



RENEWABLE ENERGY AND GREENHOUSE GAS ACCOUNTING GLOSSARY

This Glossary provides definitions of common terms used when tracking and accounting for renewable energy and greenhouse gas (GHG) emissions associated with electricity, with a focus on *Attributional Accounting*. The entries are fully cross-referenced. Headwords appear in bold face. Words within the definitions which appear in italics are defined terms.

Actively Procured Renewable Energy: *Delivered Renewable Energy* chosen by the consumer.

Includes *Voluntary Renewable Energy* and renewable energy that may be used for compliance with *Generation-based* or *Capacity-based Policies*.

Attributional Accounting (also called an “emission rate approach”): Measuring the fuel type or *Direct Emissions* that can be attributed to the production of electricity generated or consumed over a specified timeframe.

Avoided Emissions: The net change in emissions on the grid from what would have occurred without renewable energy generation or compared to a reference case or baseline scenario. Used in *Consequential Accounting*. The difference between the *Direct Emissions* of the generation likely displaced by renewable energy generation (usually generation from “marginal” generation resources) and the *Direct Emissions* of the renewable energy generation (usually zero). Often estimated using the “non-baseload output emissions rate” for the grid region or subregion where the renewable energy generator is located.¹

Capacity-based Policies: Regulatory requirements or programs that address the amount or percentage of installed renewable energy capacity (e.g. in megawatts [MW]) in a certain geographic area over a certain period of time. Installed capacity can be determined without tracking or compliance instruments (e.g. renewable energy certificates [RECs]). Examples include a capacity-based Renewable Portfolio Standard (RPS) or a capacity-based distributed generation (DG) program.

¹ Consumers may also describe avoided emissions as the difference between their scope 2 emissions with and without contracted carbon-free energy procurements, based on *Attributional Accounting*. In this case, the avoided emissions reflect the company’s management of its own inventory (avoided scope 2 emissions) and not necessarily changes to emissions on the grid (avoided grid emissions), as defined here.

Consequential Accounting (also called “project-based” or “project level” accounting or an “avoided emissions approach”): Measuring the emissions impact (e.g. *Avoided Emissions*) of producing electricity on the grid over a certain timeframe.

Corporate Direct Emissions (includes “scope 1” emissions): The emissions of a company, institution, organization, or consumer that occur from sources that it owns or controls. Calculated using *Attributional Accounting*. Different from *Direct Emissions* as defined here (the direct emissions of electricity generation), which may be a consumer’s *Corporate Indirect Emissions*.

Corporate Indirect Emissions (includes “scope 2 and scope 3” emissions): The emissions of a company, institution, organization, or consumer that are affected by its operations but occur at sources owned or controlled by a different entity. Calculated using *Attributional Accounting*, not equivalent to *Avoided Emissions*.

Delivered Renewable Energy (also called “consumed,” “retail,” or “purchased” renewable energy): The amount or percentage of renewable energy (e.g. in megawatt-hours [MWh]) that is serving; consumed or purchased by; or delivered, sold, or imported to specific retail electricity customers, load, or a specific geographic area over a certain timeframe. Cannot be directly measured at the point of delivery or consumption, or determined based on proximity to generation sources. Measurement requires an instrument or method for allocating, attributing, assigning, and tracking renewable generation attributes to load. In the United States, REC procurement (whether bundled with or unbundled from the energy) and retirement by or behalf of the consumer is required for accurate accounting. A type of *Specified Power*. Calculated using *Attributional* and *Load-based Accounting* for renewable energy.

Direct Emissions: The emissions associated with electricity generation at the point of generation. Equal to zero for wind, solar, and hydropower generation. Positive for biomass and some geothermal generation. Used in *Attributional Accounting*. Different from *Corporate Direct Emissions*, the emissions of a consumer.

Generated Renewable Energy (also called “produced renewable energy”): The amount or percentage of renewable energy (e.g. in MWh) that is produced in a certain geographic area, part of the electricity grid, or by an individual generator over a certain timeframe. Can be directly measured at the generation source. Calculated using *Attributional* and *Source-based Accounting* for renewable energy.

Generation-based Policies (also called “source-based” or “production-based” policies): Regulatory requirements or programs that address *Generated Renewable Energy* or individual generation attributes (e.g. *Direct Emissions*) at the source in a certain geographic area. The point of regulation is the generator. Compliance (e.g. the amount of *Generated Renewable Energy*) can be directly measured at the point of regulation without tracking or compliance instruments (e.g. RECs).

Renewable energy used for compliance is generated by law or regulation; it may be *Actively Procured Renewable Energy* or included in *Standard Delivery Renewable Energy* but is not *Voluntary Renewable Energy*. Examples include cap-and-trade programs covering in-state (or in-region) greenhouse gas emissions and generation-based DG or distributed energy resource (DER) programs.

Load-based Accounting (also called “consumption-based” or “demand-based” accounting): Measuring *Delivered Renewable Energy*, and *Direct Emissions* consumed, delivered, sold to, or serving a specific electric load or retail consumer(s). Requires allocation, attribution, or tracking of generation attributes to load. The point of measurement can be the utility, load-serving entity (LSE), importer, or consumer.

Load-based Policies (also called “consumption-based” or “demand-based” policies): Regulatory requirements or programs that address *Delivered Renewable Energy* or delivery of individual generation attributes (e.g. *Direct Emissions*) to consumers or load. Compliance requires an instrument or method for allocating, attributing, assigning, and tracking generation attributes to load. REC retirement is required for renewable energy used for compliance (*Delivered Renewable Energy*) in the United States. Renewable energy used for compliance is delivered by law or regulation; it is included in *Standard Delivery Renewable Energy* and is not *Voluntary Renewable Energy*. The point of regulation can be the utility, LSE, importer, or consumer. Examples include power source disclosure (PSD), clean energy standards (CES), RPS programs, and clean transportation programs that credit use of renewable energy to charge electric vehicles (e.g. Low Carbon Fuel Standards).

Location-based Scope 2 Emissions: A consumer’s emissions associated with purchased electricity defined as the average *Direct Emissions* intensity (e.g. in metric tons per MWh) of all generation within a geographic area or electricity grid region that includes the consumer multiplied by the consumer’s electricity consumption. The average *Direct Emissions* intensity (also called the “location-based emissions rate”) will be the same for all customers located in an area or region regardless of their supplier or purchases. *Delivered Renewable Energy* equals *Generated Renewable Energy*, and does not recognize *Actively Procured Renewable Energy* or *Voluntary Renewable Energy*. Calculated using *Attributional Accounting*.

Market-based Scope 2 Emissions: A consumer’s emissions associated with purchased electricity defined as the *Direct Emissions* intensity (e.g. in metric tons per MWh) of generators from which the consumer contractually purchases, either directly or through a utility or supplier electricity product (i.e. the supplier’s contractual agreements with specified generators and unspecified power purchases), multiplied by the amount purchased (e.g. in MWh). Reflect delivery and consumption of differentiated electricity (including renewable energy) and associated *Direct Emissions* to different customers based on their supplier, purchases, and contractual instruments (e.g. RECs). Reflect both *Actively Procured Renewable Energy* and *Standard Delivery Renewable Energy*, as well as *Voluntary Renewable Energy* and renewable energy used for compliance.

Source-based Accounting (also called “production-based,” “generation-based,” or “upstream” accounting): Measuring *Generated Renewable Energy*, and *Direct Emissions* generated at the source. The point of measurement or reporting entity is the generator.

Specified Power (also called “specified power purchase”): Electricity derived from and traceable to a specific generator or set of generators using an auditable contract trail or tradable instrument.

Standard Delivery Renewable Energy: *Delivered Renewable Energy* that is not actively procured by consumers. Includes renewable energy used for compliance with *Load-based Policies* as well as other renewable energy that is delivered by default (e.g. to meet supplier goals or because it is cost-effective).

Voluntary Renewable Energy: *Delivered and Actively Procured Renewable Energy* for which none of the generation attributes have been applied or counted toward any compliance obligation (“surplus to regulation”). Not included in *Standard Delivery Renewable Energy*.

RELATIONSHIPS BETWEEN TERMS

Attributional Accounting for Direct Emissions

Load-Based Accounting

for Specified Power, Delivered Renewable Energy, and Market-Based Scope 2 Emissions

Standard Delivery Renewable Energy

Load-Based Policies

Actively Procured Renewable Energy

Voluntary Renewable Energy

Source-Based Accounting

for Generated Renewable Energy, and Location-Based Scope 2 Emissions

Generation-Based Policies

OTHER RELEVANT GLOSSARIES

- [Green-e® Program Glossary](#)
- [U.S. EPA's Green Power Partnership Glossary](#)
- [NERC Glossary](#)