BACKGROUND REPORT

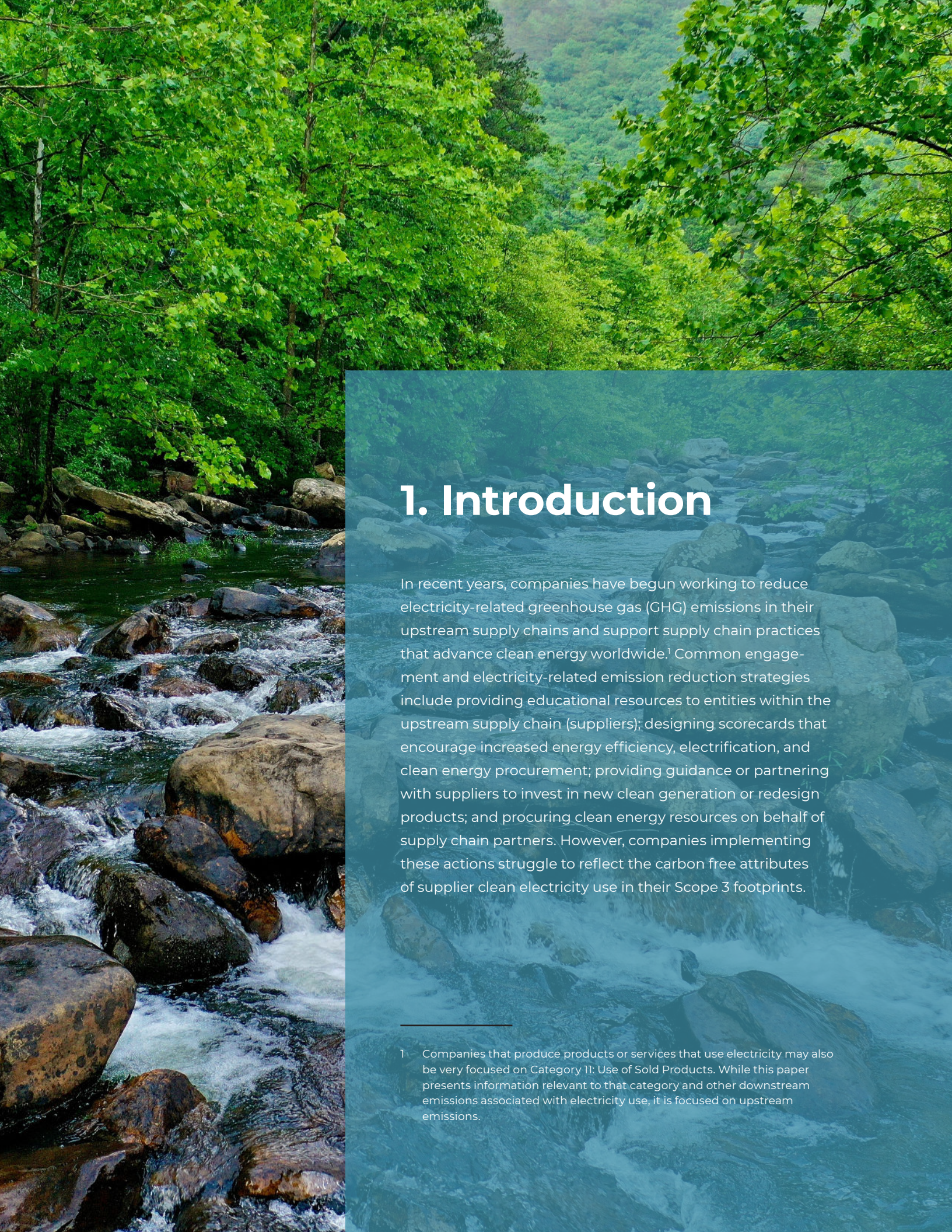
Scope 3 GHG Accounting for Upstream Clean Electricity Use

AUGUST 2023

CEAP | CLEAN ENERGY ACCOUNTING PROJECT

CRS™

Table of Contents



1. Introduction

In recent years, companies have begun working to reduce electricity-related greenhouse gas (GHG) emissions in their upstream supply chains and support supply chain practices that advance clean energy worldwide.[1] Common engagement and electricity-related emission reduction strategies include providing educational resources to entities within the upstream supply chain (suppliers); designing scorecards that encourage increased energy efficiency, electrification, and clean energy procurement; providing guidance or partnering with suppliers to invest in new clean generation or redesign products; and procuring clean energy resources on behalf of supply chain partners. However, companies implementing these actions struggle to reflect the carbon free attributes of supplier clean electricity use in their Scope 3 footprints.

---

1 Companies that produce products or services that use electricity may also be very focused on Category 11: Use of Sold Products. While this paper presents information relevant to that category and other downstream emissions associated with electricity use, it is focused on upstream emissions.

Obstacles to better reflecting emissions associated with clean electricity procurement in the upstream supply chain include access to primary data; a reliance on aggregated emissions reporting that does not directly identify electricity use and associated emissions; a lack of consensus on allocation and reasonable estimation practices when specified information is unavailable; and uncertainty regarding the eligibility of market-based accounting[2] in Scope 3.

This background paper describes challenges with current accounting approaches for Scope 3 reporters seeking to understand and address emissions arising from electricity use in their upstream supply chains. It outlines recent proposals for refinements and identifies areas where additional guidance is needed to better reflect emissions associated with upstream energy use. Its objective is to facilitate open discussion and inform the development of best practice guidance for measuring emissions associated with clean electricity use in the upstream supply chain. Material in this report is intended for standard developers and their stakeholders working to improve value chain emissions accounting. Companies developing Supplier Clean Electricity Programs[3] may also benefit from understanding current emissions accounting options for upstream electricity use and associated challenges.

Taking pragmatic steps to provide additional guidance now is critical to address the lack of Scope 3 emissions disclosure across the board.

For example, CDP found that in 2021 only 20% of companies reporting to their climate change questionnaire disclosed emissions for Scope 3 category 1 "Purchased Goods and Services" emissions at all.[4] Similarly, the Task Force on Climate Related Financial Disclosures found that data access and methodology selection are the most common challenges of disclosure.[5] If Scope 3 reporters are to become a powerful driver of clean electricity supply in their supply chains, they need processes they can follow and actions they can take that are supported and enabled by the data that is available to them in the near term.

---

2 Market-based accounting applies the direct emissions intensity of generators from which the consumer contractually purchases electricity to the amount of electricity a consumer uses.

3 See the Clean Energy Accounting Project's **Guidance for Supplier Clean Electricity Procurement** for more information on Supplier Clean Electricity Program objectives and program metrics related to clean electricity procurement and the impact of suppliers' clean electricity purchases and projects.

4 *Engaging the Chain: Driving Speed and Scale CDP Global Supply Chain Report 2021*, February 2021, Page 3.

5 Task Force on Climate-Related Financial Disclosures, Metrics, Targets, and Transition Plans Consultation, Summary of Responses, October 2021, p. 19–20.

2. Challenges Accounting For Specified Electricity Emissions Within Upstream Scope 3 GHG Accounting Approaches

The GHG Protocol Corporate Value Chain Standard (Scope 3 Standard) defines 15 categories of Scope 3 emissions that companies must evaluate when developing a complete GHG emissions inventory. Many of these categories can include indirect Scope 2 emissions associated with electricity used by value chain partners. Many companies working to increase supplier clean electricity use focus on Category 1: Purchased Goods and Services, and Category 2: Capital Goods.

The GHG Protocol Technical Guidance for Calculating Scope 3 Emissions (Scope 3 Guidance)[6] identifies four methods to calculate emissions in these categories, which it presents in order of specificity as follows:

- Supplier-specific method
- Hybrid method
- Average-data method
- Spend-based method

A combination of these methods may be applied across a company's suppliers to allow for the use of more specific data where it is available. Each of these methods presents different challenges to accurately reflecting the specific attributes of clean electricity procurement.

2.1. SUPPLIER-SPECIFIC METHOD

The supplier-specific method requires that suppliers provide product-level, cradle-to-gate emission factors for the goods and services being purchased. These emission factors are then applied to the amount of goods or services purchased by the reporting company.

When these emission factors are available, it is possible that procured clean electricity is already reflected. However, suppliers have significant discretion in the methodology they use to compile the factor. Areas of uncertainty and inconsistency in these factors can include:

- The supplier's reliance on primary or secondary data;[7]
- The temporal consistency of the emissions factor calculation time interval and the reporting company's Scope 3 inventory;
- How emissions are allocated to purchased products and services;
- The level and type of verification performed;
- Whether and what percentage of clean electricity suppliers are using; and

6 GHG Protocol *Technical Guidance for Calculating Scope 3 Emissions*, 2013.

7 Primary data are activity or emissions data from specific activities within a company's value chain while secondary data use other information to approximate relevant activity data and/or emissions information.

- Whether the emission factor was calculated using a location-based or market-based approach. [8]

Without information in these areas, companies will be challenged to effectively evaluate opportunities to increase supplier clean electricity use through efforts including education, partnership, or direct clean electricity attribute procurement.

The Scope 3 Guidance suggests that companies request a range of supplemental information about the specified product-level cradle-to-gate emission factors used for this method. Companies that are using this method and interested in using clean electricity to reduce Scope 3 emissions should ask suppliers for more information about how procurement of clean energy gets reflected in the product-specific emissions factors.

2.2. HYBRID METHOD

This method relies on primary data to the extent possible and allows the company reporting its Scope 3 inventory to fill in any gaps on suppliers' behalf with secondary data. It utilizes a Tier 1[9] supplier's Scope 1 and Scope 2 data allocated to the operations used to produce purchased goods or services coupled with additional information about the Tier 1 supplier's indirect emissions and other sources. Where suppliers support multiple customers, brands, or products across multiple facilities, allocation of Scope 1 and Scope 2 emissions will be necessary to attribute the correct emitting activities to a reporting company downstream. Where only partial primary data is available from a Tier 1 supplier, the reporting company may rely on default emission factors, extrapolation, and sampling techniques.[10]

Hybrid Method Illustration

8 A location-based emission factor represents the average direct emissions intensity of all generation within a geographic area or electricity grid region that includes the consumer. Alternately, a market-based emission factor represents the direct emissions intensity of generators from which a consumer contractually purchases, either directly or through a utility or supplier electricity product.

9 Tier 1 suppliers are companies with which the reporting company has a purchase order for goods or services (e.g., materials, parts, components, etc.).

10 Appendix A of the Scope 3 Guidance contains detailed guidance on sampling techniques that could be applied to like activities within a Scope 3 category.

Where this method is used, it may be easier to understand if clean electricity is used by the Tier 1 supplier and the emissions impact of that activity in both the Tier 1 supplier's Scope 2 emissions and the purchasing company's Scope 3 emissions (see illustration, p 6). It may therefore facilitate increased use of clean electricity procurement by or on behalf of Tier 1 suppliers. However, this method can require significant allocation that is dependent on additional site-specific information and may provide very little specified information about other product-related emissions.[11] Tier 1 suppliers can provide emission factors specific to their own suppliers to increase specificity for the downstream purchasing company, however, it is more common to rely on default emission factors that allow for the exclusion of the Tier 1 suppliers disclosed emissions.

2.3. AVERAGE-DATA METHOD

The Average-Data method uses the number and type of goods or services purchased each year coupled with default cradle-to-gate emission factors for those goods or services. Default emission factors can be either disaggregated or aggregated.[12]

This method provides no specified information about upstream suppliers' electricity use or related emissions and does not offer a pathway to better reflect emissions associated with increased clean electricity procurement. Barring the development of new accounting methods to derive the amount of electricity used by upstream suppliers, purchasers relying on this approach to calculate Scope 3 emissions may need to begin engaging upstream suppliers more directly and shift data collection practices towards ones that would support the hybrid or supplier-specific methods.

2.4. SPEND-BASED METHOD

This method uses the economic value of purchased goods and services and default, cradle-to-gate emission factors of goods and services per unit of economic value. Environmentally-extended input output (EEIO) models, which typically allocate national GHG emissions to groups of finished products, provide these emission factors.

As with the average-data method, this method provides no specificity into upstream suppliers' electricity use and so no opportunity to affect Scope 3 emissions using clean electricity procurement by or on behalf of suppliers. EEIO models also present additional conceptual challenges as they assume that all product types in a category have the same economic value. This will result in more expensive products being assigned higher emissions within the inventory. This characteristic makes it particularly difficult to demonstrate the results of any emission reduction efforts that command a price premium within a single product category.

---

11 These include the allocated emissions of suppliers that are further upstream as well as the delivery of the product to the purchaser, emissions associated with processing waste generated in the production of the product or service, and other applicable sources.

12 Aggregated emission factors combine emissions from different activities at different lifecycle stages together into a single factor. Disaggregated factors provided more transparency into different lifecycle stages and may better facilitate the incorporation of primary data.

3. Electricity-Related Data Limitations and Considerations

Credible demonstration of clean electricity procurement and use requires information about the amount, location, and timing of both electricity use and clean electricity generation. The availability and quality of such data can depend on a number of factors including the markets and geographic regions where suppliers are located, confidentiality and competition concerns, the availability of sector-specific emissions calculation approaches and standardized product category rules for product footprint calculations, the existence of standardized data requests from multiple customers, efficient and supplier-friendly data collection procedures including the use of dedicated customer-led platforms, a lack of infrastructure that facilitates data interoperability between platforms, and data validation practices.

Better reflecting clean electricity procurement in Scope 3 will require both refinement of existing Scope 3 accounting methods and additional consensus guidance to address circumstances where site-specific data are not available. Below we provide an overview of the types of data used to calculate Scope 3 emissions and unique considerations associated with each when accounting for clean electricity use in the supply chain.

3.1. PRIMARY DATA

Primary data is site-specific information provided by a supplier to the reporting company. It can include the amount of electricity used, emissions totals or the emissions rate associated with supplied goods or services, other activity data, and contextual information. If available information does not conform to the needs of the reporting company, additional site-specific supplemental data may need to be requested. For example, when suppliers cannot provide allocated energy use information to purchasers, supplemental information about the square footage of the relevant facility or the purchaser's proportion of supplier production may be needed. Both the supplier-specific and hybrid methods identified above require some amount of primary data. The acquisition of primary data requires engagement with a supplier, either directly or through a third party such as a database that suppliers report into to share information with multiple value chain partners.[13] More than half of the companies and service providers consulted in the development of this report indicated that they either did not account for information related to supplier clean electicity use and associated emissions, were unaware if that information was provided by suppliers, or were aware that only a few suppliers did.[14]

13 CDP's Supply Chain program is one example of a third-part tool that can be utilized to engage and collect data from suppliers.

14 CEAP conducted a public survey in November and December of 2022 focused on current practices, options, and challenges when accounting for supplier clean electricity procurement in Scope 3. The results of the survey have been incorporated into this guidance.

Companies interested in understanding and increasing the clean electricity present in the upstream supply chain (to affect the gross accounting of Scope 3 emissions),[15] may need data about the MWh of electricity used by suppliers to produce the purchased good or service, the time period and the location (market) where electricity use occurs, the emissions intensity of the electricity being used by suppliers, and the accounting approach used to calculate emissions associated with supplier electricity use (e.g. location-based[16] or market-based method[17]). Ideally these would be primary data to better align with the Scope 2 data quality criteria.[18] Detailed primary data about a specific emissions activity, like electricity use, tends to be most frequently available from a purchaser's Tier 1 suppliers.

As noted earlier, even within Tier 1 suppliers there can be variation in the amount and quality of primary data available due to policies and practices in different regions and varying degrees of expertise and capacity. It will be important for companies to continue to improve the availability of supplier specific data. This primary data minimizes the need for the broad assumptions inherent in utilizing secondary data and increases the ability to identify and implement more targeted and more impactful supply chain interventions.

3.2. SECONDARY DATA

Data that reflects operations that are not specific to a company's suppliers are considered secondary data.[19] Proxy data, where primary data from one supplier is used as a proxy for other activities within the supply chain, is also considered secondary data. Although the Scope 3 Guidance assumes the use of cradle-to-gate and product life cycle assessment (LCA) emission factors, secondary data can also reflect less aggregated portions of the value chain. Companies are encouraged to use the most complete and reliable secondary data sources that best align with the circumstances of the company's supply chain activities.[20] When using a mix of primary and secondary data, or multiple sources of secondary data, companies must work toward a comprehensive account of emissions while minimizing the risk for double counting due to different data boundary conditions. Secondary data is used to at least some degree in the hybrid, average, and spend-based methods defined above.

---

15 U.S. EPA's *Renewable Electricity Procurement on Behalf of Others: A Corporate Reporting Guide* defines guiding principles associated with applying renewable electricity to GHG emissions, specifically in cases where a reporting organization has purchased renewable electricity to be applied to its value chain partners.

16 The Location-based method defines emissions from purchased electricity 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.

17 The Market-based method defines emissions from purchased electricity 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.

18 Scope 2 quality criteria were established in the GHG Protocol Scope 2 Guidance. All contractual instruments must meet these policy-neutral criteria which represent the minimum features necessary for instruments to function together as a complete market-based emission allocation system for consumers.

19 The GHG Protocol Corporate Value Chain Accounting and Reporting Standard defines secondary data as "data that is not from specific activities within a company's value chain." It can include "industry-average data (e.g., from published databases, government statistics, literature studies, and industry associations), financial data, proxy data, and other generic data."

20 Additional guidance on secondary data selection can be found in section 7.3 of the Scope 3 Standard and a list of recognized sources are available at: www.ghgprotocol.org/Third-Party-Databases.

Because secondary data by definition does not represent the specific activities in a supply chain, its quality and appropriateness must be evaluated in terms of technological representativeness, temporal representativeness, geographical representativeness, completeness, and reliability.[21] Therefore, if reasonable[22] assumptions about the amount of supplier electricity consumed, the time period in which consumption occurred, and the market(s) where electricity use is occurring[23] are used by companies to procure clean electricity on behalf of suppliers that aligns with these conditions, resulting emissions may represent sufficiently credible secondary data for the purpose of quantifying Scope 3 emissions.

Determination of data credibility is often left to a reporting company's internal quality assurance and quality control procedures, although external assurance, verification, and certification can help improve data quality and are becoming more common. A Scope 3 data quality description is required to be disclosed by the Scope 3 Standard to help users understand how to best use the inventory.

Process-based secondary data, which are built from the ground up based on the specific activities that are needed to complete a process or produce a product, may offer more opportunities for companies seeking to incorporate primary clean energy-related data into their accounting than EEIO models, which allocate average sector-wide emissions to sector outputs based on financial value.

Currently, reporting companies rely significantly on industry average electricity use and other generic default secondary emission factors which combine many factors into a single bundled number. While such numbers make it easier to report Scope 3 emissions, there isn't currently an accepted way to derive the amount of electricity used by upstream suppliers,. The inability to disaggregate information into specific activities hampers initiatives to increase clean electricity use in the supply chain. This is an area where the development of consistent consensus guidance will be critical.

3.3. ALLOCATION

Data frequely needs to be allocated to supply chain partners for a variety of reasons. Two common ones are when a single operation produces multiple outputs, or when data is only available at a less granular scale than is needed. Allocation can be done by the supplier providing primary data, by the purchasing company based on some amount of primary data and supplemental information, or by both parties to achieve different levels of granularity.[24] Inconsistencies can be introduced in any system when different allocation methods are used for different outputs. While a purchaser may strive to use a consistent allocation approach across its portfolio, if other

21 WRI/WBCSD GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard, 2013. Page 76. Available at https://ghgprotocol.org/corporate-value-chain-scope-3-standard.

22 Assumptions and resulting data are reasonable if they are sufficiently accurate to enable intended users to make decisions with reasonable confidence that the reported information is credible.

23 These estimates may be across facilities, at the facility level or they may represent activities within a single facility for a particular brand or client. It may alternately be necessary to collect this information at a higher level and then allocate activity data to specific customers and/or products.

24 Chapter 8 of the GHG Protocol Scope 3 Standard provides additional guidance on emissions allocation. Available at https://ghgprotocol.org/corporate-value-chain-scope-3-standard.

purchasers or the supplier itself allocates that same information a different way, double counting or undercounting may occur. It is also important to protect against cherry picking emissions or allocating the same emissions attributes to multiple purchasers. Third-party verification may be a way to protect against this.[25] Generally, allocation is necessary when dealing with primary data, but allocation methods can also be relevant for some secondary data, including any proxy data obtained from other value chain partners.

When accounting for supplier clean electricity use, the types of data that may require allocation include the amount of electricity consumed to produce the purchased products or services, attributes of electricity procured by the supplier, and any energy attribute certificates procured by the reporting company on behalf of its supply chain.[26]

3.4. ILLUSTRATIVE UPSTREAM SCOPE 3 SCENARIOS

Below are some potential scenarios and the related data considerations that reporting companies face when working to expand and account for clean electricity in the upstream supply chain. This list is a small sample of the variety of reporting circumstances and challenges facing reporting companies working to address Scope 3 emissions by supporting a transition to clean electricity. It is included here to better highlight what new solutions and guidance may be needed.

Scenario 1: Reporting company engages directly with Tier 1 supplier(s) who procure 100% clean electricity

Direct engagement with suppliers who are actively procuring clean electricity for all operations should help facilitate supplier disclosure of high-quality primary data either in units of MWh accompanied by market-based emissions rates[27] or an electricity-specific emission total or emissions rate relevant to a defined unit of production. In this case, electricity emissions data may not need to be allocated because all operations are using clean generation. While emissions associated with electricity use in this scenario should be reflected in aggregated corporate or product emissions footprint data, reporting companies interested in specifically tracking progress towards clean energy use targets in their upstream supply chain will need to understand which changes are attributable to electricity use and which emission factors have been used to calculate electricity emissions.[28]

Despite having access to such high-quality data for Tier 1 suppliers, the reporting company will have to define a strategy to account for emissions

25 CDP's 2021 Climate Change Supply Chain Questionnaire includes a question on whether the allocation of data provided to customers has been third-party verified. Questionnaires can be accessed at **www.cdp.net**.

26 U.S. EPA's ***Renewable Electricity Procurement on Behalf of Others: A Corporate Reporting Guide*** identifies three general reporter-procured REC allocation approaches based on the number of purchases required and how RECs are retired as well as guidance on when to use each.

27 See Table 1, p.12 of the Clean Energy Accounting Project's ***Guidance for Supplier Clean Electricity Procurement*** for a simplified hierarchy of market-based emission factors.

28 Market-based emission factors can support electricity use claims in markets with contractual transactions. If location-based emission factors are provided in these markets, reported information will reflect the average generation on the Tier 1 supplier's grid. Use claims based on location-based emission factors can double count procured generation. Reporting companies should disclose if their upstream clean electricity use estimates are based on data that may be double counted.

associated with electricity use higher in the supply chain. Information may be collected from the Tier 1 supplier relevant to upstream emissions and electricity use, or various secondary data resources could be utilized. If available, secondary data that is sufficiently disaggregated to exclude primary data collected from Tier 1 suppliers should be prioritized to avoid potentials for double counting or overclaiming supplier clean electricity use.

Scenario 2: Tier 1 supplier receives 10% standard delivery clean energy and additional clean energy is procured equivalent to the remaining 15% of the reporting company's indirect electricity load.

Manufacturers and services providers that respond to supplier codes of conduct or requirements to procure a certain percentage of renewable energy often find themselves in this situation. While some data challenges for the Tier 1 supplier in question are mitigated through direct engagement with the reporting company, additional questions arise around how to quantify standard delivery clean energy in the market where operations occur and how to exclusively allocate actively procured clean energy to the reporting company.

Standard delivery clean energy may be credibly reported by the Tier 1 supplier as consumed clean energy when clean energy attributes are retained or retired on behalf of a group that includes the Tier 1 supplier, and other requirements for credible electricity usage claims consistent with the GHG Protocol Scope 2 Guidance are met. If the Tier 1 supplier operates in a market where attributes are transacted contractually, reporting companies should seek assurance that any clean electricity claimed through standard delivery cannot be double counted by other end users. Because standard delivery clean energy is delivered to all members of the relevant group equally, all activities at the Tier 1 suppliers' facility should reflect the 10% clean energy use equally.

However, steps must be taken to ensure the additional actively procured clean electricity is allocated to the portion of the Tier 1 supplier's load that is serving the reporting company[29]. Often clean electricity procurement is applied evenly across total electricity use at a facility. If this approach is taken, there may still be a need to allocate electricity use (MWh) to the reporting company because electricity use is rarely metered at a customer or product line level. Frequently this allocation is applied using reporting company spend, which assumes that higher priced products and services are more energy intensive. Some industries have begun working to define sector-specific electricity use allocation methods to better reflect operations in their sectors.[30] Finally, if actively procured clean electricity is applied exclusively to the reporting company, documentation of exclusive right to claim the indirect electricity use in the reporting company's supply chain should be sought from the Tier 1 supplier to avoid multiple customers claiming the same clean electricity for the same stage in the supply chain.

Scenario 3: Reporting company estimates electricity consumption of upstream suppliers in known locations.

29 This analysis may also be conducted for a particular brand or product when a Tier 1 supplier supports multiple products from a single reporting company.

30 For example, in apparel, both brands and suppliers have recommended allocation based on a "standard minute" of factory production.

Reporting companies with limited supplier engagement that are working to wholistically reflect emissions will typically reply on average or spend-based calculation methods. Where default emission factors provide some degree of disaggregation it may be possible to use known information about the supply chain, such as where operations are likely located and the electricity generation mix in that region, to incorporate more customized estimates of emissions relevant to electricity use in the supply chain, but this continues to be the exception to the norm.

Awareness of likely upstream supplier locations can also help reporting companies target clean electricity growth in these markets. Companies can make positive changes in upstream supply chains indirectly in this manner through actions such as investments in new local clean electricity projects and local clean electricity market development or policy engagement while they concurrently work to improve the accuracy of their data and as technological solutions to make primary data more available evolve. Metrics used to communicate the impact of indirect supply chain investments won't be reflected in Scope 3 totals in the short term, but provided impact claims are transparent and credible, they can be disclosed alongside reported emissions and tracked as part of a reporting company's supply chain clean energy program.

4. Potential Refinements to Upstream Scope 3 GHG Accounting Approaches for Clean Electricity

While the framework underlying the Scope 3 Standard is sound, the existing reliance on average and spend-based methods[31] and the ongoing lack of available primary data and disaggregated representative secondary data in the supply chain often makes it difficult to reflect efforts to reduce upstream electricity-related emissions through clean electricity procurement. More standardized guidance on how to combine primary and secondary data is needed to target, implement, and track emissions reductions in this area. The potential for additional guidance is supported by the GHG Protocol's Calculation Guidance on the hybrid method for Scope 3 Category 1: Purchased Goods and Services, which states that if a supplier cannot provide complete data on allocated Scope 1 and 2 emissions, mass or volume of material inputs and fuels, and distance of raw materials to the supplier (or if it is not within the reporting company's business goals to collect this data), the reporting company may combine the available supplier-specific data with secondary data for the other activities.[32]

One of the core questions that needs to be addressed in order to provide additional standardized guidance is how to disaggregate or adjust secondary data to reflect the specified primary data that is available to reporting companies. Substituting portions of secondary data with more site-specific information (data substitution) is a natural extension of the standard's attributional framework that could be expanded to ensure consistent application of assumptions where data is not available. An alternative avoided emissions-based approach has also been suggested despite its reliance on a separate consequential accounting scheme that is not currently supported within Scope 3. At a minimum, a series of best practices could be provided for all organizations working to increase clean electricity in the supply chain. Additional information on each potential refinement is provided below.

4.1. DATA-SUBSTITUTION APPROACH

Substituting elements of secondary data with specified primary data is already an accepted approach to improving the specificity of a Scope 3 inventory when secondary data is sufficiently disaggregated to exclude estimated emissions within a defined boundary. However, when

31 CEAP conducted a public survey in November and December of 2022 focused on current practices, options, and challenges when accounting for supplier clean electricity procurement in Scope 3. The results of the survey have been incorporated into this guidance.

32 Scope 3 Calculation Guidance, pages 25 and 29.

secondary data is not sufficiently disaggregated, it is not clear how reporters should utilize partial primary data related to supply chain electricity consumption and procurement. Supplemental information provided about secondary data sets could potentially be used to estimate electricity consumption characteristics built into the data set, in order to substitute that information with primary data with the same boundary. The Gold Standard has put forward a similar approach in its Value Chain (Scope 3) Interventions – Greenhouse Gas Accounting and Reporting Guidance, which estimates the emissions of a facility or process prior to the implementation of the activity to reduce emissions (also commonly called an "intervention") and substitutes that number for the emissions estimate for the facility or process post-implementation.[33] A number of key questions would have to be addressed to facilitate either approach for electricity consumption and a hierarchy of data and approaches may be necessary to enable broad use of such guidance.

4.2. AVOIDED-EMISSIONS APPROACH

Avoided emissions calculations have been proposed as another secondary data adjustment method to better reflect the consequence of actions to reduce indirect emissions within Scope 3. Although avoided emissions calculations are inconsistent with the objective of an attributional emissions inventory, which reflects total emissions attributed to the organization or product for which the inventory is being conducted, the default information needed to estimate avoided emissions may be more available and credible than the best available secondary attributional data. An avoided emissions approach may also better support investments in clean electricity in the supply chain because it reduces the burden on primary data collection, especially upstream of Tier 1 suppliers where reporting companies likely have minimal relationships and influence. In this approach, default secondary attributional data would continue to be used to estimate emissions. The avoided emissions associated with implemented activities would be estimated and then netted against the attributional emissions estimate.

In order for this approach to compare to allocated emissions, the avoided emissions estimate would need to approximate the emissions associated with electricity use in the default secondary emissions factor. Typically, calculations for avoided emissions from clean electricity procurement assign emissions from the generation likely displaced by the procured clean electricity generation using a marginal grid emissions rate. Generation resources operating on the margin are often higher emitting, so relying on such a factor could result in reported upstream Scope 3 emissions appearing lower that they should. This nuance demonstrates the need for the definition of transparent, credible, and consistent methodologies and data criteria.

It is worth noting, that estimates of avoided emissions are accepted disclosures outside of the scopes to inform decision-making and provide additional context around that actions that companies are taking to manage emissions. However, outside of offsets, which require comprehensive additionality testing that can be difficult for clean electricity projects to achieve, there is no mechanism endorsed by the GHG Protocol to net avoided emissions from gross emissions in the scopes.

33 The Gold Standard's *Value Chain (Scope 3) Interventions - Greenhouse Gas Accounting and Reporting Guidance*, pp 34-38.

4.3. BEST PRACTICES

A straightforward refinement that could help to expand actions to increase clean energy would be the establishment of best practices when accounting for clean electricity in the supply chain. Such a framework could include activities related to supplier engagement, electricity procurement, activity data estimation, emissions accounting, verification, disclosures, and credible claims. These best practices could include:

- Work directly with suppliers wherever possible.
- Procure or work with suppliers to procure clean electricity in the same market and relative time frame.
- Get the best available activity and emission data possible.
- Apply allocation approaches consistently.
- Use a reasonable methodology for estimating the amount, timing, and location of electricity consumption.
- Be conservative when estimating.
- Transparently disclose methodologies, procurement, and allocation.
- Define all electricity use and emissions claims as based on employed quantification assumptions.

5. Needs for Additional Accounting Guidance

While pilots and proposals for how to account for clean electricity in the supply chain are growing, the nature of complex supply chains emphasize the need for consistent standardized guidance. Alongside advancements in primary data disclosure, a larger compilation of more consensus-based guidance needs to be developed to enable credible clean electricity use claims in the supply chain and support expanded investments into the expansion of clean energy resources. Specific needs include:

- Definition of accepted ways to customize an aggregated LCA with site-specific data.
- Methodology for how to derive estimated electricity use from primary activity data and estimated emissions data using secondary sources including aggregated LCAs and EEIO factors.
- Guidance on how to define and disclose reasonable assumptions about the amount of supplier electricity consumed, the time period in which consumption occurred and the market(s) where electricity use is occurring.
- Procedure for purchasing/retiring, calculating, disclosing and naming clean electricity purchased by a reporting company on behalf of suppliers for whom there is only secondary data.
- Additional credible approaches to establishing links between supply chain electricity use and individual downstream value chain partners.
- Procedure for aggregating active clean electricity procurement with clean energy delivered in standard products.
- New, potentially sector-specific allocation methods for both electricity use (MWh) and associated emissions to individual customers, brands and/or products.
- Credible options for suppliers in markets where specified clean electricity procurement is not possible.

6. Conclusion

Although leading companies are implementing programs to help transition their supply chains to cleaner sources of electricity, opportunities to reflect the outcomes of these actions in Scope 3 are currently limited. Core obstacles include inadequate access to primary data, a lack of guidance on appropriate uses of estimated data and endorsed practices for combining primary and secondary data sources, inconsistent and undefined allocation principles for different sectors, customers, brands and products, and general uncertainty about future GHG accounting standard requirements for electricity.

As GHG accounting standards undergo revisions, more specified guidance can help resolve outstanding questions regarding secondary data and allocation methods for both activity and emissions data. Expansion of primary data disclosure through continued supplier engagement and technological developments that can streamline data collection and distribution will also support increased accuracy in Scope 3.

While it is critical that we improve the ability to reflect clean energy transitions over time across a company's value chain to document the emissions companies are indirectly responsible for and enable the expansion of activities that mitigate supply chain emissions, corporate engagement in the transition to clean electricity beyond their own operations should go forward concurrently. Improved ability to measure emissions within a footprint will make it easier to invest in the clean energy transition, but it is not a prerequisite for action. In the interim, customized metrics established as part of a supplier clean electricity program[34] can be tracked and disclosed to demonstrate action and the achievement of clean energy targets.

34 Please see the Clean Energy Accounting Project's ***Guidance for Supplier Clean Electricity Procurement*** for more information on these programs.

Acknowledgments

CRS would like to thank the CEAP Advisory Committee for its support. Without it, CEAP's work and this publication would not be possible.

- 3Degrees
- Apple*
- CDP
- Clean Energy Buyers Institute
- Clean Energy States Alliance
- Constellation
- Entergy*
- Google
- Insight Sourcing Group
- Meta*
- Priority Power
- Target
- U.S. EPA's Green Power Partnership
- University of California Office of the President

CRS would also like to thank the Guidance for Supplier Clean Electricity Procurement initiative working group. Their expertise and perspectives were critical to the initiative's objectives and outcomes.

- Julie Casabianca, 3Degrees
- Alexandra Coulombe, ACT Commodities
- Orrin Cook, Apala Group
- Merisha Enoe, Apple
- Laura Hohmann, CDP
- Doug Miller, Clean Energy Buyers Institute
- Sam Brundrett, Etsy
- Mike Della Penna, Google
- Mike Muoio, Insight Sourcing Group
- Roble Poe Velasco-Rosenheim, The International REC Standard
- Devon Lake, Meta
- Elliott Engelmann, Meta/Anthesis Group
- Frederick Weston, Regulatory Assistance Project
- Emma Borjigin-Wang, Science Based Targets initiative (SBTi)
- Sarah O'Brien, Sustainable Purchasing Leadership Council
- Kris Spriano, Sustainable Purchasing Leadership Council
- Jim Heffron, Transparent Energy
- James Critchfield, U.S. Environmental Protection Agency
- Jean-Ann James, Walmart
- Ryan Meinke, WSP

If you are interested in joining the CEAP Advisory Committee or participating in a future working group, email us at ceap@resource-solutions.org.

**Denotes CEAP Founding Partner*

1012 Torney Ave. 2nd Floor; San Francisco, CA 94109
www.resource-solutions.org | 415-561-2100

v1.0, August 2023