

INSTRUCTIONS AND DEFINITIONS:

Electric Company Carbon Emissions and Electricity Mix Reporting Template for Customers

April 2020

OVERVIEW

This document and companion reporting template (spreadsheet and online data entry tool) contain instructions and guidance to electric companies for providing carbon emissions (CO₂) intensity rates to customers for the purpose of Scope 2 greenhouse gas accounting. Specifically, the reporting document instructs electric companies to make accounting adjustments to the carbon emissions intensity rates of delivered electricity based on renewable energy certificate (RECs) ownership and retirements. The reporting template also includes the energy resource mix for electricity delivered (i.e., owned generation and purchased power) at the operating company level.

The goal of this template is for retail electric companies to provide timely data to customers on the customer's estimated carbon emissions per megawatt-hour consumed and the electric company's current resource mix. Hence, this template provides the option to provide unverified data for 2019 and/or verified data for 2018.

The reporting template (spreadsheet) is organized as follows:

Instructions
Qualitative Narrative
CO₂ Emissions_CY2018 (verified, if available)
Resource Mix_ Utility Average_CY2018
Resource Mix_ Residual_CY2018
CO₂ Emissions_CY2019 (unverified and preliminary)
Resource Mix_ Utility Average_CY2019
Resource Mix_ Residual_CY2019
Definitions

QUALITATIVE NARRATIVE

- Provide qualitative description of carbon emissions and resource mix information (200 words max)

CO₂ EMISSIONS_CY2018 (VERIFIED, IF AVAILABLE)

- Report information at the operating company level.
- Report ownership type (IOU, Cooperative, Municipal).
- Report total electricity delivered by operating company.
- Report residual mix electricity delivered by operating company.

- Report utility specific residual mix emissions rate for delivered electricity (see definition, formula, and examples below).
- Report utility average emissions rate for delivered electricity (see definition and formula below).
- Report if the information provided complies with guidance on emissions accounting as established by protocols from:
 - The Climate Registry's Electric Power Sector Protocol
 - World Resources Institute/World Business Council for Sustainable Development GHG Protocol Scope 2 Guidance
 - If your company takes a different approach from the instructions or uses a different protocol than those listed above, provide details of the methodology used to calculate CO₂ emissions intensity rates in the template's notes section.
- Report if CO₂ emissions data has been verified/certified and identify the standard followed (see examples below). Some standards require that verification is performed by a third-party entity accredited by an independent body (e.g., American National Standards Institute). Due to the time required to complete verification of CO₂ emissions data it is likely that in early 2020 verified data will be available for the 2018 data year, but not yet for 2019.
 - EPA Part 75
 - California Mandatory GHG Reporting Regulations
 - The Climate Registry's General Verification Protocol
 - ISO 14001
- Use the notes section of the template to explicitly disclose whether and how RECs are used in the emissions factor calculation.

Utility Specific Residual Mix Emissions Rate Formula and Instructions

- For many customers, their greenhouse gas accounting calls for “residual mix” carbon emissions rate that can be applied to energy consumption that is not tied to specified products such as a PPA, Green Tariff, or other voluntary renewable products.¹
- Utility Specific Residual Mix Emissions Rate (Definition): The average annual CO₂ emissions rate (in lbs. per MWh) of electricity delivered to customers, including renewable generation for which RECs are retained by the utility and retired in the reporting year, with accounting adjustments made for specified green energy products where another entity (e.g., a customer, a different electric company) owns the renewable attributes.
- Utility Specific Residual Mix Emissions Rate Formula:

$$\frac{\text{Sum of } \left(\text{Delivered Electricity by Gen Source (MWh)} \times \text{Emissions Rate } \left(\frac{\text{lbs CO}_2}{\text{MWh}} \right) - \text{Delivered Electricity of Specified Products (MWh)} \times \text{Emissions Rate } \left(\frac{\text{lbs CO}_2}{\text{MWh}} \right) \right)}{\text{Total Electricity Delivered (MWh)} - \text{Delivered Electricity of Specified Products (MWh)}}$$

- Specified Products:** Electric companies that generate renewable energy and RECs that are fully or partially sold to 3rd parties outside of their system or retired on behalf of customers should make calculations consistent with rules and methodologies that are consistent with their jurisdictions and business practices. These specified products include (but may not be limited to):
 - RECs that are retired on behalf of a specific customer or group of customers. For example, subscribers to a green tariff program that retires RECs on their behalf; community solar gardens; or, other voluntary program that retires RECs for subscribers.²
- Delivered Electricity:** Annual sales to retail customers from owned generation and purchased electricity.
- For market purchases where emissions are unknown or undifferentiated, use applicable regional or national emissions rate, including: ISO/RTO-level emission factors; The Climate Registry emissions factors; or, eGrid emission factors.³
- To avoid double counting, line losses should not be included in the emissions intensity calculations because customers report them as Scope 3 emissions.
- CO₂ emissions from biogenic fuels should be excluded in the calculations.

¹ Sotos (2015), 8.

² In some states, community solar programs do not convey or retire the RECs to subscribers, in which case no adjustment would be made.

³ This guidance is consistent with EEI’s environmental, social, governance (ESG), and sustainability-related reporting template used to provide the financial sector with more uniform and consistent ESG/sustainability data and information.

Utility Specific Residual Mix Emissions Rate Examples

Green Tariff Program (Example 1)

- A utility delivers 100,000 MWh of electricity to its retail customers.
- 80,000 MWh of electricity are generated by conventional resources at 1,500 lbs CO₂/MWh.
- 20,000 MWh are from owned wind resources with an emissions rate of 0 lbs CO₂/MWh.
- Of the 20,000 MWh of wind, 10,000 MWh are used for RPS compliance (i.e., RECs are retired) and 10,000 MWh are used for a green tariff program that retires RECs on behalf of subscribers.

Utility specific residual mix emissions rate is calculated as:

$$\frac{[20,000 - 10,000 \text{ MWh wind} * 0 \text{ lbs/MWh}] + [80,000 \text{ MWh conventional resources} * 1,500 \text{ lbs/MWh}]}{[20,000 \text{ MWh wind} + 80,000 \text{ MWh conventional}] - [10,000 \text{ MWh wind sold through green tariffs}]}$$

Utility specific residual mix emissions rate: 120,000,000 lbs CO₂ / 90,000 MWh = 1,333 lbs CO₂/MWh

Green Tariff Program and Wholesale Market Purchase (Example 2)

- A utility delivers 180,000 MWh of electricity to its retail customers.
- 135,000 MWh of electricity are generated by conventional resources at 1,500 lbs CO₂/MWh.
- 30,000 MWh of electricity are net purchases from the wholesale PJM market and the PJM system average CO₂ emissions rate is 950 lbs/MWh.
- 15,000 MWh are from owned wind resources with an emissions rate of 0 lbs CO₂/MWh, of which 10,000 MWh are used for RPS compliance (i.e., RECs are retired) and 5,000 MWh of wind is used for a green tariff program that retires RECS on behalf of subscribers.

Utility specific residual mix emissions rate is calculated as:

$$\frac{[15,000 - 5,000 \text{ MWh wind} * 0 \text{ lbs/MWh}] + [30,000 \text{ MWh from PJM} * 950 \text{ lbs/MWh}] + [135,000 \text{ MWh conventional resources} * 1,500 \text{ lbs/MWh}]}{[15,000 \text{ MWh wind} + 165,000 \text{ MWh conventional}] - [5,000 \text{ MWh wind sold through green tariffs}]}$$

Utility specific residual mix emissions rate: 231,000,000 lbs CO₂ / 175,000 MWh = 1,320 lbs CO₂/MWh

Renewable Energy PPA with and without RECs (Example 3)

- A utility delivers 200,000 MWh of electricity to its retail customers.
- 190,000 MWh of electricity are generated by conventional resources at 1,100 lbs CO₂/MWh.
- 10,000 MWh are from renewable resources via PPA with an emissions rate of 0 lbs CO₂/MWh.
- Of the 10,000 MWh of renewable resources, 6,000 MWh are from wind resources and 4,000 MWh are from solar resources.
- The utility owns and retires the RECs for the solar energy but does not own (and did not retire) the RECs associated with the wind energy.

Utility specific residual mix emissions rate is calculated as:

$$\frac{[10,000 - 6,000 \text{ MWh wind} * 0 \text{ lbs/MWh}] + [190,000 \text{ MWh conventional generation} * 1,100 \text{ lbs/MWh}]}{[6,000 \text{ MWh wind} + 4,000 \text{ MWh solar} + 190,000 \text{ MWh conventional}] - [6,000 \text{ MWh wind energy w/o RECs}]}$$

Utility specific residual mix emissions rate: 209,000,000 lbs CO₂ / 194,000 MWh = 1,077 lbs CO₂/MWh

Utility Average Emissions Rate Formula

- Utility Average Emissions Rate (Definition): The average CO₂ lbs per MWh of electricity delivered to customers, including all renewable generation and purchases.
- Utility Average Emissions Rate Formula:

$$\frac{\text{Sum of } \left(\text{Delivered Electricity by Source (MWh)} \times \text{Emissions Rate by Generation Source } \left(\frac{\text{lbs CO}_2}{\text{MWh}} \right) \right)}{\text{Total Electricity Delivered (MWh)}}$$

- Delivered Electricity: Annual sales to retail customers from owned generation and purchased electricity.
- For market purchases where emissions are unknown or undifferentiated, use applicable regional or national emissions rate, including: ISO/RTO-level emission factors; The Climate Registry emissions factors; or, eGrid emission factors.⁴
- To avoid double counting, line losses should not be included in the emissions intensity calculations because customers report them as Scope 3 emissions.
- CO₂ emissions from biogenic fuels should be excluded in the emissions intensity calculations.

⁴ This guidance is consistent with EEI's environmental, social, governance (ESG), and sustainability-related reporting template used to provide the financial sector with more uniform and consistent ESG/sustainability data and information.

RESOURCE MIX_UTILITY_AVG_CY2018

- Report the resource mix (in MWh and %) for the following:
 - Delivered electricity as specified in the numerator of the utility average emissions rate formula.

RESOURCE MIX_RESIDUAL_CY2018

- Report the resource mix (in MWh and %) for the following:
 - Delivered electricity as specified in the numerator of the utility specific residual mix emissions rate formula.

CO2 EMISSIONS_CY2019 (UNVERIFIED AND PRELIMINARY)

- Follow instructions for Tab 3.

RESOURCE MIX_UTILITY_AVG_CY2019

- Follow instructions for Tab 4

RESOURCE MIX_RESIDUAL_CY2019

- Follow instructions for Tab 5

DEFINITIONS

Contractual Instruments. Any type of contract between two parties for the sale and purchase of energy bundled with attributes about the energy generation, or for unbundled attribute claims. Markets differ as to what contractual instruments are commonly available or used by companies to purchase energy or claim specific attributes about it, but they can include energy attribute certificates (RECs, GOs, etc.), direct contracts (for both low-carbon, renewable, or fossil fuel generation), supplier-specific emission rates (such as green tariffs and some community solar programs), and other default emission factors representing the untracked or unclaimed energy and emissions (termed the residual mix) if a company does not have other contractual information that meets the Scope 2 Quality Criteria.⁵

Delivered Electricity. Annual sales to retail customers from owned generation and purchased electricity.

Energy Attribute Certificate (EAC). A category of contractual instrument that represents certain information (or attributes) about the energy generated but does not represent the energy itself. This category includes a variety of instruments with different names, including certificates, tags, credits, or generator declarations. For U.S. utilities, EACs used are often RECs.⁶

Owned Generation Mix. The total megawatt-hours (MWhs) and percentage of electricity generated by utility owned assets in a reporting year. Owned generation mix is not adjusted for sales or purchases of electricity.

Renewable Energy Certificate (REC). A REC represents the clean energy attributes of 1 MWh of renewable electricity and conveys the environmental and social attributes of the generated electricity to customers.⁷

Utility Average Emissions Rate. The average CO₂ lbs per MWh of electricity delivered to customers, including all renewable generation and purchases.

⁵ Sotos (2015), 9.

⁶ Ibid

⁷ ACCC Renewables Accelerator (2019).

Utility Specific Residual Mix Emissions Rate. The average annual CO₂ emissions rate (in lbs. per MWh) of electricity delivered to customers, including renewable generation for which RECs are retained by the utility and retired in the reporting year, with accounting adjustments made for specified green energy products where another entity (e.g., a customer, a different electric company) owns the renewable attributes.

Verified: As used here, “verified” means that the data provided has been third-party verified by an independent body, e.g., a Verifier accredited by the American National Standards Institute (ANSI) and approved by the organization publishing GHG protocols to verify GHG assertions against those protocols. “Verified” does not simply mean the electric company is applying a particular GHG accounting protocol. If this is the case, the electric company should indicate in the template which protocol it is following but specify that the reported data has not been third-party verified.

If you have any questions, please contact Adam Cooper acooper@eei.org, 202-508-5551.

REFERENCES

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