

January 18, 2023

U.S. Environmental Protection Agency

Submitted via the Federal eRulemaking Portal: Regulations.gov

Re: Comments on the Environmental Protection Agency's Request for Information on Low Emissions Electricity Programs and Greenhouse Gas Corporate Reporting, Docket ID No. EPA-HQ-OAR-2022-0878

I. Summary

Clean Air Task Force (“CATF”),¹ The NorthBridge Group (“NorthBridge”),² and Green Strategies, Inc.,³ respectfully submit these comments on the U.S. Environmental Protection Agency’s (“EPA”) Request for Information on Low Emissions Electricity Program & GHG Corporate Reporting, published on November 4, 2022, at regulations.gov (“RFI”).

A number of major corporations and the federal government have made ambitious commitments to next generation electricity purchasing goals calling for rising shares of carbon-free electricity (CFE) at all times of day and night and/or for decarbonizing the electric grid more quickly by boosting the carbon impact of their electricity investments. The \$5 million set aside in the Inflation Reduction Act (IRA) for greenhouse gas corporate reporting could be quite timely in enabling EPA to assemble and facilitate access to granular electric system data that will help leaders demonstrate progress towards their electricity purchasing goals in a comparable, transparent manner. We urge that the IRA funds be front-loaded to allow EPA to complete this work on a timely basis.

Our specific recommendations for how the EPA should improve the granularity, accessibility, transparency, and comparability of electric system data are summarized below.

1. The EPA should assemble relevant data in standardized formats that it already possesses or can readily produce (e.g., hourly generation and associated emissions factors, generation emissions rates by resource type, generation profiles by resource type, etc.) given its current data management systems. In instances where the EPA does not have direct access to the data needed to support next generation transactions, the EPA should provide guidance on acceptable standards for data collection and reporting of other necessary data (e.g., tracking of energy attribute certificates needed to determine the residual mix and a CFE baseline) from other market participants, such as balancing authorities, certificate registries, and utilities.
2. The EPA should support the reporting of currently reported eGrid generation and emissions factor data—especially total output, fossil, and non-baseload emissions factors—on an hourly basis for all the geographic boundaries currently covered in the eGrid dataset.
3. As more buyers seek to disclose the actual carbon emissions impact of their actions (and more stakeholders expect to see this information), the EPA should work with the U.S. Energy Information Administration (EIA) and other partners, to create a standardized database to report marginal emissions factors by time and location.
4. As a first step to track CFE claims, the EPA should collect information about energy attribute certificates (EACs) from registries and begin to compile this information in a centralized database.
5. When plant-specific emissions factors or actual hourly generation supply data are not available, EPA should provide guidance to reporting organizations on what emissions rate and/or supply profile would be most appropriate to use by resource type and U.S. location.

¹ Clean Air Task Force is a global nonprofit organization working to safeguard against the worst impacts of climate change by catalyzing the rapid development and deployment of low-carbon energy and other climate-protecting technologies. With 25 years of internationally recognized expertise on climate policy and a commitment to exploring all potential solutions, CATF is a pragmatic, non-ideological advocacy group working to address climate change. CATF has offices in Boston, Washington D.C., and Brussels, with staff working virtually around the world.

² The NorthBridge Group is a leading economic and strategic consulting firm serving the electricity and natural gas sectors, including regulated utilities, competitive generators and energy suppliers, and other companies and organizations active in the energy space. The Firm's clients include some of the largest utilities in the United States, players in the fast-changing competitive markets, climate policy organizations, and very large power users. The foundation of NorthBridge's work is a combination of market insights, policy and regulatory expertise, perspectives on the energy transition, and rigorous analytic and economic skills. NorthBridge is a leader in formulating and evaluating investment and operational strategies to satisfy climate-related goals.

³ Green Strategies is a clean energy and sustainability management consulting firm founded in 2001. Green Strategies has worked with some of the world's largest companies, financial institutions, and leading innovative solution providers to help them align their business strategies with sustainability and decarbonization best practices. Green Strategies has pioneered the concept of “climate capitalism” – the notion that sustained business value creation and competitive advantage are best achieved by incorporating climate considerations and emissions mitigation into business and investment strategies.

6. When actual hourly data or specific utility load profiles are not available, the EPA should provide guidance to reporting organizations on what hourly load profile (preferably from a public source) would be most appropriate to use by customer type and U.S. region.
7. The EPA should offer a standardized template for GHG reporting that will clarify the approach being used by each reporting company to set and measure its Scope 2 commitment and facilitate apples-to-apples comparisons.
8. All companies should be asked to report the emissions associated with their electricity use from purchased power, as contracted and delivered, moving from annual to hourly reporting as these data become available.
9. To better assess the extent to which companies are having carbon reduction impact through CFE procurement, CFE investments from outside the region, and/or out-of-region REC purchases, the EPA should encourage companies to disclose information about the avoided emissions impact of their transactions, potentially offering recommended methodologies.
10. In considering how to implement these recommendations, we ask the EPA to: 1) first, prioritize releasing the data called for in these recommendations that it already possesses or can readily produce given its current data management systems, 2) following that, acquire, process and release the data called for in these recommendations that it can request from its data sources (such as RTOs and balancing authorities) given current regulatory authority, and 3) after that, explore ways to acquire the additional data needed but requires new regulatory authority. The EPA should also consider whether another agency (e.g., EIA) has authority to assemble some of the needed data.

These recommendations are elaborated below.

II. Background

The RFI is one of six requests for information that EPA published on November 4, 2022, that provide background information and seek public comment on core design aspects of multiple programs funded by the IRA. Specifically, the RFI solicits public input on implementation of Section 60107 on “Low Emissions Electricity Programs” and Section 60111 on “Greenhouse Gas Corporate Reporting.” These comments are in response to the questions posed on Section 60111, which provides \$5 million for the EPA to “enhance standardization and transparency of corporate climate action commitments and plans to reduce greenhouse gas emissions, enhance transparency regarding progress toward meeting such commitments and implementing such plans, and make progress toward meeting such commitments and implementing such plans.”

EPA poses four questions to the public regarding its implementation of IRA Section 60111:

1. What are the areas where the EPA could provide the most value to corporate target setting and tracking?
2. What, if any, enhanced standardization around setting corporate climate commitments would be of value?
3. (How can the EPA help transparently track progress towards companies’ stated climate commitments?)
4. How can the EPA help support companies in meeting their commitments and implementing their plans?

The questions posed by the EPA are timely. For more than a decade, large electricity buyers have been a growing force for driving the deployment of clean energy and decarbonizing the electricity sector. A myriad of companies has set voluntary renewable energy and/or emissions reduction goals and many participate in third-party programs that encourage and recognize leadership in clean electricity procurement, such as CDP (formerly the Carbon Disclosure Project), the Science Based Targets initiative, and the EPA’s Green Power Partnership. Almost universally, companies and third-party leadership programs use an established set of rules for calculating and reporting emissions arising indirectly from electricity use (“Scope 2” emissions): *the Greenhouse Gas (GHG) Protocol’s Corporate Standard* and subsequent *Scope 2 Guidance*. The *Protocol’s* framework has guided buyer strategies and transaction options to reduce Scope 2 emissions. Aligning their strategies with the *Protocol* and the requirements of third-party programs, buyers have enabled the deployment of many gigawatts of new wind and solar generation capacity, helping to significantly drive down the costs of these technologies.

Recognizing the successes in stimulating the deployment and lowering the costs of wind and solar resources, and even as several large companies announce meeting 100% purchasing goals, leading buyers and other stakeholders in recent years are exploring ways to go beyond first-generation procurement. Large buyer electricity procurement has evolved over time with more ambitious, complex, and diverse objectives. In contrast to first generation procurement, next generation electricity procurement approaches may involve:

- Adding incremental carbon-free generation in locations and times to maximize CO2 reductions,
- Seeking same-grid carbon-free supply to match load on an hourly basis (sometimes referred to as “24/7”), and/or
- Supporting deployment of new carbon-free generation and balancing technologies (e.g., firm/ dispatchable CFE or long duration energy storage)

Like leading corporate buyers interested in next generation electricity procurement, the Biden administration has established ambitious goals to transition to a carbon pollution-free electricity sector by 2035.⁴ Reaching this goal will require matching 100% of consumption on the grid with CFE supply (including storage discharge) in every hour of the year. Executive Order 14057 (signed Dec. 8, 2021) also establishes a series of other goals, including annual 100% CFE match⁵ and hourly 50% CFE match⁶ goals, emission reductions goals,⁷ and new CFE resource development goals.⁸ The Federal Government, as the largest purchaser of electricity in the country, along with other large buyers of electricity, can lead by example by adopting electricity procurement practices that deploy new clean energy resources, maximize carbon reduction, and incentivize technology development.

But three fundamental problems exist with the incumbent Scope 2 accounting and disclosure rules and practices. First, market-based Scope 2 inventories do not adequately reflect the emissions resulting from buyer electricity consumption. Second, reductions in Scope 2 market-based inventories do not necessarily reflect the actual carbon reduction impact (avoided emissions) on the electric grid associated with a buyer’s actions. Third, the Protocol provides insufficient incentives or support for other next generation transactions that can yield short and longer-term climate benefit.^{9,10}

III. More Accurate and More Relevant Information is Needed for Next Generation Electricity Procurement Target Setting and Tracking

As transformative clean energy procurement practices become more commonplace, and corporate buyers set increasingly ambitious climate and decarbonization goals, the way we quantify and assess the impact of corporate clean energy actions needs to evolve. When pursuing next generation procurement actions that can accelerate decarbonization of the electric grid, the Federal Government and other large buyers of electricity need to be able measure, track, and disclose more accurate and relevant information in a standardized format, including:

- Attributional Accounting:** Modify current Market-Based accounting to produce a more accurate measurement of emissions associated with electricity use (e.g., tied to the timing and location of purchased CFE and load), as well as disclosing the percentage of supply coming from CFE (referred to as a “CFE Score %”); and
- Consequential Accounting:** Encourage reporting, when possible, of a *separate* calculation of the consequential impact (avoided emissions) of interventions associated with buyer CFE procurement and related actions (e.g., investments in storage, load management, transmission, etc.).

IV. What Are the Areas Where the EPA Could Provide the Most Value to Corporate Target Setting and Tracking?

⁴ Executive Order 14057 (E.O. 14057), 86 Fed. Reg. 236, *Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability*, December 8, 2021.

⁵ Annual CFE Match: Each Federal Government agency shall increase its percentage use of carbon pollution-free electricity, so that it constitutes 100 percent of facility electrical energy use on an annual basis by fiscal year 2030. (Sec. 203 of E.O. 14057).

⁶ Hourly CFE Match: Each Federal Government agency shall seek to match use on an hourly basis to achieve 50 percent 24/7 carbon pollution-free electricity by fiscal year 2030. (Sec. 203 of E.O. 14057).

⁷ Reduction in GHG Emissions: The Federal Government shall achieve a 65 percent reduction in Scope 1 and 2 greenhouse gas emissions, as defined by the Federal Greenhouse Gas Accounting and Reporting Guidance, from federal operations by 2030 from 2008 levels. (Sec. 102, iv, of E.O. 14057).

⁸ New CFE Resource Development: The Federal Government expects that compliance with Sec. 203 of E.O. 14057 will catalyze the development of at least 10 GW of new American clean electricity production by 2030. [Fact Sheet: President Biden Signs Executive Order Catalyzing America’s Clean Energy Economy Through Federal Sustainability](#), December 8, 2021. See also [Federal Sustainability Plan](#), December 2021, at 19.

⁹ These shortcomings are discussed in detail in the whitepaper, [Modernizing How Electricity Buyers Account and are Recognized for Decarbonization Impact and Climate Leadership](#), Roger Ballentine, Patrick Falwell, Liana Biasucci and Neil Fisher, Green Strategies and The NorthBridge Group, August 2022.

¹⁰ Criticisms about current reporting and GHG standards are currently under review by WRI and others.

The need to develop a more accurate measurement of emissions associated with an entity's electricity use and to assess the actual emissions reductions associated with an entity's procurement and other actions should be the focus of EPA efforts to provide the most value to corporate target setting and tracking.

Location and Timing Matter in Driving Grid Decarbonization

When rethinking Scope 2 inventory, calculations to better reflect emissions associated with electricity use, timing and location matter. A central reason for the discrepancies between what is reported in Scope 2 inventories and the reality of a buyer's emissions from electricity consumption is that current accounting and disclosure fail to provide information about how the timing and location of transacted supply (and any associated clean energy attributes) relates to a buyer's actual electricity consumption.

In the electricity industry, granular timing and location data is essential for reliability (keeping the lights on), for profitability (hedging price risks), and, as it turns out, also for measuring emissions related to unabated fossil energy consumption and actual carbon emissions reductions. By considering the location and timing of a buyer's contracted supply, it is possible to gain a better picture of the actual emissions associated with electricity use. Significant differences in emissions inventories can occur when more granular time and location factors are used.

Under next generation approaches, whether matching zero-carbon supply with customer consumption or adding incremental zero-carbon supply to displace carbon-emitting generation, more granular timing and location data for emissions factors, generation, granular certificates, consumption, etc. is needed. The use of more granular data would enable a more precise picture of the emissions associated with the supply used to serve a buyer's electricity consumption (for both location-based and market-based emissions inventories) and can help buyers make more informed decisions to prioritize transactions with greater carbon reduction impact.

EPA should use its IRA funding under section 60111 to improve the accuracy and comparability of corporate target setting and tracking, particularly with respect to Scope 2 emissions. Recent studies (e.g., by [Green Strategies/NorthBridge](#) and [Bloomberg](#)), found the GHG Protocol, the current standard for corporate GHG reporting, does not ensure an accurate measure of Scope 2 emissions or impact. By allowing out-of-region energy attribute certificates (EACs) averaged annually to essentially wipe out fossil emissions from contracted and purchased electricity generation, current GHG Protocol Scope 2 market-based reporting rules do not offer a true accounting of emissions associated with corporate electricity use or the emissions impact of carbon-free electricity investments. The current rules allow companies to count emissions attributes from out-of-region RECs--regardless of the time they were generated--in place of emissions from the company's actual hourly demand served by fossil and other energy resources. This could mean that solar energy delivered during daytime hours in the Southwest U.S. is allowed to stand in for fossil energy purchased during evening and nighttime hours on the East Coast. The current rules also do not consider the emissions impact from carbon-free electricity investments.

Companies use different strategies to lower Scope 2 emissions. Some companies have started to report the actual emissions associated with purchased electricity on a more granular basis (e.g., such as hourly), thereby encouraging purchases of deliverable, carbon-free energy sources that can meet demand during all times of day. This includes combinations of firm and intermittent carbon-free resources, and the relevant "helper" technologies such as energy storage, energy efficiency/conservation, and demand response that can better match energy use with the available clean energy resources. Other companies report purchases of EACs or electricity investments from outside their own power grid, seeking either to maximize emissions reductions by making carbon-free electricity investments in a carbon-intensive grid, or minimize costs by investing in the lowest-cost EACs that may have a limited impact on marginal emissions and no effect on consumed electricity within their local grid. Current reporting protocols (e.g., the GHG Protocol) do not distinguish among the approaches used and do not provide a transparent way to compare company progress towards minimizing the emissions associated with electricity use or maximizing the emissions impact of their investments.

A. Overview of Data Requirements and Recommendations to Support Next Generation Transactions

The reporting needed to measure, incentivize, and reward next generation electricity procurement and accelerate decarbonization of the electric grid depends on the use of more granular data that is accurate, standardized, and accessible to reporting organizations. Specifically, the following types of data would be most useful:

- **Generation and Associated Emissions Factors** (average hourly for total output that can be used for more accurate location-based reporting; average hourly fossil or non-baseload that can be used for determining emissions from non-CFE or unspecified grid supply without EACs; marginal emissions factors that can be used for avoided emissions);
- **Energy Attribute Certificates (EACs)** tracked for all types of CFE (annual and hourly EACs that can be used for more accurate reporting of Scope 2 market-based emissions, CFE Score %, and to determine the residual mix¹¹ and/or CFE baseline¹²);
- **Generation Supply Profiles** (hourly by resource type and market area that potentially can be used when actual unit specific data is not available for reporting granular Scope 2 market-based emissions, CFE Score %, and avoided emissions); and
- **Customer Load Profiles** (hourly by customer type and market area that can be used if actual hourly metered data is not available for reporting granular Scope 2 location and market-based emissions, CFE Score %, and avoided emissions).

Many suppliers and buyers currently do not have access to the granular data needed to enable reporting of more accurate and relevant information that can be used to measure, incentivize and reward higher climate impact next generation transactions.

Recommendation #1: EPA should assemble relevant data in standardized formats that it already possesses or can readily produce (e.g., hourly generation and associated emissions factors, generation emissions rates by resource type, generation profiles by resource type, etc.) given its current data management systems. In instances where EPA does not have direct access to the data needed to support next generation transactions, the EPA should provide guidance on acceptable standards for data collection and reporting of other necessary data (e.g., tracking of energy attribute certificates needed to determine the residual mix and a carbon-free-electricity (CFE) baseline) from other market participants, such as balancing authorities, certificate registries, and utilities.

Compiling centralized and standardized data sources with public access and providing guidance on how such granular data should (and should not) be used for GHG reporting at a particular U.S. location and time period (annual, monthly or hourly) would be extremely valuable to buyers' target setting and tracking efforts. The following sections highlight the type of data that would be most helpful.

B. Generation and Associated Emissions Factors

1. Average Emissions Factors

Current Scope 2 accounting attributes grid emissions to each user of electricity on the grid based on the average emission factor of all generators operating on the grid where the electricity is consumed (location-based method) or based on the contractually purchased energy by the buyer (market-based method). The Scope 2 Guidance directs reporting entities to “use the most appropriate, accurate, precise, and highest quality emission factors available for each method.”¹³ This accounting is intended to measure the emissions related to a buyer's electricity use, but too often emissions factors used in these calculations do not accurately reflect the relevant timing, location or the type of emissions factors related to a buyer's electricity use. Unlike electricity supply obligations, EACs are not required to be tied to the timing and location of a buyer's electricity consumption. Also, system average grid emissions factors,

¹¹ Residual mix refers to the average emissions factor associated with untracked and unclaimed sources of electricity. It is used when calculating the emissions from unspecified purchased or acquired electricity where more-accurate information about the resources and emissions associated with electricity use is not available from the user's state, region, or electricity supplier. *Scope 2 Guidance*, at 27.

¹² A CFE baseline could be established based on mandatory/non-discretionary CFE purchases under a utility standard tariff, utility default service, or competitive supply service (i.e., absent any voluntary EAC procurement). The CFE baseline would serve as a “starting point” or benchmark from which buyers could measure their progress to match CFE supply with their load above and beyond what is required.

¹³ *Scope 2 Guidance*, Section 6.5 Choose emission factors for each method, at 45.

whenever applied in either the location-based¹⁴ or market-based methods,¹⁵ generally do not recognize the attribute claims of other buyers.

Scope 2 location-based inventories rely on total output average annual emissions factors from broad geographic regions and reflect the average annual carbon intensity of the regional grids on which energy consumption occurs (using mostly grid-average emission factor data), where all MWh are assigned the average emission factor of the grid to which the consuming asset is connected. In the United States, companies often use the average annual emissions factors reported in EPA's Emission & Generation Resource Integrated Database (eGRID).¹⁶ eGRID is a comprehensive source of data on the environmental characteristics of almost all electric power generated in the United States. The data includes emissions, emission rates, generation, heat input, resource mix, and many other attributes. eGRID is typically used for greenhouse gas registries and inventories, carbon footprints, consumer information disclosure, emission inventories and standards, power market changes, and avoided emission estimates. Data in eGRID are displayed at the plant level and are also aggregated to state, electric generating company, power control area, eGRID subregion, NERC region, and the U.S. total levels.¹⁷

As the Federal Government and other electricity buyers pursue more ambitious climate change goals, EPA should work with EIA to ensure public access to more granular time and location data that is accurate and better reflects the evolving nature of GHG reporting.

Recommendation #2: EPA should support the reporting of currently reported eGrid generation and emissions factor data—especially total output, fossil, and non-baseload emissions factors – on an hourly basis for all the geographic boundaries currently covered in the eGrid dataset.¹⁸

2. Marginal Emissions Factors

Emissions factors also can be used to determine how company actions might affect emissions (both increases and decreases) on the electric grid.¹⁹ In addition to better access and reporting of standardized average emissions factors data, marginal emissions factor data is needed for avoided emissions calculations.

The LME [locational marginal emissions] is a metric that measures the tons of carbon emissions displaced by 1 MWh of clean energy injected to the grid at a specific location and a specific point in time. LMEs are calculated at each power system node in a manner very similar to the Locational Marginal Prices (LMPs) used to set wholesale electricity market prices. LMEs measure emissions by identifying the marginal generators: the generators that would have been producing energy but for the renewable injection to the grid at that location at that moment. If the renewable resource can displace output from a coal plant, the LME would reflect a high carbon impact of the clean energy injection; if the renewable resource is injecting power in an oversaturated region where renewables are already being curtailed, the LME would show a low or zero carbon impact from the clean energy injection. Timing, location, the physics of the power

¹⁴ By design, the location-based method, which relies on average grid emissions factors, does not account for specific company purchases. Applying a single generic emission factor across a multi-state region ignores the very significant policy differences between neighboring states and the ownership/control of zero-emission attributes. For example, customers in one state may have no claim to non-emitting generation in a nearby state even if the location-based emission rate applicable to both reflects that zero-emission power.

¹⁵ In the absence of certificates, the market-based approach directs reporting entities to use the next contractual emission data option (e.g., contracts/PPAs, then supplier or utility-specific emission factors, and then the residual mix on the grid) in the hierarchy, and in the absence of contractual instruments and residual mix information, a company would apply a location-based average emissions factor. The use of the location-based average emissions factor in market-based accounting ignores the EAC rights of other buyers (in both mandatory and voluntary markets) and likely results in double counting.

¹⁶ U.S. Environmental Protection Agency's *Emissions & Generation Resource Integrated Database* (eGRID) is a globally recognized source of emissions data for the electric power generated in the United States. eGRID is based, primarily, on data collected by EPA's Clean Air Markets Division and by the U.S. Energy Information Administration (EIA) on its Forms EIA-860 and EIA-923. Emission data from EPA are integrated with generation data from EIA to produce values like pounds of emissions per megawatt-hour of electricity generation (lb/MWh). (www.epa.gov/egrid).

¹⁷ <https://www3.epa.gov/ttnchie1/conference/ei20/session3/adiem.pdf>.

¹⁸ In the future, this information ideally would also be made available for market areas where the Locational Marginal Prices (LMPs) are established to set wholesale electricity market prices. This would more accurately reflect transmissions constraints and how generation operates within electric grids.

¹⁹ A buyer action can affect grid emissions across one or more timeframes and could have multiple marginal impacts.

grid, and power market economics all affect the carbon abatement value of different clean energy projects.²⁰

Recommendation #3: As more buyers seek to disclose the actual carbon emissions impact of their actions (and more stakeholders expect to see this information), EPA should work with EIA and other partners, to create a standardized database to report marginal emissions factors by time and location.²¹

The mix of generating resources varies across U.S. power markets. Both average emissions rates and the opportunities to displace fossil generation on the margin vary dramatically by time and location. Better granular location and time emissions factor data can inform decisions about where, when, and what type of CFE is most needed to achieve net-zero emissions goals.

C. Energy Attribute Certificates

Increasingly electricity buyers, including the Federal Government, want to track and report using supply from the full range of clean electricity options when pursuing their climate goals.²² When measuring progress toward matching CFE with consumption either on an annual or hourly basis, a key consideration is the treatment of existing CFE²³ and who owns the “rights” to claim and retire the associated EACs. Existing CFE and the associated EACs should not be doubled counted,²⁴ nor should they be ignored. To do that, all CFE should be tracked, even if that CFE is not currently used to satisfy state renewable portfolio standards (RPS).²⁵ Buyers should be allowed to count EACs that they pay for and not count EACs associated with CFE supply that they do not pay for.²⁶

More specifically, the use of grid-supplied CFE is problematic; and, in particular, reliance on eGRID system average emissions factors when reporting Scope 2 market-based emissions inventories or when calculating the CFE Score % can lead to double claiming of CFE attributes. Non-attributional, eGRID data for sub-regions span utility service areas with different CFE requirements and calculating the residual mix is challenging given that a buyer’s claims can be made well after the time of generation and not all types of CFE claims (or CFE generation purchases even if not claimed) are currently tracked or reported in the United States.²⁷ For both restructured and vertically integrated markets, eGRID data does not account for state-level clean energy mandates (or other non-discretionary CFE purchases) that customers are already paying for in these state-level programs (or standard utility tariff rates) via pass-through supply or non-bypassable utility charges. Because eGRID data is disconnected from the attributional accounting framework, using it to establish grid-supplied CFE will result in some buyers getting credit for clean energy they did not buy and other buyers not getting credit for clean energy they bought.

Recommendation #4: As a first step to track CFE claims, the EPA should collect information about EACs from registries and begin to compile this information in a centralized database.²⁸

²⁰ Dr. David Luke Oates, REsurety / Dr. Kathleen Spees, The Brattle Group, [Locational Marginal Emissions A Force Multiplier for the Carbon Impact of Clean Energy Programs](#), at 1.

²¹ PJM started to provide marginal emission data in 2021 to help inform stakeholders and policy makers as to the real-time conditions of the system. <https://www.pjm.com/-/media/etools/data-miner-2/marginal-emissions-primer.ashx>. MISO publishes data for resources on the margin in the real-time market by region (South, Central, North) and by fuel type but does not yet report the marginal emissions factor. Private and non-profit organizations also report marginal emissions data to support impact-based decision making and more accurate accounting of carbon emission reductions.

²² Relying on a diverse portfolio of CFE resources is consistent with the predominant body of analysis on decarbonization of the electricity sector, which indicates that the fastest, most cost-effective, and reliable pathway to grid decarbonization is through a diverse portfolio of carbon-free technologies, including wind and solar, along with firm CFE and advanced storage technologies. Bruce Phillips, Neil Fisher, and Anjie Liu, [Review and Assessment of Literature on Deep Decarbonization in the United States: Importance of System Scale and Technological Diversity](#), The NorthBridge Group, April 2021.

²³ Existing CFE represents about 40% of total U.S. generation.

²⁴ No double counting means that no certificate should be double issued, duplicated during transfer, double registered, double cancelled, or used more than once.

²⁵ State RPS programs vary by state, and it is critical to adopt policies that maintain the integrity of existing mandatory programs while ensuring that there is no “double counting” of EACs and no “double paying” by buyers for clean energy.

²⁶ Agencies should be allowed to include all EACs that are *purchased* and retired by a buyer or by its LSE on its behalf to satisfy both mandatory / non-discretionary and voluntary purchases from either new or existing CFE resources. Safeguards are also needed to ensure that mandatory / non-discretionary purchases of CFE and the associated EACs (even if not claimed or retired) cannot be used to satisfy a buyer’s voluntary claims. Voluntary CFE purchases should be “in addition to” or “on top of” all mandatory or non-discretionary EAC purchases.

²⁷ The residual mix is not available on an hourly basis and often is not available even on an annual basis in many parts of the United States.

²⁸ The EPA should encourage tracking systems and other partners to begin tracking all forms of CFE, not just renewables, if they do not do this currently.

This will become increasingly important as more buyers establish voluntary climate goals to match CFE supply with their annual or hourly consumption and as states increase mandatory clean energy requirements (e.g., RPS or CES). Better tracking of all forms of CFE is necessary to harmonize U.S. compliance and voluntary markets and align the interests of buyers and policymakers to support grid decarbonization regardless of whether it is through mandatory programs or through voluntary EAC purchases. Mandatory and voluntary EAC purchases should complement each other rather than compete. Tracking all forms of CFE is not currently done in most U.S. registry systems but is important when attempting to accurately calculate the residual mix and CFE baseline (absent any voluntary procurement).²⁹

D. Other Areas for Potential EPA Guidance

1. Standard Emissions Factors and Generation Supply Profiles

To more accurately measure emissions associated with electricity use, match CFE supply with hourly consumption, or more accurately calculate avoided emissions associated with adding CFE in a particular time and location. Reporting companies will need to have access to hourly supply data (including a breakout of any CFE resources) related to their utility default service or standard tariff service supply, contracted supply, grid supply, incremental CFE production, etc. Companies may be able to get this information in some instances directly from their Load-Serving Entity (LSE) or contracted resources, but often this supply information is not available on an hourly basis. Therefore, standardized supply profiles by generation resource type and by U.S. location will likely be required to complete granular reporting. Similarly, there may be instances when a reporting organization does not have access to a plant-specific emissions factor for a contracted resource.

Recommendation #5: When plant-specific emissions factors or actual hourly generation supply data are not available, the EPA should provide guidance to reporting organizations on what emissions rate and/or supply profile would be most appropriate to use by resource type and U.S. location.

2. Customer Load Profiles

Hourly (or sub-hourly) consumption data (preferably metered or else estimated) is a prerequisite for hourly matching of carbon-free supply with consumption. Hourly consumption data can also be used to more accurately measure emissions associated with a buyer's electricity use and inform decisions about the carbon impact of a buyer's actions to alter its consumption.³⁰ Hourly consumption metering data, however, does not exist or still is difficult for many buyers to access. This can be especially challenging for organizations in multiple locations and service areas with a mix of monthly, hourly, and 15-minute interval data provided by different service providers in different formats. When hourly consumption data does exist, it should be used for consumption matching (and associated emissions calculations). In the absence of metered hourly consumption data, load profiles could be applied to actual meter reads for a customer or a group of customers.³¹ Utilities and other suppliers use this information to plan how much electricity they will need to supply at any given time.

²⁹ Electricity markets in the United States and Canada are served by a variety of geographically defined tracking systems. These systems were developed primarily to meet the needs of state-level renewable energy programs, and to facilitate electricity supply disclosure information (proof of sources of power) for LSEs in centralized (mostly competitive) electricity markets. They also serve voluntary renewable energy market participants. Most of these systems were developed by governmental or quasi-governmental agencies interested in using the systems for regulatory compliance. North American tracking systems can be either all-generation certificate tracking systems (NEPOOL GIS and PJM-GATS) or systems that track only renewable generation (the rest).

³⁰ As of 2020, U.S. electric utilities had installed 102.9 million advanced metering infrastructure (AMI) systems, often referred to as smart meters. AMI includes meters that measure and record electricity usage at a minimum of hourly intervals, the type of granular data that is needed. AMI installations range from basic hourly interval meters to real-time meters with built-in two-way communication that is capable of recording and transmitting instantaneous data. About 65% of electricity meters across the United States are AMI and AMI metering exists in both regulated and restructured states depending on state and utility policies.

³¹ A load profile represents the chronological sequence of hourly demands for a specified subset of, or for all customers of, an LSE. A load profile typically varies according to customer type (residential, commercial, or industrial), temperature, holidays, weekends, etc.

The local utility should have access to either the hourly metered load data or the methodology used to determine the hourly supply obligation associated with serving retail customers within its service area.³² To match CFE with hourly consumption and to more accurately report emissions associated with electricity use, both customers and their suppliers need to have reliable access to this metered or “deemed” consumption data. This is necessary to enable more detailed CFE matching and emissions disclosures.³³

Recommendation #6: When actual hourly data or specific utility load profiles are not available, the EPA should provide guidance to reporting organizations on what hourly load profile (preferably from a public source) would be most appropriate to use by customer type and U.S. region.

Finally, as data sources and access improve, it is likely that some organizations will continue to use annual data when reporting GHG emissions (and CFE Score %) for the foreseeable future, while other organizations may elect to report emissions (and a CFE Score %) using hourly data. In this case, generation supply and customer load profiles potentially could be used to develop a standardized methodology to convert *annual* reported figures into *estimated hourly* figures so that annual and hourly emissions calculations could be compared more directly.

V. What, If Any, Enhanced Standardization Around Setting Corporate Climate Commitments Would Be of Value?

Recommendation #7: EPA should offer a standardized template for GHG reporting that will clarify the approach being used by each reporting company to set and measure its Scope 2 commitment and facilitate apples-to-apples comparisons.

We recommend that progress be measured around the three types of metrics below. An illustrative Carbon Facts label is shown in Attachment A.

1. *Attributional Accounting:* Modify current Market-Based accounting to produce a more accurate measurement of emissions associated with an organization’s electricity use (e.g., tied to the timing and location of purchased CFE and load), as well as disclosing the percentage of supply coming from CFE (CFE Score percentage);
2. *Consequential Accounting:* Encourage reporting, when possible, of a *separate* calculation of the consequential impact (avoided emissions) of interventions associated with an organization’s CFE procurement and related actions; and
3. *Incremental Resource Development:* Identify an organization’s investments in new CFE resources, especially firm CFE, and/or other actions (e.g., investments in storage, load management, transmission, etc.) used to support reductions in emissions associated with use and avoided emissions in (a) or (b) above.

VI. How Can EPA Help Transparently Track Progress Towards Companies’ Stated Climate Commitments?

With enhanced transparency in Scope 2 reporting (as described above), the EPA can encourage improved commitments (e.g., that relate to a more accurate assessment of emissions resulting from electricity use) and progress towards meeting those commitments.

Recommendation #8: All companies should be asked to report the emissions associated with their electricity use from purchased power, as contracted and delivered, moving from annual to hourly reporting as these data become available.

³² Suppliers in restructured states either have access to customer-specific interval data or rely on utility load profiles applied to meter reads (that typically record monthly consumption) to define a supplier’s supply obligation in each hour. Even if a customer’s meter does not measure its hourly consumption, either the default service provider (in most cases the utility) or a competitive supplier has a market obligation to supply a specific amount of electricity in each hour delivered to a particular market area or customer load zone.

³³ If, for whatever reason, access to hourly load data is not available to a buyer and relying on a load profile is impractical, another option would be for the buyer to match their supply and consumption and calculate emissions inventories on a less granular basis (e.g., monthly).

Enhanced transparency, as recommended, will also provide a place for companies to report progress towards alternative Scope 2 mitigation commitments and strategies.

Recommendation #9: To better assess the extent to which companies are having carbon reduction impact through CFE procurement, CFE investments from outside the region, and/or out-of-region REC/EAC purchases, the EPA should encourage companies to disclose information about the avoided emissions impact of their transactions, potentially offering recommended methodologies.

Absent quantitative estimates, companies could start by disclosing qualitative information on their intended carbon reduction impact. Such disclosure would help distinguish companies that are having relatively limited impact and those achieving higher impact from their actions. Further, this enhanced reporting will provide transparency on what the company's target means from an emissions standpoint and would, over time, encourage updated commitments that would have greater impact on decarbonizing the power grid.

VII. How Can EPA Help Support Companies in Meeting Their Commitments and Implementing Their Plans?


EPA can provide detailed guidance and webinars to explain new reporting methodologies and templates.

Recommendation #10: In considering how to implement these recommendations, we ask the EPA to: 1) first, prioritize releasing the data called for in these recommendations that it already possesses or can readily produce given its current data management systems, 2) following that, acquire, process and release the data called for in these recommendations that it can request from its data sources (such as RTOs and balancing authorities) given current regulatory authority, and 3) after that, explore ways to acquire the additional data needed but requires new regulatory authority. The Agency should also consider whether another agency (e.g., EIA) has authority to assemble some of the needed data.


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Attachment A

Carbon Facts 1.0 (Illustrative)

Reported for Prior Calendar Year

Attributional Information to Better Reflect Emissions from Electricity Use

(tied to timing and location of buyer consumption)

Consequential Information to Measure Decarbonization Impacts from Buyer Actions

(not necessarily tied to timing and location of buyer consumption)

Modified Scope 2 (Annual Match)		Market Boundary	Time Interval
Market-Based Emissions	__ tons	Deliverable to Same Regional Grid / BA	Annual
CFE Score %	_%		
Modified Scope 2 (Month / Hour Match)		Market Boundary	Time Interval
Market-Based Emissions	__ tons	__ Deliverable to Same Regional Grid / BA __ Same LMP Load Zone	__ Month __ Hour
CFE Score %	_%		Increase Accuracy
Percent of Annual Load Matched with CFE Attributes		(Using current RE100 market boundaries)	
(not by regional grid / balancing authority)		_%	
Description of Decarbonization Actions			
Incremental Total CFE (by resource type)		_ MW / _ MWh	
Describe Other Buyer Actions			
Avoided Emissions			
Avoided Emissions [AE] (after interventions)		__ tons	
Carbon Emissions Baseline [CEB]		__ tons	
Emissions Impact Score % [AE/CEB]		_%	

