIVERS
receiver tubes in a parabolic trough system where the tube is fixed to the mirror structure and the heat transfer fluid, which is usually water/steam, oil, or molten salt, circulates through and exits the solar mirror field where it is used to generate steam. If the receiver is a water/steam type, it is directly channelled to the turbine. These receivers are integral to the process of converting solar energy into heat.

PARABOLIC TROUGH
a common linear concentrating solar power system that uses parabolic tough collectors where receiver tubes are strategically placed along the focal line of each parabolic trough reflector.

PARASITIC LOAD
the electricity consumed by a power station during the generation process, which is typically not available for sale to the purchaser.

PARIS AGREEMENT
a landmark international climate change treaty adopted in 2015 by 196 countries at the UN Climate Change Conference with a key goal of limiting the increase in global average temperature to below 2°C above pre-industrial levels. It advocates for the reduction of GHG emissions and emphasises the need for net zero emissions.

PARTIAL OXIDATION
a process in which a hydrocarbon fuel is partially combusted in a controlled environment, producing a mixture of hydrogen and carbon monoxide called synthesis gas or syngas (as opposed to fully burned, producing carbon dioxide and water), which can be used to generate energy or as a basic chemical feedstock.

PARTNERSHIP FOR ADVANCING THE TRANSITION TO HYDROGEN
an international inter-governmental partnership working to speed up the adoption

of fuel cells and hydrogen technologies for clean energy and transportation.

PASCAL

a unit of pressure in the metric system that measures perpendicular force per unit area. It is equal to the force of one newton per square metre.

PCI

acronym for Project of Common Interest.

PENSTOCK

a conduit that conveys water from the intake structure to the turbines in a hydroelectric power station.

PERMANENT CARBON REMOVALS

a wide range of industrial technologies that capture carbon from the atmosphere and securely store it for several centuries, preventing release back into the atmosphere. This process occurs through the use of geological formations, reactive minerals, or permanently chemically bound carbon in products including, for example, technologies like DACCS and BECCS.

PERMEABILITY

a measure of how easily a fluid can flow through a porous material, such as rock or soil, measured in darcys.

PHASE I ESA

commonly referred to as a "Phase I," an assessment completed to research the current and historical uses of a property as part of a commercial real estate transaction and/or environmental diligence. The intent of the report is to assess if current or historical property uses have impacted the soil or groundwater beneath the property and could pose a threat to the environment and/or human health and safety. Identified concerns

are typically classified as Recognized Environmental Conditions (RECs) or Areas of Concern (AOCs).

PHASE II ESA

commonly referred to as a "Phase II," this assessment follows a Phase I ESA and entails collecting and analysing environmental media samples to verify the presence or absence of hazardous substances.

PHMSA

acronym for Pipeline and Hazardous Materials Safety Administration.

PHOSPHORIC ACID FUEL CELL

a type of fuel cell that uses concentrated phosphoric acid (H3PO4) as the electrolyte. Typically used for stationary power generation, it is more tolerant of impurities in hydrogen fuel than other types of fuel cells.

PHOTOELECTROCHEMICAL

the process of converting sunlight into electricity using light-sensitive materials and photoelectrodes.

PHOTOVOLTAIC EFFECT

the generation of voltage and electric current in a material when exposed to light. It is a physical and chemical phenomenon that is the foundation of how solar panels work.

PHOTOVOLTAIC PANEL

an assembly of photovoltaic cells mounted in a framework for installation, used to convert sunlight into electricity.

PINK HYDROGEN

hydrogen produced through the electrolysis of water using electricity generated from nuclear power.

PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION

an agency of the U.S. Department of Transportation charged with ensuring the safe and secure movement of hazardous materials by all transportation modes, including pipelines.

PIPELINE INTERCONNECTION

a pipeline which physically links to another pipeline or other form of interconnection system. This allows the sale and transfer of gas or other substances between systems and downstream from the original transmission system.

PJM INTERCONNECTION, LLC

a regional transmission organisation that manages the transmission of wholesale electricity in parts of the U.S., including Delaware, Illinois, Indiana, Kentucky, Maryland, Michigan, New Jersey, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia, and the District of Columbia.

PLACED IN SERVICE

the U.S. federal income tax term for the moment a facility may become eligible for U.S. federal income tax benefits. Under applicable law, a property is placed in service

the earlier of the taxable year in which: (a) under a taxpayer's depreciation practice, the period for depreciation with respect to that property begins; or (b) it is placed in a condition or state of readiness and availability for a specifically assigned function, whether in a trade or business, in the production of income, in a tax-exempt activity, or in a personal activity. To determine when energy property is placed in service for U.S. federal income tax purposes, the IRS considers the following five factors, none of which are controlling: (1) the receipt of required licenses and permits; (2) the passage of control of the facility to the ultimate taxpayer; (3) the completion of critical tests; (4) the commencement of regular operations; and (5) the synchronization of the facility into a power grid for generating electricity to produce income.

PLANNABLE GENERATION

see dispatchable generation.

PLATFORM ON SUSTAINABLE FINANCE

an advisory body to the European Commission for topics regarding its sustainable finance policies, particularly the E.U. Taxonomy Framework. The platform consists of 57 members and 11 observers all with expertise on sustainability, but from different industries.

PLATTS CNC

an assessment by Platts, a division of S&P Global, of the most competitive nature-based carbon credits, including credits from projects that either reduce or remove emissions (e.g., deforestation projects).

PLUTONIUM

a radioactive metallic element formed by the decay of uranium and used in nuclear reactors.

PMI

acronym for project of mutual interest.

POINT CAPTURE

a method of capturing carbon dioxide or other GHGs from industrial processes at the point of emission, such as at a power plant or industrial facility, before the emissions are released into the atmosphere.

POLYMER

a large molecule composed of many repeated subunits, which can have various properties and applications in materials science and industry.

POLYCRYSTALLINE SILICON

see polysilicon.

POLYMER ELECTROLYTE MEMBRANE FUEL CELL

a type of acid-based fuel cell that uses a polymer electrolyte membrane to produce electricity from hydrogen and oxygen, with water as the only by-product.

POLYMER ELECTROLYTE MEMBRANE

a type of electrolyte membrane used in fuel cells that is designed to conduct protons while being impermeable to gases such as hydrogen and oxygen.

POLYSILICON

a high-purity form of silicon that serves as the primary raw material in the solar photovoltaic manufacturing industry.

PORE SPACE
open spaces in rock or soil filled with water or other fluids such hydrocarbons.

PORT STATES MEASURES AGREEMENT
the Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing, approved by the Food and Agriculture Organisation on 22 November 2009 and entered into force on 5 June 2016. There are currently 78 states that are party to the PSMA, which is the first binding international agreement that specifically targets illegal, unreported, and unregulated fishing. It lays down a minimum set of standard measures for parties to apply when foreign vessels seek entry into their ports or while they are in their ports.

PORTFOLIO DECARBONISATION
decarbonisation that is achieved by withdrawing capital from particularly carbon-intensive corporate groups and re-investing that capital into other carbon-efficient assets.

POSEIDON PRINCIPLES
a global framework for assessing and disclosing climate alignment of ship finance portfolios in line with the IMO's climate change strategies. The Poseidon Principles are applicable to lenders, lessors, and financial guarantors, including export credit agencies that are signatories.

POST INJECTION SITE CARE AND SITE CLOSURE PLAN
a component of the U.S. regulatory framework governing CCUS, setting out monitoring and maintenance activities for CO_2 injection operations and governing closure activities.

POST-COMBUSTION TECHNOLOGY
a technology for carbon capture that separates CO_2 from the flue gas after the fuel is burnt. See also capture facilities.

POST-INJECTION SITE CARE
appropriate monitoring and other actions (including corrective action) needed following cessation of injection of CO_2 to ensure that sequestered CO_2 is not released into the atmosphere and underground sources of drinking water are not endangered.

POWER POOL
a collaborative arrangement between multiple interconnected power systems designed to deliver electricity in the most dependable and cost-effective manner.

PRE-COMBUSTION TECHNOLOGY
a technology for carbon capture that involves converting the fuel into a gas mixture consisting of hydrogen and CO_2 before it is burnt. See also capture facilities.

PRE-FEED PHASE
short for Preliminary Front-End Engineering Design Phase. The initial design phase of a project where preliminary studies are conducted to define the project scope and evaluate its feasibility, to outline objectives and deliverables, and to develop a plan that serves as a roadmap for the entire project lifecycle.

PRELIMINARY FRONT-END ENGINEERING DESIGN PHASE
see pre-feed phase.

PRESSURISED WATER REACTOR
a type of nuclear reactor where the heat generated by nuclear fission is used to heat water under pressure, which in turn

produces steam to drive a steam turbine and generate electricity.

PREVAILING WAGE AND APPRENTICESHIP

requirements under the IRA where the available tax benefit can increase if satisfied. Generally, the PWA requirements are that workers on public works projects are paid wages comparable to the local prevailing wages and benefits and that apprentices are employed to learn the trade.

PRI

acronym for Principles for Responsible Investment.

PRIMACY

primacy for injection well permitting in the U.S. refers to the authority granted to a state by the EPA to administer and enforce the Underground Injection Control (UIC) Program for injection wells within its jurisdiction. When a state has primacy, it means that the state, rather than the EPA, has the lead role in permitting and regulating the injection wells. The state must demonstrate that its regulations are at least as stringent as the federal requirements. Once primacy is granted, the state's regulatory agency becomes the primary authority overseeing the permitting process, monitoring, and enforcement actions related to the applicable UIC well type. Obtaining primacy allows states to tailor their regulatory approach to the specific needs and conditions of their jurisdictions, within the framework of federal standards.

PRINCIPAL ADVERSE IMPACT

any impact of investment decisions or advice that results in a negative effect on sustainability factors, such as environmental, social and employee concerns, respect for human rights, anti-corruption, and anti-bribery matters. PAI disclosures are a key reporting requirement under the SFDR.

PRINCIPLES FOR RESPONSIBLE INVESTMENT

a set of six voluntary ESG investment principles developed by a group of institutional investors to support signatories with responsible investment practices. The six PRIs are: (a) we will incorporate ESG issues into investment analysis and decision making processes; (b) we will be active owners and incorporate ESG issues into our ownership policies and practices; (c) we will seek appropriate disclosure on ESG issues by the entities in which we invest; (d) we will promote acceptance and implementation of the PRIs within the investment industry; (e) we will work together to enhance our effectiveness in implementing the PRIs; and (f) we will each report on our activities and progress towards implementing the PRIs.

PRODUCER CERTIFIED GAS

natural gas certified by the producer for its quality, origin, and ability to meet specific environmental standards, such as carbon and methane intensity thresholds.

PRODUCTION TAX CREDITS

a form of U.S. tax incentive that provides tax credits calculated based upon the amount of a commodity produced by a facility over time, typically for the first ten years of a facility's operation.

PRODUCTION WELL
a well within a geothermal field that extracts steam or brine. This is distinct from an injection well, which is used to reintroduce fluids back into the geothermal reservoir.

PROJECT OF COMMON INTEREST
projects designated by the European Commission as key cross border energy infrastructure projects between the E.U. and non-E.U. countries which contribute to the energy and climate policy objectives of the E.U. Such projects benefit from priority status, streamlined permitting and environmental assessment procedures and may be eligible for grant funding from the CEF.

PROJECT OF MUTUAL INTEREST
projects designated by the European Commission as key infrastructure projects aimed at completing the European internal energy market. Such projects benefit from priority status, streamlined permitting and environmental assessment procedures and may be eligible for grant funding from the CEF.

PROPANE
a flammable hydrocarbon gas used as fuel.

PROTON EXCHANGE MEMBRANE
see Polymer Electrolyte Membrane.

PSIA
pounds per square inch absolute.

PSMA
acronym for Port States Measures Agreement.

PUBLIC UTILITIES COMMISSION
a regulatory body responsible for regulating electric, gas, and telephone services.

PUBLIC UTILITY
a company that retails essential public services, such as electric, gas, telephone, water, and sewerage under legally established monopolies.

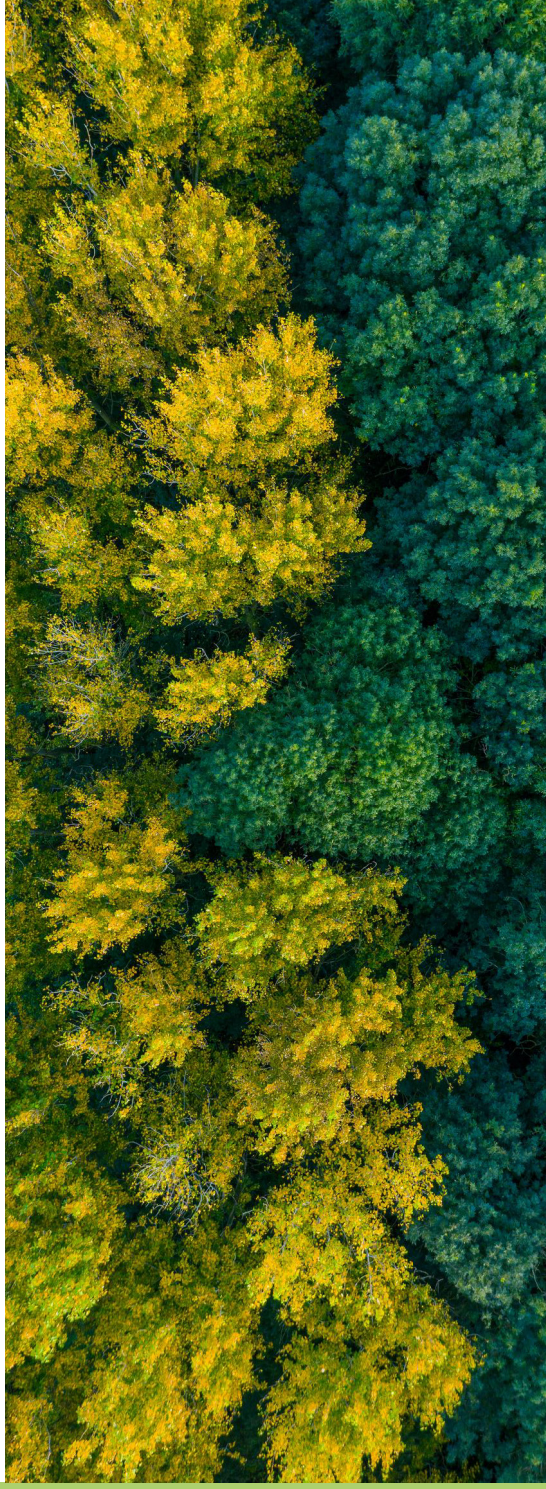
PUMPED STORAGE HYDROELECTRIC PLANT
a type of hydroelectric power plant that uses two water reservoirs at different elevations to store energy and generate electricity by moving water between them, typically using pumps during low demand and generating power during peak demand.

PV
abbreviation for photovoltaic.

PWA
acronym for prevailing wage and apprenticeship.

PYROLYSIS
a thermochemical decomposition of organic material at elevated temperatures (greater than 400°F, or 200°C) in the absence of atmospheric oxygen. The process produces a mixture of solids (char), liquids (oxygenated oils), and gases (methane, carbon monoxide, and carbon dioxide), where the proportion of each component is determined by certain conditions such as operating temperature, pressure, and oxygen content.

R



RAB
acronym for regulated asset base.

RAB MODEL
acronym for regulated asset base model.

RAD
acronym for radiation absorbed dose.

RADAR MITIGATION
steps taken or equipment installed to reduce the impact of a wind farm's interference on radar equipment. Wind farm developers will typically bear the cost of radar mitigation works in return for the radar operator withdrawing a planning objection.

RADIATION ABSORBED DOSE
a unit of absorbed radiation dose, defined as the absorption of one joule of radiation energy per kilogram of matter.

RADIOACTIVE WASTE
waste that contains radioactive material. It is usually a by-product of nuclear power generation and other applications of nuclear fission or nuclear technology.

RADIOACTIVITY
the emission of ionising radiation or particles caused by the spontaneous disintegration of atomic nuclei.

RATED CAPACITY
the maximum of the interconnector's capacity, such rated capacity is typically specified in the regulatory licence.

RC
acronym for rated capacity.

RCRA
acronym for Resource Conservation and Recovery Act.

REACTANT
a chemical substance that changes during a chemical reaction. Reactants might be fuels such as hydrogen or natural gas that react in processes such as combustion or in a fuel cell to produce energy.

REACTOR
a device or process vessel in which chemical reactions (e.g., catalysis in fuel cells) occur. A reactor is a device or structure in which a controlled nuclear reaction or chemical reaction takes place. In the context of renewable energy, the term could also refer to a bioreactor used for producing biofuels.

REACTOR CORE
the portion of a nuclear reactor containing the nuclear fuel components where the nuclear reactions occur.

REBATE PROGRAMME
a utility company-sponsored conservation program whereby the utility company gives customers a partial refund when they buy an energy-saving appliance like a refrigerator, a water heater, an air conditioner or other appliance. A rebate programme is an incentive scheme that offers a refund or discount to consumers who purchase energy-efficient appliances or systems, such as solar panels or energy-efficient heating systems, to encourage the adoption of renewable energy technologies.

REC
acronym for renewable energy certificates.

RECAPTURE
the recovery of a previously expended resource, such as capturing and reusing heat in an industrial process or the recovery of costs or subsidies through taxes or other means. A "recapture event" also refers to the loss of investment tax credits under certain circumstances (within the meaning of the Inflation Reduction Act and the relevant IRS guidance).

RECAPTURE INDEMNITY
an agreement to compensate for any benefits, such as tax credits received under the IRA, which have to be returned or 'recaptured' due to specific events or conditions not being met.

RECTIFICATION PRIORITY CATEGORY
the categories describing the relevant rectification periods to be applied to any Service Performance Shortfall.

RED
the Renewable Energy Directive (EU) 2018/2001 adopted in 2018 by the European Parliament and designed to promote the use of energy from renewable sources across the E.U.

REDD
acronym for reducing emissions from deforestation and forest degradation.

REDD+
a climate change mitigation solution developed by parties to the UNFCCC, which involves developing country parties reducing

GHG emissions from deforestation and forest degradation with the view to receiving financial support from other parties based on the results of such climate mitigation efforts. The term is also commonly used as an acronym for reducing emissions from deforestation and forest degradation where the "+" signifies the role of conservation, sustainable management of forests, and enhancement of forest carbon stocks.

REFORESTATION

the planting of trees on land that was previously forested but has been converted to another use. It is a strategy for carbon sequestration and is often part of climate change mitigation efforts associated with carbon offset projects.

REFORMATE

a type of fuel created by processing hydrocarbons to produce hydrogen and other substances, which are then used in fuel cells.

REFORMER

a device used to generate hydrogen from fuels such as natural gas, propane, gasoline, methanol, and ethanol used in fuel cells. See the reformate.

REFORMULATED GASOLINE

gasoline that has been specifically blended to lower the emissions of volatile organic compounds and other harmful pollutants compared with conventional gasolines.

REGENERATIVE FUEL CELL

see reversible fuel cell.

REGIONAL GREENHOUSE GAS INITIATIVE

the multi-state cap and trade system encompassing 11 U.S. states.

REGIONAL TRANSMISSION ORGANIZATION

a federally (U.S.) regulated organisation that coordinates, controls, and monitors the operation of an electrical power system, often spanning over large regions.

REGULATED ASSET

in the context of the RAB model, the physical infrastructure that a utility company uses to provide essential services, such as electricity, water, or gas, to the public. These assets typically include power generation stations, transmission lines, pipes, water treatment plants, and other forms of critical infrastructure.

REGULATED ASSET BASE

in the context of a RAB model, the total value of the capital invested by the project company in a regulated asset that is recognised by the RAB regulator for the purposes of setting tariffs.

REGULATED ASSET BASE MODEL

a model used to finance infrastructure assets including gas, water, and electricity networks. In the U.K., this model has been introduced for new nuclear projects in order to provide investors with secure returns on investments during the construction, commissioning, and operation phases.

REGULATED ENERGY AUCTIONS

regulated energy auctions are formal processes overseen by regulatory bodies where energy contracts are bid on and awarded, often used to procure renewable energy or capacity at competitive prices.

REINJECTION WELL

a well used to return water or other fluids back into the ground, often in geothermal energy projects, where the cooled water from

the geothermal plant is reinjected to sustain the reservoir.

RELEASE

under CERCLA, any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment (including the abandonment or discarding of barrels, containers, and other closed receptacles containing any hazardous substance, pollutant, or contaminant).

REMOTE RADIO HEAD

see Remote Radio Unit.

REMOTE RADIO UNIT

a transceiver deployed on base stations that can amplify, filter, receive, and transmit radio frequency signals.

RENEWABLE ENERGY

a form of energy derived from a natural source that is replenished quickly. See renewable energy sources.

RENEWABLE ENERGY CERTIFICATES

market-based instruments that represent the property rights to the environmental, social, and other non-power attributes of renewable electricity generation. RECs are usually sold in 1 megawatt-hour units. These certificates can be traded independently from the actual electricity they represent. RECs allow purchasers to claim they are using renewable energy by offsetting a percentage of their annual electricity use when green power products may not be available locally. RECs may also be referred to as green tags, green energy certificates, or tradable renewable certificates.

RENEWABLE ENERGY SOURCES

renewable energy sources are those that can be replenished naturally in a short period of time, such as sunlight, wind, rain, tides, waves, biomass, hydro, and geothermal heat.

RENEWABLE ENERGY SYSTEMS

the complete set of technologies and infrastructure required for the production, conversion, delivery, and use of renewable energy, including the equipment, software, and hardware.

RENEWABLE IDENTIFICATION NUMBERS

unique numbers generated to represent volumes of renewable fuel, which are used in the U.S. as credits to track renewable fuel production and usage to ensure that required volumes of renewable fuel are purchased by certain obligated parties.

RENEWABLE NATURAL GAS

a pipeline-quality gas that is fully interchangeable with conventional natural gas, derived from organic waste matter. RNG is produced when raw biogas is upgraded to the applicable purity standards required for use in place of fossil natural gas or incorporation into existing gas networks.

RENEWABLES OBLIGATION

a legacy subsidy for certain U.K. renewables projects, under which accredited renewable generating stations would receive a specified number of certificates known as ROCs for each MWh of energy exported. These certificates are purchased by U.K. electricity suppliers, who would otherwise pay a penalty if they did not hold sufficient ROCs for a given 12-month period. ROCs closed to new generation in 2017, and generators will cease to receive ROCs in 2037.

RENEWABLE PORTFOLIO STANDARDS
regulatory mandates to increase the production of energy from renewable sources. They often require utilities to supply a specified fraction of their electricity from renewable sources by a certain date.

REPOWERING
replacing older power plant equipment with newer, more efficient technology to extend the life of the plant and increase its efficiency and capacity. Repowering a facility at a defined level may permit the generation of applicable tax credits beyond the initial eligibility period.

REPROCESSING
the chemical separation of plutonium and uranium from spent nuclear fuel.

RES
acronym for renewable energy systems.

RESERVOIR FILL TIME
the amount of time it takes for a reservoir at a hydroelectric plant to collect enough water to reach useful capacity, i.e. the volume of water needed for the plant to operate normally. In the context of energy storage, it may refer to the time it takes to charge a storage system.

RESOURCE CONSERVATION AND RECOVERY ACT
U.S. legislation governing the management and disposal of solid and hazardous waste, including the issuance of permits for treatment, storage, and disposal facilities, and detailed rules on handling, labelling, and record-keeping for waste producers.

RESPONSIBLE INVESTING
strategy and practice to incorporate ESG factors in investment decisions and active ownership.

RETIREMENT
the permanent removal of a carbon credit from commercial circulation on a carbon registry for the purpose of claiming the associated emissions reductions or removals towards compliance requirements or voluntary climate-related goals.

REVERSIBLE FUEL CELL
a type of fuel cell capable of operating in two modes: as a fuel cell, converting hydrogen and oxygen into electricity and water, and as an electrolyser, using electricity to split water into hydrogen and oxygen (to be reused in the fuel cell).

RFNBO
acronym for renewable fuel of non-biological origin.

RGGI
acronym for Regional Greenhouse Gas Initiative.

RINS
acronym for renewable identification numbers.

ROCs
acronym for Renewable Obligation Certificates.

ROOFTOP PV
a rooftop PV system, short for rooftop photovoltaic system, is a setup where solar panels are mounted on the rooftop of a residential or commercial building to generate electricity. These systems convert solar energy into electrical power.

RRC
acronym for the Texas Railroad Commission.

RUNAWAY TURBINE
a wind turbine that fails to shut down in excessive wind, potentially due to malfunctioning blade feathering or rotor braking systems.

S

SAFE DRINKING WATER ACT
a U.S. federal law that aims to protect public health by regulating drinking water and its sources (rivers, lakes, reservoirs, springs, and groundwater wells) throughout the country. Under the Act, the EPA sets standards aimed at protecting against both naturally occurring and man-made contaminants that may be found in drinking water. The EPA, states, and public water systems then work together to meet these standards.

SAFETY DATA SHEET
formerly known as an MSDS, a document required to be prepared by chemical manufacturers, distributors, and/or importers of certain products that provides health and safety information about products, substances, or chemicals that are classified as hazardous. It includes information such as physical data, toxicity, health effects, first aid, reactivity, storage, disposal, protective equipment, and spill-handling procedures.

SAFETY ROD
a control rod used to decrease the reactor reactivity in the case of emergencies.

SBG
acronym for Sustainability Bond Guidelines.

SBP
acronym for Social Bond Principles.

SCOPE 1 EMISSIONS
direct emissions from assets or sources owned or controlled by an organisation. These include emissions from manufacturing processes or combustion in owned or controlled assets from such organisations.

SCOPE 2 EMISSIONS
indirect emissions from the purchase of electricity, steam, heat, or cooling. Although these emissions physically occur at a third party facility, they are taken into account when assessing an organisation's GHG footprint because they are a result of its energy usage.

SCOPE 3 EMISSIONS
indirect emissions (excluding Scope 2) that occur in the value chain of the reporting company, including both upstream and downstream emissions. These emissions are the result of activities from assets not owned or controlled by the reporting organisation.

SDGs
acronym for UN Sustainable Development Goals.

SDS
acronym for Safety Data Sheet.

SDWA
acronym for Safe Drinking Water Act.

SECTION 45Q
see Section 45Q tax credit of the IRC.

SECTION 45Q TAX CREDIT
a U.S. federal production tax credit for each MT CO_2 that is captured and sequestered or utilised in a manner that prevents its release into the atmosphere. It is designed to encourage the deployment of CCUS technologies across various industrial sectors.

The amount of the credit depends on how the carbon dioxide is sequestered or utilized. Taxpayers that comply with the applicable prevailing wage and apprenticeship requirements may generate higher value Section 45Q Tax Credits.

SECTION 45V

Section 45V of the IRC.

SECTION 45V TAX CREDIT

a U.S. federal production tax credit for companies that produce clean hydrogen. The amount of the credit depends on the lifecycle GHG emissions associated with such production. Taxpayers that comply with the applicable prevailing wage and apprenticeship requirements may generate higher value Section 45V tax credits.

SECURE GEOLOGICAL STORAGE

the long-term containment of substances, such as gaseous, liquid, or suprecritical CO_2 streams in the pore space within subsurface geologic formations, ensuring that they remain isolated from the biosphere and do not contribute to atmospheric pollution or climate change.

SECURED SOCIAL BOND

a secured bond where the net proceeds will be exclusively applied to finance or refinance either: (a) the social projects securing the specific bond only (i.e. a secured social collateral bond); or (b) the social projects of the issuer, originator or sponsor, where such social projects may or may not be securing the specific bond in whole or in part (i.e. a secured social standard bond).

SEQUESTRATION

the process of injecting and storing carbon dioxide in secure geological storage.

SEQUESTRATION AREA
a designated zone where CO_2 is stored, often in geological formations.

SEQUESTRATION FACILITIES
the injection wells used to inject a CO_2 stream into the Sequestration area.

SEQUESTRATION SITE
a natural or artificial storage area where chemicals, such as CO_2, are trapped in the atmosphere or environment and isolated.

SEQUESTRATION WELL
a well under the EPA's Underground injection control program used to inject CO_2 into deep rock formations for secure geological storage.

SERVICE AVAILABILITY DATE
the date on which the project facilities meet the various criteria required to make it "available", triggering payments from the procuring organisation.

SERVICE PERFORMANCE SHORTFALL
a failure by the project company to provide a service in accordance with the relevant performance standards.

SFDR
acronym for Sustainable Finance Disclosure Regulation.

SHORT TONNE
a unit of weight equal to 2,000 pounds (approximately 907.185 kilograms), commonly used in the U.S.

SINGLE WALL NANOTUBE
tiny, hollow tubes made of a single layer of carbon atoms with unique mechanical and electrical properties and which can be used in innovative energy storage devices.

SITE CLOSURE
the point or time, as determined in accordance with CCUS laws and regulations applicable to a project, at which the owner or operator of a sequestration site is released from post-injection site care responsibilities.

SLB
acronym for sustainability-linked bonds.

SLBP
acronym for Sustainability-Linked Bond Principles.

SLL
acronym for sustainability-linked loans.

SLLP
acronym for Sustainability-Linked Loan Principles.

SLP
acronym for Social Loan Principles.

SMALL BUSINESS INNOVATIONS RESEARCH
U.S. government programmes that help small businesses conduct research and development.

SMALL BUSINESS TECHNOLOGY TRANSFER PROGRAMME
a programme that expands funding opportunities in the federal innovation research and development arena for small businesses.

SMALL CELL
low-cost radio access point with low radio frequency power output, footprint, and range.

SMART METER
an electronic device that records consumption of electric energy in intervals of an hour or less and communicates that information back to the utility for monitoring and billing.

SOCIAL BOND PRINCIPLES
principles set out by ICMA, which are aimed at supporting bond issuers in issuing social bonds. The four core components of the SBP are: (a) use of proceeds; (b) process for project evaluation and selection; (c) management of proceeds; and (d) reporting.

SOCIAL BONDS
bonds which are issued and ring-fenced for specific social projects.

SOCIAL FINANCE
investments dedicated to finance or refinance activities where the use of proceeds or social loans or social bonds direct finance specifically towards social projects.

SOCIAL LOAN PRINCIPLES
a high-level framework of market standards and guidelines, published by the LMA, together with the APLMA and the LSTA, providing a consistent methodology for use across the social loans market. The four core components of the SLP are: (a) use of proceeds; (b) process for project evaluation and selection; (c) management of proceeds; and (d) reporting.

SOCIAL LOANS
any type of loan instruments and/or contingent facilities (such as bonding lines, guarantee lines or letters of credit) made available exclusively to finance, re-finance or guarantee, in whole or in part, new and/or existing eligible social projects, and which are aligned to the four core components of the SLP.

SOCIAL PROJECT BOND
a social bond for which the investor has direct exposure to the risk of the underlying social projects which is being funded using the proceeds of the social bonds with or without potential recourse to the issuer.

SOCIAL PROJECTS
commonly used types of projects that are supported or expected to be supported by the social bonds market and that are aligned with the principles set forth in the SBP. While there is no specific definition of what constitutes a social project, indicative categories of eligible projects include those projects which are focused on: (a) affordable basic infrastructure; (b) access to essential services; (c) affordable housing; (d) employment generation and programmes designed to prevent and/or alleviate unemployment stemming from socioeconomic crises, climate transition projects, and/or other considerations for a "just transition"; (e) food security and sustainable food systems; and (f) socioeconomic advancement and empowerment.

SOCIAL REVENUE BOND
a social bond in which the credit exposure in such social bond is to the pledged cashflows of the revenue streams derived from, and whose use of proceeds go to, related or unrelated social projects.

SOCIALLY RESPONSIBLE INVESTING
an investment strategy that considers it's the environmental, ethical, or social impact of an investment in addition to the financial returns from such investment.

SOCIETAL COSTS
the expenses and negative effects on society caused by an action or a series of actions.

SOCIETY OF AUTOMOTIVE ENGINEERS
an international group of engineers and technical experts who develop global standards for vehicles, aerospace, and related technology.

SOIL SEQUESTRATION
the process of capturing carbon in the soil, managed through limited tillage in farming, which also cuts down on soil erosion.

SOLAR ARRAY
a collection of multiple solar panels or modules that generate electricity from sunlight.

SOLAR CELLS
also known as photovoltaic cells, they are electronic devices that convert the energy of light directly into electricity through the photovoltaic effect.

SOLAR COLLECTOR
solar panels that convert sunlight into thermal energy.

SOLAR ENERGY
radiant energy emitted by the sun, which can be harnessed for heating and electricity production.

SOLAR IRRADIATIVE ENERGY
the power per unit area received from the sun in the form of electromagnetic radiation. Solar irradiative energy is often referred to as "solar irradiance."

SOLAR MODULE
a collection of solar cells that have been electrically connected and sealed into a single, weatherproof unit that can be installed as part of a solar panel system.

SOLAR PANEL
see photovoltaic panel.

SOLAR RADIATION
a flux of electromagnetic particles or photons.

SOLAR THERMAL PANELS
a system that uses panels to collect thermal energy from the sun.

SOLAR UPDRAFT TOWER
a structure that produces electricity from hot air moving upwards. It has a collector at the base that collects hot air, a tower from which the air emerges, and turbines between the tower and the collector turn the air movement into electricity.

SOLAR
relating to or denoting energy derived from the sun's rays.

SOLID OXIDE FUEL CELL
a type of fuel cell that uses a solid, metal oxide, or ceramic electrolyte. It can turn fuels such as natural gas into electricity and heat.

SORBENT
a material that can capture another substance by sticking to it or soaking it up (adsorption or absorption).

SOUTHWEST POWER POOL, INC.
a nonprofit regional transmission organisation that ensures reliable supplies of power, adequate transmission infrastructure, and competitive wholesale prices of electricity in parts of the central U.S.

SPENT FUEL
nuclear fuel that has been used to the extent that it can no longer effectively sustain a nuclear reaction.

SPT
acronym for sustainability performance targets.

STANDARD SOCIAL USE OF PROCEEDS BOND
an unsecured debt obligation with full recourse-to-the-issuer only and aligned with the SBP.

STEAM GENERATOR
part of a pressurised water reactor, a heat exchanger where very hot water under high pressure makes steam in a secondary circuit to drive a turbine.

STEAM METHANE REFORMING
an industrial process for producing hydrogen and carbon monoxide by reacting methane, typically from natural gas, with steam at high temperatures in the presence of a catalyst.

STEAM PIPE
at geothermal power plants, the various pipes through which steam is transported from a boiler to a point of use, such as a turbine or heating system.

STORAGE
electricity storage system used for the retention of energy produced at one time for use at a later time. Storage is particularly important for intermittent energy sources such as the sun and the wind. When used in the context of CCS or CCUS, this is intended to refer to carbon storage.

STORAGE HYDROELECTRIC PLANT
a type of power plant that can store water in a reservoir and control the flow of water and electricity it produces.

STORAGE OF CARBON DIOXIDE (LICENSING ETC.) REGULATIONS 2010
U.K. statutory instruments regulating the licensing of CCUS projects.

STORAGE RIGHTS
the legal rights to store substances such as gas, oil, or carbon dioxide in underground formations.

STORAGE SITE
another term for sequestration site.

STRANDED ASSET
a utility asset or investment a company owns, such as a piece of equipment, that is no longer used or useful, or which can no longer operate economically. A stranded asset is reported on the balance sheet as a loss of profit.

STRATIGRAPHIC TEST WELLS
wells drilled to collect data on the suitability of geological formations for CO_2 storage, including testing the characteristics of potential injection and confining zones.

SUBPART RR
a section of the U.S. EPA's GHGRP that deals with geologic sequestration of CO_2. Subpart RR requires facilities meeting the source category definition (40 CFR 98.440) for any well or group of wells to: develop and implement an EPA-approved monitoring, reporting, and verification (MRV) plan; report data such as the mass of CO_2 received for injection and the mass of CO_2 injected, produced, or leaked to the surface; report the mass of CO_2 sequestered using a mass balance approach; and report annual monitoring activities.

SUBPART UU
a section of the U.S. EPA's GHGRP that deals with the injection of CO_2. Facilities that report under Subpart RR for a well or group of well are not required to report under Subpart UU for that well or group of wells.

SUBPART VV
U.S. regulations for wells that inject CO_2 for both EOR and geological sequestration, with new reporting requirements under 40 C.F.R.

Subpart VV starting in 2025 if not covered by Subpart RR.

SUB-SURFACE DATA

all well data (including log, petrophysics reports, end of well reports), seismic data, well test and injectivity test data and models (petrophysics, geomechanics, geological, structure, flow assurance, and reservoir flow models) that are relevant to the planned CO_2 injection in the target reservoir for a CCS project.

SUB-SURFACE MIGRATION OF CO_2

the movement of CO_2 away from the injection point into deep geological formations, driven by high-pressure gradients during the injection process.

SUB-SURFACE RIGHTS

the rights to the minerals, oil, gas, and other resources located beneath the surface of the land.

SURFACE LEAKAGE

the escape of fluids, such as oil, gas, or water, from underground to the surface, often unintended and potentially harmful. In the context of CCUS, surface leakage means the movement of the injected CO_2 stream from the injection zone to the surface and into the atmosphere, indoor air, oceans, or surface water.

SURFACE RIGHTS

the rights to use the surface of the land for residential, agricultural, recreational, commercial, or other purposes.

SUSTAINABILITY BOND GUIDELINES

guidelines set out by ICMA to issuers and market participants on appropriate sustainable disclosure and reporting when issuing sustainability-linked bonds. The four core components of the SBG are: (a) use of proceeds; (b) process for project evaluation and selection; (c) management of proceeds; and (d) reporting.

SUSTAINABILITY FRAMEWORK

as referred to within the SLBP, a document by an issuer which sets out its sustainability financing framework including details of its sustainability strategy, information on eligible projects (for green bond, social bond, and sustainability-linked bond issuances), key performance indicators, and SPT.

SUSTAINABILITY PERFORMANCE TARGETS

as referred to within the SLBP, they are measurable improvements in key performance indicators on to which issuers commit to a predefined timeline.

SUSTAINABILITY-LINKED BOND PRINCIPLES

principles set out by ICMA that are aimed at supporting bond issuers in issuing sustainability-linked bonds. The five core components of the SLBP are: (a) selection of key performance indicators; (b) calibration of SPTs; (c) bond characteristics; (d) reporting; and (e) verification.

SUSTAINABILITY-LINKED BONDS

bonds that have a sustainability objective or target that the issuer intends to meet based on measurable performance indicators aligned with the SLLP. If the target is not reached, there may be a change in the bond's characteristics/terms. For example, an issuer may set a carbon emission reduction target over a pre-defined timeframe which, if not achieved, will lead to a coupon step-up on the bond.

SUSTAINABILITY-LINKED LOAN PRINCIPLES

a high-level framework of market standards and guidelines, published by the LMA, together with the APLMA and the LSTA, providing a consistent methodology for use across the SLLs market. The four core components of the SLLP are: (a) relationship to borrower's overall CSR strategy; (b) target setting and measuring the sustainability of the borrower; (c) reporting; and (d) review.

SUSTAINABILITY-LINKED LOANS

any types of loan instruments and/or contingent facilities (such as bonding lines, guarantee lines, or letters of credit) made available exclusively to finance, re-finance or guarantee, in whole or in part, new and/or existing eligible projects, which are aligned to the four core components of the SLLP.

SUSTAINABLE AVIATION FUEL

a biofuel used to power aircraft that is produced from sustainable feedstocks, such as waste oils, agricultural residues, or non-fossil CO_2, designed to reduce GHG emissions compared with conventional jet fuels.

SUSTAINABLE BLUE ECONOMY

a blue economy in which all economic sectors are operating and investing in sustainable systems.

SUSTAINABLE BLUE ECONOMY FINANCE PRINCIPLES

principles launched in 2018 to provide guidance on how this can be done in a way that aligns with SDG 14, Life Below Water. The principles cover 14 characteristics that signatories endorse, including being protective of the marine ecosystem, transparent with information, and following a science-led approach. The principles also provide guidance on how to finance a sustainable ocean economy.

SUSTAINABLE BLUE ECONOMY

a blue economy in which all economic sectors are operating and investing in sustainable systems.

SUSTAINABLE DEVELOPMENT GOALS

the 17 Sustainable Development Goals for the year 2030, established in 2015 by the U.N. to achieve a better and more sustainable future for all.

SUSTAINABLE FINANCE DISCLOSURE REGULATION

Regulation (EU) 2019/2088 of the European Parliament and of the Council of 27 November 2019 on sustainability related disclosures in the financial services sector. The E.U.'s SFDR requires financial service providers and owners of financial products to assess and disclose ESG considerations publicly.

SUSTAINABLE FINANCE

investments dedicated to finance or refinance activities where the use of proceeds or sustainability-linked loans or sustainability-linked bonds direct finance specifically towards projects and programmes that are aligned to the SLLP.

SUSTAINABLE OCEAN ECONOMY

see sustainable blue economy.

SWEPT AREA

the circular area of space taken up by the rotor of a wind turbine, from the centre of the hub to the tips of the turbine blades.

T

T&S
acronym for transportation and storage.

T&S REGULATORY INVESTMENT MODEL
a CCUS business model developed in the U.K. offering a tailored government support package for the development of a privately owned and managed CCUS T&S network.

TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES
a global organisation formed to develop a set of recommended climate-related disclosures that companies and financial institutions can use to better inform investors, shareholders, and the public of their climate-related financial risks.

TASKFORCE ON NATURE-RELATED FINANCIAL DISCLOSURES
an initiative that has developed a set of disclosure recommendations and guidance for organisations to report and act on evolving nature-related dependencies, impacts, risks, and opportunities.

TAX CREDITS
a form of tax incentive that reduces the tax liability of individuals or companies. In some jurisdictions, there are specific tax credits for solar energy, wind energy, carbon sequestration, and other renewable technologies.

TAX EQUITY INVESTOR
generally passive investors who contribute capital to leverage tax benefits and share in the project's cash flows, often acquiring partial direct or indirect ownership in the project entity alongside the project sponsor.

TAX EXEMPTIONS AND REDUCTIONS
a form of tax incentive that might include reductions in value-added tax (VAT), property tax, or import duties on renewable energy equipment and related technologies.

TAX INCENTIVES
fiscal benefits provided by governments to promote the adoption and development of renewable energy sources. These incentives are designed to make renewable energy projects more financially viable and attractive to investors, developers, and consumers. Specific incentives vary widely depending on the jurisdiction, and are often subject to change due to fluctuations in political, economic, and environmental priorities.

TCO_2 (E)
acronym for tonne of CO_2(e).

TECHNOLOGY VALIDATION
confirmation that technical targets for a given technology have been met.

TEMPORAL CORRELATION
the alignment of the generation of renewable electricity with its use for hydrogen production, by ensuring that the electricity is consumed by the electrolyser at the same time it is produced or within a defined time frame.

TEMPORAL MATCHING

the alignment of energy generation with energy demand over time. Particularly relevant for intermittent renewable energy sources such as solar and wind, it is the process of ensuring that the electricity produced from renewable sources is available when there is a demand for it. Temporal matching can be achieved through various means, such as energy storage systems that store excess energy when production exceeds demand and release it when there is a shortfall.

TEMPORARY CRISIS AND TRANSITION FRAMEWORK

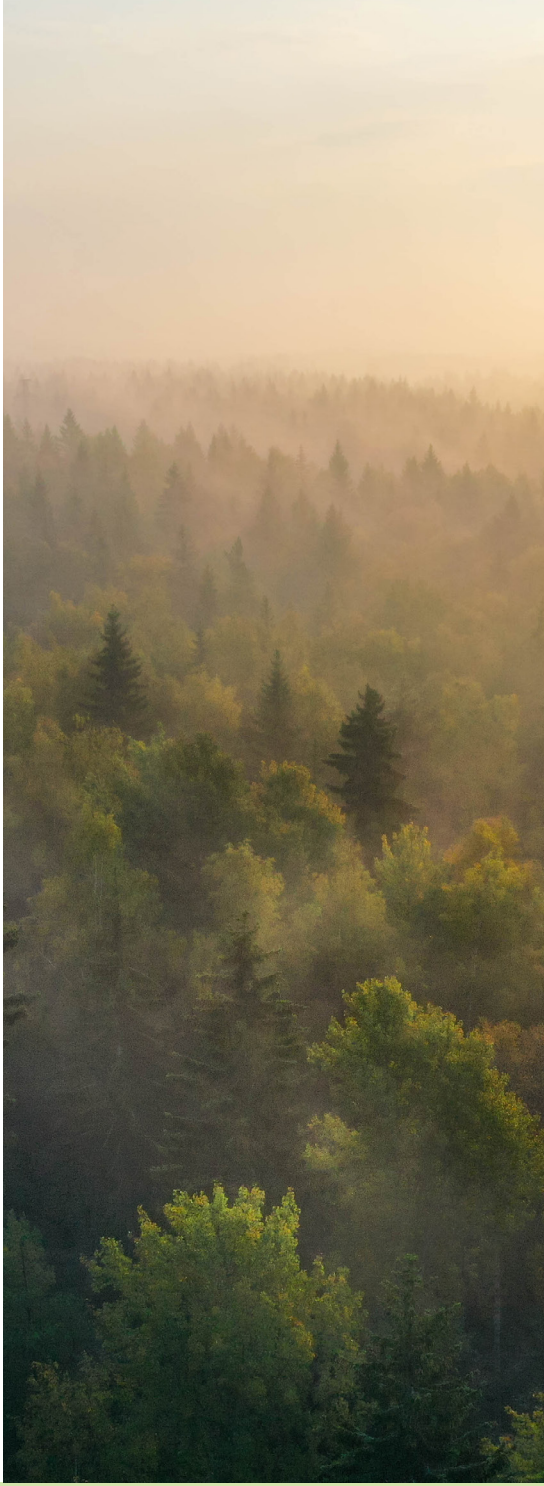
a set of guidelines and measures adopted by the European Commission to provide support to Member States and businesses during economic crises and transitions, including the State Aid Temporary Framework, which allows for necessary and proportionate support to businesses in need while ensuring equal treatment and limiting undue distortions to competition.

TEXAS GENERAL LAND OFFICE

the state entity authorised by Texas law to engage in contracts for CO_2 storage in submerged state-owned lands, having leased a significant offshore area for this purpose in 2021.

TEXAS RAILROAD COMMISSION

the Texas authority that regulates the oil and gas industry, gas utilities, pipeline safety, safety in the liquefied petroleum gas industry, and surface coal and uranium mining. The Commission oversees permitting for Class VI wells, requiring compliance with both state and federal regulations until Texas achieves primacy over the Class VI well program. The commission also issues Class II well permits for wells injecting CO_2 for EOR.



THEMATIC INVESTING

as referenced in PRI's Investor Reporting Framework, an approach to investing that focuses on ESG trends rather than specific companies or sectors, enabling investors to access structural shifts that can change an entire industry.

THERMAL EFFICIENCY

the ratio of the electrical output of a power plant to the thermal energy produced by the fuel.

THERMAL REACTOR

a nuclear reactor that uses slow or thermal neutrons to maintain the nuclear chain reaction.

THREE PILLARS

a hydrogen accounting approach that considers the following pillars: incrementality, temporality, and deliverability. The Proposed Rules for implementation of the clean hydrogen production tax credit under Section 45V of the IRA permit a sponsor to reduce the Lifecycle GHG emissions rate of a hydrogen production facility – and thereby qualify for the Section 45V tax credit when the facility otherwise would not or increase the amount of the Section 45V tax credit – through the acquisition of EACs. Under the Proposed Rules, certain qualified EACs may be purchased by a hydrogen producer and used to treat the electricity used to generate hydrogen as being from the source that generated the EACs. To be considered a qualified EAC, the EACs must satisfy the requirements of each of the "three pillars":

- Incrementality: permits EACs to qualify only if they are sourced from "new" renewable energy generation facilities. Under the Proposed Rules, EACs qualify if they are generated by a facility that achieved "commercial operation" no more than 36 months before the hydrogen facility using the EACs was placed in service. EACs may also satisfy the incrementality requirement if they represent the additional incremental capacity of an existing generation facility that was "uprated" to increase its generation capacity within the previous 36 months.

- Temporal matching: imposes an hourly matching requirement for EACs, which mandates that the electricity represented by a qualifying EAC have been generated in the same hour that electricity was used to produce the qualifying clean hydrogen.

- Deliverability: essentially a geographic requirement, meaning the electricity represented by an EAC must be generated by a facility that is in the same "region" as the hydrogen production facility. There are 13 regions in the continental U.S., and Alaska, Hawaii, and each U.S. territory will be treated as separate regions.

TNFD

acronym for Taskforce on Nature-related Financial Disclosures.

TOLLING AGREEMENT

an agreement pursuant to which a party acquires production performed by a contractor utilising raw material provided by such party. Alternatively, may refer to an

agreement to suspend a statute of limitations for a specific period of time.

TRACKER
a device that moves a solar panel to follow the sun's path across the sky. This keeps the panel directly facing the sunlight, which increases the power it can generate.

TRADITIONAL GEOTHERMAL
see High-Enthalpy Geothermal.

TRANSMISSION LINE
a power line that carries energy from where it is generated to areas where it is needed. It connects to smaller distribution lines that carry energy to homes and businesses.

TRANSMISSION SYSTEMS OPERATOR
an entity responsible for the transmission of power from generation assets over the electrical grid to regional or local electricity distribution operators (can also be referred to as the National Electricity Transmissions System Operator "NETSO" if it is the main TSO for a particular State).

TRANSMISSIVE FAULT
also referred to as transmissive fracture. A fault or fracture that has sufficient permeability and vertical extent to allow fluids to move between formations.

TRANSMISSIVE FRACTURE
see transmissive fault.

TRI MODEL
acronym for T&S regulatory investment model.

TRUNKLINE
a main pipeline.

TSO
acronym for a Transmission Systems Operator.

TURBINE
a rotor with blades or vanes attached to it, which is designed to harness the kinetic and potential energy of a stream of fluid (such as water, steam, air, or combustion gases). As the fluid passes over the blades, it causes the rotor to spin, and this rotational motion is then used to drive machinery or generate electricity. The various types of turbines include steam turbines, gas turbines, water turbines (such as those used in hydroelectric power plants), and wind turbines. Each type is designed to operate with a specific fluid and for a particular application, ranging from power generation to propulsion systems in vehicles such as ships and aircraft.

TURBOCHARGER
a device used for increasing the pressure and density of a fluid entering a fuel cell power plant using a compressor driven by a turbine that extracts energy from the exhaust gas.

TURBOCOMPRESSOR
a machine for compressing air or other fluids, such as reactant when supplied to a fuel cell system, in order to increase the reactant pressure and concentration.

TURQUOISE HYDROGEN
hydrogen made using methane pyrolysis to produce hydrogen and solid carbon. The key difference between blue hydrogen and turquoise hydrogen is that turquoise hydrogen produces carbon instead of CO_2.

U

U.K. CARBON BORDER ADJUSTMENT MECHANISM

the proposed CBAM for the U.K., which is expected to come into force on 1 January 2027 and which will impose carbon import tax on the embodied carbon emissions of certain goods imported into the U.K. within the following sectors: aluminium, cement, ceramics, fertiliser, glass, hydrogen, iron, and steel.

U.K. CBAM

see U.K. Carbon Border Adjustment Mechanism.

U.K. EMISSIONS TRADING SCHEME

the U.K.'s cap-and-trade system which created the U.K. carbon market covering England, Wales, and Scotland, but not Northern Ireland (which remains part of the E.U. ETS.) A cap that reduces yearly is set on the total amount of certain greenhouse gases that can be emitted by installations covered by the system, and within that cap companies receive or buy tradable emission allowances, each of which gives the holder the right to emit one tonne of carbon dioxide or the equivalent amount of another greenhouse gas.

U.K. ETS AUTHORITY

the U.K. Government, Scottish Government, Welsh Government, and the Department of Agriculture, Environment and Rural Affairs for Northern Ireland. There are different U.K. ETS regulators for each of England, Scotland, Wales, Northern Ireland, and offshore oil and gas.

U.K. ETS REGULATION

a set of regulations which establish the framework and requirements for the U.K. ETS, which includes the Greenhouse Gas Emissions Trading Scheme Order 2020.

U.K. ETS

acronym for U.K. Emissions Trading Scheme.

U.K. LOW CARBON HYDROGEN STANDARD

a set of guidelines established by the U.K. government for hydrogen producers which sets an emissions threshold for hydrogen to be considered "low carbon", imposes an obligation to calculate emissions throughout the hydrogen's lifecycle, mandates a greenhouse gas emissions reduction threshold throughout the lifecycle of the hydrogen as compared to fossil fuels, and ensures transparency and accountability through monitoring, reporting, and verification requirements. These criteria must be met to be eligible for revenue support under the U.K. Hydrogen Production Business Model.

U.S. ARMY CORPS OF ENGINEERS

the U.S. federal agency responsible for protecting aquatic resources by evaluating permit applications for construction activities in U.S. federal waters, including wetlands, and issuing permits for dredging, filling, and construction in navigable waters and ocean disposal of dredged material under the CWA.

UIC PERMIT
a permit for an injection well under an Underground Injection Control Program.

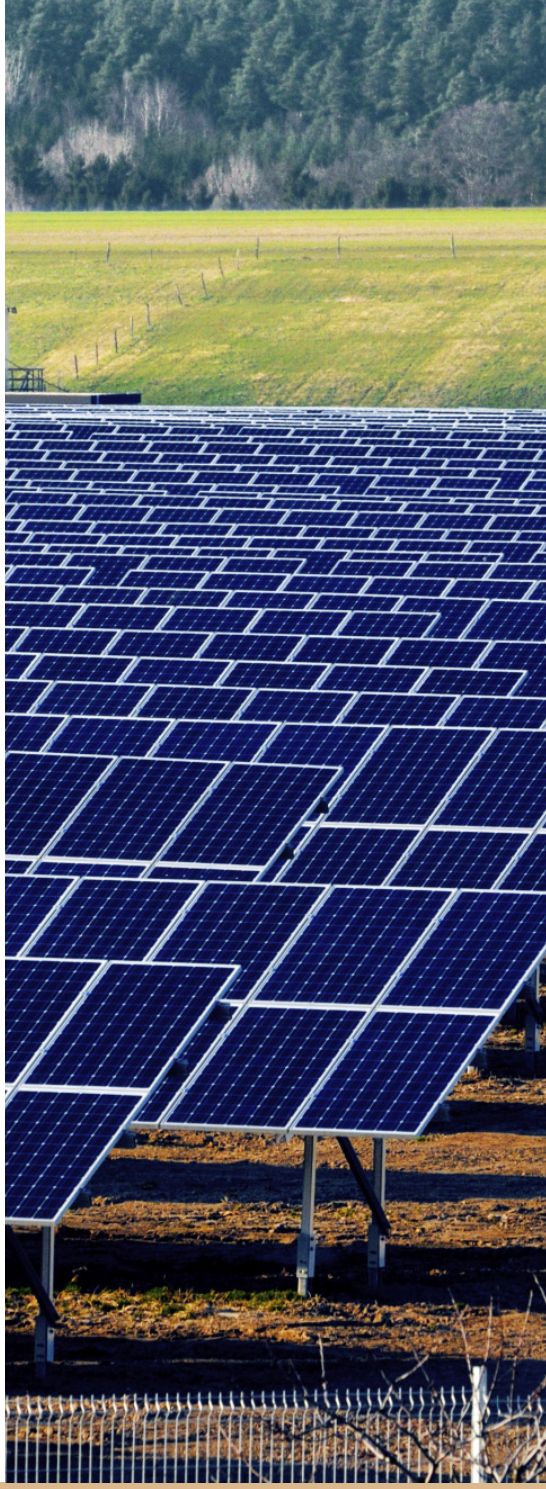
UIC PROGRAM
abbreviation for Underground Injection Control Program.

U.N. BLUE BOND INITIATIVE
a U.N. initiative that has developed practical guidance to issuing a blue bond that meets the U.N. Global Compact and Sustainable Ocean Principles, building on the GBP, SBP, and SLBP.

U.N. CONVENTION ON THE LAW OF THE SEA
a convention adopted by the U.N. in 1982 that establishes a comprehensive regulatory framework in respect of the marine environment. Also known as the Sea Treaty or the Constitution of the Oceans.

U.N. SUSTAINABLE DEVELOPMENT GOALS
the 17 goals established pursuant to U.N. Resolution 70/1, the 2030 Agenda for Sustainable Development in 2015. The SDGs are intended to provide a blueprint to achieve a better and more sustainable future for all. They are aimed at addressing the global challenges faced by society, including those related to poverty, inequality, climate change, environmental degradation, peace, and justice. The SDGs are intended to be achieved by 2030.

UNBUNDLED
an energy or environmental attribute that is separate, and may be traded separately, from the underlying electricity produced.



UNDERGROUND INJECTION CONTROL

programs that regulate injection wells to prevent the contamination of underground sources of drinking water.

UNDERGROUND INJECTION CONTROL PROGRAM

a nationwide programme in the U.S. pursuant to the SDWA that is overseen by the EPA. The programme was established to protect underground sources of drinking water by regulating the permitting, construction, operation, and closure of injection wells that place fluids underground. There are six classes of UIC Program wells, and the Department of Mineral Resources has primacy over Class II wells and Class III wells.

UNDERSEA CABLING

fiber-optic cables laid on the ocean floor for transmitting data between continents. Such cables are also known as submarine communications cabling.

UNDERWRITER'S LABORATORY

a globally recognised independent organisation that offers a wide range of safety-related services. For renewable energy projects, UL's services are crucial in certifying that the equipment and components meet rigorous safety and performance standards, which can be essential for obtaining financing, insurance, and regulatory approvals.

UNFCCC

acronym for the United Nations Framework Convention on Climate Change.

UNITARY CHARGE

the payment made by the procuring organisation to the project company under the project agreement, which is sized to cover the costs of construction, financing costs, equity return, lifecycle replacement expenditure, maintenance, and services.

UNITIZATION

consolidation of separate leasehold interests for the collective exploration or development of a hydrocarbon reservoir or potential accumulation, as per a unit agreement.

UN-MINEABLE COAL SEAMS

coal deposits that are not viable for extraction with current technology, often used for CO_2 storage due to their permeability.

UPPER FLAMMABILITY LIMIT

the highest concentration of a vapour or gas that will produce a flash of fire when an ignition source is present.

URANIUM

a heavy metal that is the primary fuel for nuclear reactors.

UREA

a widely produced synthetic nitrogen fertiliser with substantial carbon emissions, with the potential for "Blue Urea" to be manufactured using renewable energy to reduce carbon output.

UTILISATION

a process that captures CO_2 emissions from emitters or CO_2 sources and reuses it in EOR or to produce goods so it will not enter the atmosphere.

UTILITY

a municipal or private business that provides electricity, water, or gas to the public and is subject to governmental regulation.

V

VCMI
acronym for the Voluntary Carbon Markets Integrity Initiative.

VCS
acronym for Verified Carbon Standard. See also carbon standard.

VCU
acronym for verified carbon unit.

VERIFICATION
in the context of carbon offsetting, the independent third-party review of data relating to a carbon offset project to ensure that emissions reductions, avoidance, or removals claimed by a carbon offset project have occurred.

VERIFIED CARBON STANDARD
one of the standards for certifying carbon credits and is administered by Verra.

VERIFIED EMISSION REDUCTIONS
a generic term used to refer to carbon credits in the voluntary carbon market that have been verified and issued in accordance with a carbon standard.

VERS
acronym for verified emissions reductions.

VERY LOW SULPHUR FUEL OIL
a marine fuel with a sulphur content of 0.5% or less, designed to meet the IMO 2020 standards for lower emissions. It is used by ships to reduce air pollution and is preferred over High Sulphur Fuel Oil due to its compliance with environmental regulations without the need for additional equipment.

VINTAGE
the year in which the relevant reduction, avoidance or removal of GHG emissions occurred.

VLSFO
acronym for Very Low Sulphur Fuel Oil.

VOLUMETRIC ENERGY DENSITY
potential energy in a given volume of fuel.

VOLUNTARY CARBON MARKETS INTEGRITY INITIATIVE
multi-stakeholder platform established with the view to improving the integrity of the voluntary carbon markets with a focus on establishing standards and guidance on making climate claims and the use of carbon credits. It has published the Claims Code of Practice.

VOLUNTARY CARBON MARKETS
markets that are not formally regulated where carbon credits are purchased primarily for voluntary use rather than to comply with legally binding emissions reduction obligations. It is largely composed of businesses that choose to buy carbon credits to offset their GHG emissions, often due to their own commitments or investor pressure, with goals like reaching net-zero emissions by a certain year.

W

WAFERS
thin slices of semiconductor material, typically silicon, which serve as the substrate for fabricating solar cells.

WAKE EFFECTS
the impact of a wind turbine or wind farm reducing the potential wind energy available to a another wind turbine or wind farm, as a result of the upwind turbine or wind farm extracting energy from the wind (and reducing wind speed) before it reaches the downwind turbine or wind farm.

WALK-UP RATE
the rate paid by uncommitted shippers for transportation on a pipeline.

WASTE FRAMEWORK DIRECTIVE
the E.U. Directive 2008/98/EC passed in 2008 by the European Parliament and European Council relating to the handling of waste in the European Community.

WASTE GAS
a gas containing incompletely oxidised carbon in a gaseous state under standard conditions which is a result of any of the processes listed under process emissions.

WASTE MATERIALS
combustible materials that would otherwise be discarded but can instead be burned, either alone or in combination with fossil fuels, to produce energy.

WATT (W)
the unit of electrical power equal to one ampere under a pressure of one volt or one joule of work performed per second.

WATT-HOUR (WH)
the number of units of electricity used when a one-watt device runs for one hour. Larger amounts are measured in kilowatt-hours (kWh), megawatt-hours (MWh), gigawatt-hours (GWh), and terawatt-hours (TWh), which are simply 1,000; 1,000,000; 1,000,000,000; and 1,000,000,000,000 watt-hours, respectively.

WELL-TO-GATE
a period of measurement for attributes of a product, such as the lifecycle GHG emissions, through the point of production. Within the context of the Section 45V Tax Credit, "well-to-gate" means the aggregate lifecycle GHG emissions related to hydrogen produced at a hydrogen production facility during the taxable year through the point of production, and includes emissions associated with feedstock growth, gathering, extraction, processing, and delivery to a hydrogen production facility. It also includes the emissions associated with the hydrogen production process, inclusive of the electricity used by the hydrogen production facility and any capture and sequestration of carbon dioxide (CO_2) generated by the hydrogen production facility.

WELL-TO-WAKE
the entire process of fuel production, delivery, and use onboard ships, and all emissions produced therein.

WHITE HYDROGEN

hydrogen that is naturally occurring, typically within iron-rich geological formations by oxidation-reduction between the iron and water. Combustion of white hydrogen does not create carbon emissions. Also known as natural hydrogen.

WIND ENERGY

kinetic energy present in wind motion, which can be harnessed for driving pumps, mills, and electric power generators.

WIND TURBINE

electromechanical conversion device that produces electricity from the energy of the wind. A typical wind turbine has three blades which rotate around a central rotor hub, connected to a nacelle containing an electrical generator, placed at the top of a supporting tower.

WIND TURBINE ANEMOMETER AND WIND VANE

part of a wind turbine that measures wind speed and direction, providing data to the controller to optimise the turbine's performance.

WIND TURBINE BLADES

blades that are aerodynamically designed to capture the wind's energy and cause the rotor to spin.

WIND TURBINE BRAKE

a mechanical, electrical, or hydraulic system used to slow or stop the rotor in emergencies or for maintenance.

WIND TURBINE CONTROLLER

a device that manages the operation of the turbine, shutting it down when wind speeds are too high for safe operation or too low to produce electricity efficiently.

WIND TURBINE COOLING SYSTEM
part of a wind turbine that regulates the temperature of the generator and other components within the nacelle.

WIND TURBINE FOUNDATION
the base of a wind turbine, which ensures the wind turbine is stable and capable of standing up to the force of the wind. On land, the foundation anchors the wind turbine to the ground, and offshore wind turbine foundations can include monopile, gravity-based, tripod and jacket foundations (for fixed-bottom wind turbines), and floating foundations.

WIND TURBINE GEARBOX
part of a wind turbine that increases the rotational speed from the rotor to the speed required by the generator to produce electricity.

WIND TURBINE GENERATOR
part of a wind turbine that converts the mechanical energy from the rotor into electrical energy.

WIND TURBINE HUB
the central component to which the blades are attached; it facilitates the rotation of the blades and transfers the rotational energy to the generator.

WIND TURBINE INSTALLATION VESSEL
a specialised ship designed for the installation of offshore wind turbines. Most such ships are Jack-up Vessels.

WIND TURBINE LIGHTNING PROTECTION
part of a wind turbine that ensures safety during thunderstorms by directing lightning strikes towards the ground and away from sensitive components.

WIND TURBINE NACELLE
the large, box-like part of a wind turbine, located at the top of the tower and secured to the rotor. It is the housing for all the generating components of the turbine (including the gearbox, drive train, and generator) and the control and electrical systems necessary for operation. The nacelle is a critical part of the wind turbine as it protects the sensitive machinery from environmental conditions while also supporting the rotor and blades.

WIND TURBINE ROTOR
the part of the wind turbine that captures wind energy and converts it into rotational motion. The rotor is a critical component in determining the efficiency of a wind turbine, as its size and the aerodynamic properties of the blades influence the amount of energy that can be captured from the wind.

WIND TURBINE TOWER
the tall structure that elevates the nacelle and rotor to an optimal height to capture wind energy efficiently.

WIND TURBINE TRANSFORMER
steps up the voltage of the generated electricity for transmission over power lines.

WIND TURBINE YAW MOTOR AND YAW DRIVE
components that are responsible for orienting the nacelle so that the rotor faces into the wind to maximise energy capture.

WORLD ASSOCIATION OF NUCLEAR OPERATORS (WANO)
an international organisation that helps its member organisations to achieve the highest possible standards of nuclear safety. It facilitates the exchange of information and best practices among operators of nuclear power plants globally.

WTIV
acronym for Wind Turbine Installation Vessel.

X

XPLE CABLE

cross-linked polyethylene cable. An emerging electrical cable technology commonly used for power transmission and distribution, which uses extruded polymer as the main insulation.

Y

YELLOW HYDROGEN

hydrogen produced from solar-powered water electrolysis. Yellow hydrogen may also describe electrolysed hydrogen created from a combination of renewable and fossil fuel power.

Z

ZERO EMISSION SHIPPING
shipping operations that do not emit GHG.

ZERO EMISSION VEHICLE
a vehicle that does not emit exhaust GHGs from the onboard source of power. Examples of ZEVs include electric cars, hydrogen fuel cell vehicles, and bicycles.

ZEV
acronym for zero emission vehicle.

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Clifford Chance, Texas Tower, 845 Texas Avenue, Suite 3930, Houston, TX 77002

www.cliffordchance.com

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