April, 2023
CRS Responses to GHG Protocol Survey: Scope 2

Scope 2 Survey Questions:

CRS is sharing its responses beginning with Question 13:

13. Do you think there is a need to update the GHG Protocol Scope 2 Guidance?
    - No (no update needed)
    - Minor update (limited updates, clarifications, additional guidance, or refresh needed)
    - Major update (major changes or revisions needed)
    - No opinion/Not sure

14. Please explain your selection. You may enter brief comments here or submit a more detailed proposal using the proposal template.

    The Scope 2 Guidance has been an important tool for improving and expanding emissions reporting because it requires the disclosure of indirect emissions from purchased heating and cooling based on the real-world conditions under which electricity is procured and the attributes of generation are delivered to consumers. The market-based accounting method required by the guidance facilitates accurate allocation of indirect emissions associated with specified electricity procurement to all consumers. It also creates opportunities to drive greater demand for clean and renewable generation resources in an environment where the procurement options available to customers vary. Purchasers can develop innovative procurement strategies that select for different kinds of impact, including strategies that encourage the development and proliferation of technologies critical to fully eliminating fossil electricity generation.

    Some areas of the guidance could be clarified to avoid confusion and prevent inaccurate claims. First, the GHG Protocol should expand the discussion of the role of the guidance, what emissions reported in accordance with it represent, and what types of claims users can credibly make about their scope 2 total(s). This would best fit within sections 1.4 and 1.7, or in a new section after 1.7 that speaks to what reported scope 2 data represents as stand-alone information, as a piece of an overall inventory report, and as this information is tracked over time.

    Scope 2 should continue to represent an attributional account of emissions because it is an important perspective on the operations a company is

responsible for, it best reflects the decisions a company makes to address climate within its own operations, and it is the best perspective for evaluating climate risk. Finally, as scope 2 is simply a categorization of emissions within a corporate inventory, it should be consistent with the framework employed in scopes 1 and 3.

While scope 2 should continue to follow an attributional framework, this guidance should provide more information on consequential accounting methods for the activities that consumers can take to influence emissions associated with generation. Best practices for the calculation of induced and avoided emissions would provide more certainty to companies currently working to impactfully address these emissions and provide tools for more companies to better support the type of changes they want to see.

Clarification is also necessary now on the use of market-based scope 2 data in value chain partners' scope 3 inventories. The current Scope 2 Guidance indicates that market-based scope 2 information can be incorporated into scope 3 emissions of value chain partners. However, recent communications from the GHG Protocol that market-based accounting is not permitted in scope 3 creates significant uncertainty and dramatically decreases a driver for companies to engage with their supply chains to transition to clean and renewable energy use. Market-based scope 2 information should be incorporated in value chain partners' scope 3.

The guidance should update terminology to reflect different specified purchases inclusive of renewable, clean or carbon free as well as electricity generated using fossil resources and procurement form storage resources. A supplemental discussion of the different types of environmentally procurement resources including positive and negative impacts related to sustainability, waste, and emissions of other (non-GHG) gasses should also be provided to ensure users understand the impact associated with selecting for particular resource types.

Finally, a suite of general editorial changes is needed to reflect current conditions and market characteristics. This will include updates to outdated key questions, examples, and statistics references throughout the document.

Additional proposed changes to aspects of the scope 2 guidance are included in our responses to Questions 16, 18 and 20.

15. Do you think there is a need for updates related to the scope 2 location-based method?
    a. No (no update needed)
    b. Minor update (limited updates, clarifications, additional guidance, or refresh needed)
    c. Major update (major changes or revisions needed)
    d. No opinion/Not sure

16. Please explain your selection. You may enter brief comments here or submit a more detailed proposal using the proposal template.

The location-based method does not account for market transactions and purchasing decisions made by suppliers and companies. Where it is used for scope 2 reporting, it assumes that emissions produced in a place equals emissions consumed. This is only acceptable as an approximation either in places where electricity generation is not differentiated or transacted on a resource-specific basis or where market-based data is not available. The location-based figure does not represent emissions that are "physically" delivered to customers, or a "physical emissions footprint" for electricity. In markets where electricity generation is differentiated and transacted on a resource-specific basis using contractual instruments, e.g., the US, a location-based figure helps consumers understand the average of what is produced in their region. That is good for transparency and energy management decisions, but no matter how precise, it does not represent the emissions associated with electricity purchased or sold, the legally enforceable allocation of generation and emissions to the consumer, or the emissions that retail customers are responsible for buying/using.

Average emissions from electricity generation in a grid region and other source-based emissions totals are out of the direct control of the consumer, except to the extent that it may move to a different region or build new clean generation to incrementally affect the average. As a result, location-based accounting does not allow consumer choice (or supplier choice or mandate) to be used as a driver of change. It fails to recognize demand-side action and consumer preferences for lower-emitting generation, which is in direct conflict with the purpose of carbon foot printing.

First, CRS recommends removal of dual reporting and that location-based data only be used in areas where electricity is not differentiated and allocated on a resource-specific basis using contractual instruments or if no market-based data is available (as described in our proposal).

Second, we recommend adding more precise location-based data to the hierarchy, above grid average data (see our proposal). This includes better estimations of the emissions associated with the generation physically supporting load or the likely origins of power in an area or at a specific point of consumption, based on the geographic proximity of generation to that location and paths of least resistance for electricity on the grid. Certain companies are working on improving and providing this data. Measuring these emissions can facilitate additional beneficial siting and load management decisions. Reporters should use the most specific location-based data available to them, however, better approximations of the generation physically supporting customer load (i.e., improved location-based totals) are once again not equivalent to purchased or consumed generation where use and consumption of specified power are determined contractually. They do not account for the legal systems and instruments that determine delivery and use in certain markets, including the

US. Therefore, these improved location-based totals should be used for scope 2 calculations only where no market data is available.

Location-based data can be annual or more temporally precise, e.g., hourly. Information about hourly location-based data sources should be added to the Scope 2 Guidance. Measuring grid average emissions on an hourly basis can facilitate load management decisions to create grid and emissions benefits, such as load-switching from times with a high average emissions rate to time with a low average emissions rate, or EV charging at times with a low grid average.

17. Do you think there is a need for updates related to the scope 2 market-based method?

    - No (no update needed)
    - Minor update (clarifications or additional guidance needed)
    - Major update (major changes or revisions needed)
    - No opinion/Not sure

18. Please explain your selection. You may enter brief comments here or submit a more detailed proposal using the proposal template.

    CRS supports the current market-based method framework with only minor clarifications relative to (1) hourly time-matching, (2) storage technologies (3) Table 6.3, (4) EACs delivered in utility standard products, and (5) combining supplier provided resources with active procurement in a scope 2 total.

    (1) There has been an increased focus on matching generation to consumption at a more granular (e.g., hourly) level. This is already supported by the guidance's vintage rules as it simply reflects a narrower time boundary than common practice. However, the guidance should be updated to specifically address hourly time-matching as these products are beginning to be more widely available. There is nothing fundamentally different between an EAC that reflects a vintage of a specific hour and one that is identified by a month, quarter, or year, so products based on hourly EACs are implicitly included in the market-based data hierarchy in the existing EAC category as opposed to a new class of data or instruments.

    (2) The GHG Protocol should expand information about how storage may interact with transacted attributes for on-site, co-located and stand-alone storage.

    (3) Table 6.3 is often interpreted as a product-type hierarchy instead of data reflecting best (most precise) available data. CRS is providing a separate proposal that includes an updated data table to help mitigate this confusion and better support the use of the most precise information available to reporters.

(4) The guidance should clarify that electricity attributes delivered through a standard or default supplier product may be reported in a market-based scope 2 total when the attributes of the renewable energy are retained or retired on behalf of the customer (or a group including the customer), and the Scope 2 Quality Criteria and additional data quality criteria are met. Data quality criteria could include: (a) describes delivered electricity, (b) Generation information within the data is accurate, (c) all ownable attributes that define the generation being claimed are aggregated (d) attributes are exclusively owned by or retired on behalf of the consumer (or a group including the customer) and not double counted, (e) attributes are not double claimed, (f) Generation occurs in the same market and relative timeframe as consumption.

(5) The standard should include a methodology the recognizes that as supplier-provided or independently procured attributes are equivalent, they may be summed in a way that allows a reporter to achieve 100% clean or renewable electricity use through a combination of supplier-delivered attributes and active procurement. CRS's Clean Energy Accounting Project publication on "Accounting for Standard Delivery Renewable Energy" provides guidance and an example of this methodology beginning on page 9: https://resource-solutions.org/document/030921/.

The GHG Protocol should not take actions that limit the openness of the market by requiring that procurement that is eligible under the market-based method meet certain impact criteria, disallow legal transaction mechanisms like unbundled EACs, or require more granular time-matching for all consumers. These types of limitations exclude credible use claims, limit access, and establish an inequitable treatment of environmentally beneficial resources as compared to fossil fuels.

19. Do you think there is a need for updates related to the dual reporting requirement, i.e., to report scope 2 emissions using both the location-based method and market-based method?
    - No (no update needed)
    - Minor update (clarifications or additional guidance needed)
    - Major update (major changes or revisions needed)
    - No opinion/Not sure

20. Please explain your selection. You may enter brief comments here or submit a more detailed proposal using the proposal template.

    CRS is proposing that the Scope 2 Guidance remove dual reporting and use a single market-based accounting methodology with options for location-based data to be used as a proxy when market-based data is not available. This proposal is being submitted separately and includes a potential framework for an expanded market-based data hierarchy table.

21. Does your organization publicly report scope 2 emissions using the location-based method, the market based method, or both?

- Location-based only
- Market-based only
- Both
- Not applicable
- Not sure

22. Does your organization publicly set GHG reduction targets/goals for scope 2 emissions based on the location-based method, the market-based method, or both?
    - Location-based only
    - Market-based only
    - Both
    - Not applicable
    - Not sure

23. If your organization reports a GHG inventory, does your organization use residual emission factors when calculating scope 2 emissions using the market-based method?
    - Yes
    - No
    - Partially
    - Unsure
    - Not applicable

24. Chapter 11 of the Scope 2 Guidance, titled "How Companies Can drive Electricity Supply Changes with the market-based method", elaborates how organizations can use their procurement power to substantively contribute to new low-carbon energy supply. In this context, does your organization pursue any of the options suggested in Chapter 11 (11.4) and/or otherwise empirically evaluate the connection between changes in GHG emissions to the atmosphere and your organization's scope 2 related decarbonization investments?
    - Yes
    - No
    - Not sure

25. If so, how?

    CRS's policy and market development work fosters and protects the integrity of sustainable energy markets to allow voluntary procurement to drive meaningful demand for new renewable resources, and CRS supports electricity supply changes through its administration of the Green-e® programs. Since 1997, the Green-e® program has set the standard for beneficial and credible renewable energy procurement and currently counts operations in the US, Canada, Chile, Singapore, and Taiwan R.O.C.

    To be eligible under the Green-e® Standard in the US and Canada, renewable energy must be from qualifying resources from facilities that began operation

(or were repowered) in the last 15 years and be generated in the calendar year in which the product is sold, the first three months of the following calendar year, or the last six months of the prior calendar year. Certified products must be fully aggregated, containing all GHG emissions reduction benefits associated with the MWh of generated renewable electricity, and be surplus to state or federal requirements, legislation, or settlement agreements. Standards for other markets (available here: https://www.green-e.org/programs/energy/documents) vary slightly based on local conditions. CRS certifies many renewable energy options, including community choice aggregation, community solar, competitive electricity, renewable energy certificate (REC) products, REC purchases and power purchase agreements (PPAs) with generators and on-site generation, and Utility Green Pricing Programs.

Because Green-e® Energy is a voluntary standard recognizing only newer renewable energy that wasn't mandated by regulation, it focuses demand on newer sustainable resources that are more impactful than other older carbon-free resources. Information about the amount of participation in the Green-e® program provides insight into changes in emissions to the atmosphere as compared to a baseline scenario where the program did not incentivize voluntary demand. Currently, over 78 GW of capacity is supporting Green-e® certified products, including over half of all installed wind capacity in the US. In addition, over half of the facilities in Green-e's® program were built in the last 5 years, which speaks to the unprecedented growth in demand for new clean generation in the US.

There is a strong correlation between the implementation of the Green-e® Standard and an accelerated transition away from fossil resources in the US generation mix, which directly impacts emissions. For example, in 2005, electricity generating resource types that are eligible for Green-e® certification in the US represented under 2% of total electricity generation. By 2021, that percentage has increased to almost 14% while Green-e® certification has continued to represent at least 50% of the voluntary market.

The aggregate demand captured by the Green-e® program is an example of the scale of voluntary action that can be leveraged to reduce emissions from the electricity sector. This aggregated demand is made up of choices by individual companies which can individually lead to varying degrees of impact on emissions to the atmosphere. Despite this variation, full recognition of market transactions is critical to achieving any real reductions for electricity procurement decisions in an inventory and a meaningful tool to achieve direct emission reductions globally.

CRS is coordinating additional research on the importance of voluntary REC markets to new renewable energy development. This project will include a series of case studies, new analyses of project and investment data, and a new modeling approach to assess the historical and potential impact of voluntary green power demand in the US electricity system using an updated version of NREL's Regional Energy Deployment System (ReEDS) model with enhanced

voluntary market capability. The outcomes of this research are expected to be published on a rolling basis between mid and late 2023.

26. Has your organization identified any instances where application of the current Scope 2 Guidance has led to changes in your reported GHG inventory (i.e., an increase or decrease in reported emissions) while potentially leading to an unequal or opposite outcome in total GHG emissions to the atmosphere?
    - Yes
    - No
    - Not sure

27. If so, please explain.

28. New grid-connected technologies and/or their increased deployment may require further clarification or changes to the Scope 2 Guidance to better address accounting of emissions associated with these resources. Please select from the potential options below any technologies which would benefit from updates or additional guidance. Please also include any additional technologies outside of this list which should be considered. Any specific suggestions related to these technologies should be submitted in the Scope 2 proposal section.
    - Advanced Metering Infrastructure ("AMI")
    - Demand-side load management (e.g., demand response, load shifting, etc.)
    - Electric vehicle charging and grid integration
    - Energy storage technology
    - Hydrogen as an "energy carrier" similar to electricity, steam, chilled water, etc.
    - More geographically granular electric grid emission data (e.g., emissions associated with electricity at specific locations)
    - More time-granular electric grid emission data (e.g., monthly, hourly, etc. emission factors in addition to annual values)
    - Other (Pipeline-delivered biofuels (e.g., biomethane)

29. Are there existing resources, tools, or databases developed by other organizations that you would suggest that GHG Protocol consider to support organizations in applying the Scope 2 Guidance?

    Clean Energy Accounting Project's Accounting for Standard Delivery Renewable Energy (https://resource-solutions.org/document/030921/), and Data Sources: Accounting for Standard Delivery Renewable Energy (https://resource-solutions.org/document/03152101/)

    Center for Resource Solutions Guide to Electricity Sector Greenhouse Gas Emissions Totals (https://resource-solutions.org/document/110322/)

Center for Resource Solutions Comments to the U.S. Securities and Exchange Commission (SEC) on Proposed Climate-Related Disclosures for Investors (https://resource-solutions.org/document/061722/)

Center for Resource Solutions The Legal Basis for Renewable Energy Certificates, an updated version will be available soon (https://resource-solutions.org/document/the-legal-basis-for-renewable-energy-certificates/)

Center for Resource Solutions Renewable Energy and GHG Glossary (https://resource-solutions.org/document/031921/)

Center for Resource Solutions Corporate and Voluntary Renewable Energy in State Greenhouse Gas Policy: An Air Regulator's Guide (https://resource-solutions.org/document/101717/) Sections 2, 3, 4.5.2, 4.6.2 and 5

U.S. EPA Renewable Electricity Procurement on Behalf of Others: A Corporate Reporting Guide (https://www.epa.gov/system/files/documents/2022-05/renewable_electricity_procurement.pdf)

The Climate Registry's utility-specific emission factors (https://docs.google.com/spreadsheets/d/1MY2dNo_5VXCvppDA3nIpnMDhH3FG2MlxBcLiOggj-xQ/edit#gid=283732541), Electric Power Sector Protocol (https://theclimateregistry.org/wp-content/uploads/2022/11/Protocol_062509.pdf), and Updates and Clarifications (https://theclimateregistry.org/wp-content/uploads/2022/11/2020-12-01-EPS-Updates-and-Clarifications.pdf).

Edison Electric Institute's Electric Company Carbon Emissions and Electricity Mix Reporting Database (https://www.eei.org/en/issues-and-policy/national-corporate-customers/co2-emission)

Green-e Energy Code of Conducts for different markets (available here: https://www.green-e.org/programs/energy/documents)

30. Are there new resources, tools, or databases that you think need to be developed to support organizations in applying the Scope 2 Guidance?

The development of additional tools and resources would greatly support more complete and accurate scope 2 reporting. Access to data is a significant barrier for many companies. Some developments that would help address this issue include (1) the proliferation of all-attribute EAC tracking systems, (2) the disclosure of residual mix data in accordance with a consistent and appropriate methodology, (3) greater disclosure of supplier product-specific emissions factors calculated in accordance with a consistent and appropriate methodology, and (4) the development of a data quality prioritization system that would facilitate the consistent decision making within and across organizations.

Most of these tools should be developed and managed by energy market participants including tracking systems, government entities, electricity suppliers and independent third-party registries. The GHG Protocol may be best suited, however, to provide guidance that helps organizations make calculation decisions based on the data they may have available to them.

CRS's Clean Energy Accounting Project is currently launching an initiative to identify best practices for calculating residual mixes (proposal available here: https://resource-solutions.org/wp-content/uploads/2023/03/Calculating-a-Residual-Mix-Proposal_Revised_09.28.22.pdf). New resources from this effort are expected to be completed by late 2023.

31. Are there challenges in complying with the GHG Protocol Scope 2 Guidance requirements? If yes, please briefly describe the challenges as well as any potential solutions, industry-specific guidance, etc. that could address these challenges. You may enter brief comments here or submit a more detailed proposal using the proposal template.

    A lack of high-quality data frequently presents a challenge for those seeking to comply with the requirements of the GHG Protocol Scope 2 Guidance. Historically there has been limited support of broader market-based data disclosure and even location-based data has been published infrequently and with a significant time lag. In some cases, data may be available for a fee that is not reasonable for the majority of reporting organizations and/or the methodologies used to calculate data are not transparently communicated, making it difficult for reporters to understand if the data is appropriate for their own purposes and reporting timeframe. As reporting becomes more prevalent under both voluntary and compliance frameworks, demand for higher quality data will help foster the development of new tools and resources to address the current shortfall.

    Guidance on how to combine data from different sources would also help overcome some challenges reporters face when complying with the standard. One example is how reporters should report consumed renewable energy that is actively procured together with consumed renewable energy that is not. For scope 2 accounting, provided that data are credible, they are equivalent and may be summed. However, there is uncertainty about the methodology's appropriate order of operations to ensure that 100% clear or renewable energy use is attainable. More context on this issue is presented in the Clean Energy Accounting Project's Accounting for Standard Delivery Renewable Energy (https://resource-solutions.org/document/030921/.

    CRS encourages the proliferation of all-attribute EAC tracking systems, the disclosure of residual mix data and greater disclosure of supplier product-specific emissions factors across all markets, in addition to refinements in location-based datasets and methodologies and data supporting consequential accounting outside of the scopes. The right place for much of this data is

distinct from the GHG Protocol but the GHG Protocol could play a significant role in engaging with data providers to ensure the resources that are being developed are appropriate for scope 2 reporting as well as advocating for changes that would expand access to transparent information.

CRS's recently published Guide to Electricity Sector Greenhouse Gas Emissions Totals (https://resource-solutions.org/wp-content/uploads/2022/11/Guide-to-Electricity-Sector-Greenhouse-Gas-Emissions-Totals.pdf) is an example of a resource that the GHG Protocol could use to encourage consistent and accurate data publication and use for the purpose of scope 2 reporting.

32. GHG inventory reporting can overlap and/or interact with regulatory policy mandates, state and federal subsidies, emission reporting or target-setting programs, etc. (e.g., see Scope 2 Guidance, Chapter 8.2 Reporting on the relationship between voluntary purchases and regulatory policies). Are there clarifications or changes in the Scope 2 Guidance that would simplify and harmonize complying with the Scope 2 Guidance and better align with regulatory policy mandates, programs, etc.? If so, please identify such interactions and share any potential solutions.

Market-based accounting is required for the Scope 2 Guidance to be consistent with regulatory mandates and programs that allocate generation and associated emissions to load. US states implement and enforce market-based accounting practices in Clean Energy Standard (CES) and Renewable Portfolio Standard (RPS) programs, Electric Product Disclosure (EPD) programs, most resource planning processes, and rules for accounting for emissions associated with imported and delivered electricity (both direct and from regional markets). All of these existing policies recognize market transactions and delivery of specified power and emissions on the grid based on contractual instruments.

We have found no examples of US state or federal programs that allocate (or historically verify or disclose allocated) generation and associated emissions to grid customers entirely based on the physical distribution of electricity on the grid. Neither have we found any that have proposed or required that retail electricity emissions can only be averaged by grid region.

US state programs that allocate generation to load also nearly universally recognize unbundled market instruments. In fact, some states and programs—namely RPS and EPD programs in some states with organized power markets—rely entirely on unbundled market instruments to allocate specified generation to load.

Inconsistency between voluntary reporting of customer scope 2 emissions and regulatory programs for specified delivery of energy or associated emissions to retail load (and/or carbon regulations, EPD requirements, and other programs that account for delivered power on the grid) would damage the integrity and impact of all programs. Diverging from the accounting framework used by load-based regulatory programs creates a risk of double counting generation and

falsely recognizing companies for investments and associated emissions reductions for which they are not responsible. On the other hand, mutually supportive voluntary and compliance markets strengthen regulatory and tracking infrastructure, data aggregation and quality, and functional support tools that can serve multiple markets to further standardize and synchronize accounting rules and MRV practices, mitigate leakage of environmental benefits, and create liquidity for environmental benefits.

As such, the requirement to use the location-based method could be removed where the reporting entity is located in an area where specified power is bought, sold, and allocated to load contractually (see our proposal). In these markets, disclosure of location-based figures (due to lack of better market-based data) should be accompanied by additional disclosure stating that calculated emissions do not reflect the legal allocation of generation and emissions.

Information in Sec 8.2 of the current Scope 2 Guidance generally remains accurate and relevant.

33. Please identify your program, policy, initiative, etc. which uses the GHG Protocol Scope 2 Guidance.

CRS incorporates the GHG Protocol Scope 2 Guidance in the Green-e® Energy marketing claims guidance and the Green-e® Marketplace program as well as a foundational standard for the work of CRS's Clean Energy Accounting Project (CEAP).

Through the Green-e® Energy program, CRS certifies renewable energy that meets the highest standards: it must be generated from new facilities, marketed with complete transparency and accuracy, and delivered to the purchaser, who has sole title. CRS staff verifies the entire chain of custody of certified renewable energy from generation to retirement to ensure individuals and businesses are getting exactly what they paid for. CRS staff additionally conduct a Marketing Compliance Review (MCR) to ensure that program participants are not making false or misleading statements about their product and that they have made pricing, power, and contract disclosure to customers in a standardized format.

The Green-e® Marketplace program is a unique recognition program for organizations that use certified renewable energy. It enables them to demonstrate their environmental commitment through the use of the nationally recognized Green-e® logo. Organizations can apply for logo usage on product packaging, as well as general organization level logo usage.

CEAP exists to develop targeted clean energy and GHG emissions guidance addressing outstanding questions in voluntary and regulatory markets by publishing best practices resources that resolve some of the technical accounting uncertainty that can temper investment in today's needed

solutions. CEAP does this by utilizing issue-specific working groups, stakeholder meetings, and webinars to build consensus among NGOs, policymakers, and corporate leaders around solutions that are compatible with existing standards, including those published by the GHG Protocol. CEAP is supported by a cross-sector Advisory Committee (members are listed here: https://resource-solutions.org/programs/ceap/how/), which WRI and the GHG Protocol have been invited to join to ensure consistency with the GHG Protocol Standards and to help identify priority questions for CEAP to address.

34. How are you applying the Scope 2 Guidance in the context of your program?

    The Green-e® Energy and Green-e® Marketplace programs implement attributional disclosure and marketing claim requirements consistent with those established by the market-based scope 2 total.

    The Green-e® Energy program also prevents double counting of specified power in the location-based method. If specified renewable energy is sold to support a market-based total, it cannot be represented as renewable in any other communications. Likewise, if a participant was making claims using location-based data, CRS would disallow that generation in a retail product certified by our program.

    Finally, the Clean Energy Accounting Project (CEAP) defers to the Scope 2 Guidance when defining emissions accounting rules and seeks to provide implementation guidance and suggestions for new guidance that could help enhance scope 2 reporting in relation to the specific question being investigated.

35. What is your experience applying the standard? Does your program implement all the requirements of the standard? If not, why not? Are there any gaps or problems you have faced in implementing the standard? Are changes to the standard and/or support on the use of the standard needed from a programmatic perspective?

    CRS's Green-e® Energy program pre-dates the publication of the Scope 2 Guidance. Upon finalization of the guidance in 2015 CRS updated the Green-e® Energy Code of Conduct (https://www.green-e.org/docs/energy/Green-e%20Energy%20Code%20of%20Conduct.pdf) to ensure that product marketing claims fully aligned with the market-based accounting method.

    Following the publication of the guidance, CRS also began to publish residual mix data (https://www.green-e.org/residual-mix) that removed Green-e® certified generation from U.S. EPA's eGRID subregion emission rates. While not a complete residual rate data set for the U.S., it does prevent the double counting of a significant portion of the U.S. voluntary market.

    Today, CRS is a popular resource for reporting entities, suppliers, verifying, and reporting platforms with questions about the Scope 2 guidance.

Questions on Scope 2 Guidance Aggregational Theory of Change

The current Scope 2 Guidance uses location-based and market-based accounting. Under the latter framework, Energy Attribute Certificates (EACs) are used to track and allocate consumer demand for the GHG attributes from a finite supply of attributes available for those claims. Ideally this results in demand signals that encourage development of new clean energy supply and GHG emissions reductions (see Scope 2 Guidance 11.1 Energy attribute supply and demand).

Currently, a limited number of customers globally voluntarily report GHG emission inventories. Even for those that do, obtaining the necessary information from suppliers can be challenging. For example, customers with high-emission power suppliers or contracts may not be disclosing or even have access to such information. Combined with other market factors, this lack of critical mass in reporting may challenge the efficacy of the "aggregational" theory of change and the 'disclosure-risk-action' paradigm, potentially reducing its overall efficacy in aggregate (see GHG Protocol Corporate Standard (WRI/WBCSD 2004), p. 59–60).

However, new regulatory mandates (such as climate disclosure initiatives including one by the US Securities and Exchange Committee (SEC), FSA disclosures in Japan, the European Union Corporate Sustainability Reporting Directive (CSRD), etc.) and growing consumer awareness are leading to increased demand for information about GHG inventories. These recent changes underscore the importance of developing an accounting framework that can be widely adopted and can help drive meaningful change.

Since the publication of the Scope 2 Guidance in 2015, seven years' worth of data are now available to evaluate the performance of this accounting method and the "aggregational" theory of change. The following questions seek feedback on how we can use that data and experience to (1) assess the validity of the premise that EACs promote market-driven increases in clean energy and reduced emissions and/or (2) develop a predictive framework that will streamline GHG inventory accounting and ensure global atmospheric GHG reductions.

36. Based on the past seven years' worth of data, under the current market-based accounting framework, is there empirical support for the premise that market-based scope 2 accounting framework results in collective changes in low-carbon energy supply and global atmospheric GHG emission reductions? Please explain, including empirical justification on why or why not. You may enter brief comments here or submit a more detailed proposal using the proposal template.

    The market-based framework reflects how specified generation is tracked and delivered to retail load. There is significant empirical data showing that markets have increased clean energy generation in the US through the creation of compliance markets and leadership undertaken by corporate and residential consumers in the voluntary market. In addition, as clean energy resources have

come online, they have brought the overall emissions of the power sector in the US down even as net generation increases.

Renewable energy markets were designed to deliver renewable energy to customers. In the case of clean generation, the attributes that customers are paying for, and are legally delivered to them, include the GHG emissions associated with that generation. A key driver of both compliance and voluntary demand is that emissions benefit, and as disclosure and target setting continue to grow, so will additional demand. For example, 2021 modeling by Princeton Zero Lab found that voluntary buyers procuring 100% annual matched Renewable Energy Certificates (RECs) did lead to emissions reductions compared to the reference case with no voluntary market.

There will always be a difference between aggregated 'reported' scope 2 and sectoral emissions because of incomplete reporting, selection bias, and GHG Protocol rules that prevent double counting within an inventory. Incomplete reporting presents the greatest challenge to observing a difference between reported changes to aggregated scope 2 in corporate emissions databases and direct emission from the electricity sector. Not only for organizations and groups (e.g., residential consumers) that don't report, but even within corporate inventories, companies may have to rely on non-market data for some or all of their market-based reporting. This lack of documentation in corporate emissions databases is not proof that increasing demand for delivered clean energy does not result in global atmospheric GHG reductions as compared to a scenario where markets could not be used to deliver attributes to consumers. In fact, collective demand has now grown enough to begin driving the proliferation of more high-quality data in order to better facilitate accurate market-based reporting.

In addition, the compliance and voluntary markets have been operating in the US for more than the last 7 years, and the impact of these markets cannot discount gains prior to the publication of the Scope 2 Guidance.

Studies attempting to evaluate the impact of RECs have focused almost exclusively on arguing that price paid for those instruments is too low to be impactful. However, even the financial value of markets to new projects (the measure of which translates to direct emissions reductions) is not exclusively based on EAC price. This is because REC revenue gets considered on the margin, there are financial effects on the broader availability of capital for new projects, and REC demand motivates projects independently of their price.

What is needed is more serious analysis of the relationship between market-based renewable instruments (e.g., RECs) and emissions reductions or decarbonization, and a more complete understanding of how voluntary REC markets affect individual and collective project development, both directly and indirectly, and overall renewable energy investment. CRS is coordinating additional research on the importance of voluntary REC markets to new renewable energy development. This project will include a series of case studies,

new analyses of project and investment data, and a new modeling approach to assess the historical and potential impact of voluntary green power demand in the US electricity system using an updated version of NREL's Regional Energy Deployment System (ReEDS) model with enhanced voluntary market capability. Outcomes of this are expected to be published on a rolling basis between mid and late 2023.

37. If necessary, are there changes to the market-based framework that can ensure rigorous accounting that demonstrates collective changes in low-carbon supply and global atmospheric GHG emission reductions? If unnecessary, why; If so, what changes? You may enter brief comments here or submit a more detailed proposal using the proposal template.

    CRS is submitting a separate proposal to recommend that the GHG Protocol remove dual reporting from the Scope 2 Guidance in favor of exclusively requiring market-based accounting for scope 2 with an expanded data hierarchy that incorporates additional location-based information eligible for use as a proxy to market-based data when that is unavailable to a reporter. Aside from this amendment, CRS does not believe changes to the implementation of market-based accounting are warranted and will in fact limit the ability to incentivize collective changes in low-carbon supply and global GHG emission reductions.

    Scope 2 emissions measure only the emissions produced by the electricity generation purchased by the reporting organization, and not the impact of that electricity purchase on electricity production and global emissions. Limiting supply options that convey use claims in an emissions inventory to those individual procurements that can demonstrate some degree of impact on supply would ignore all demand for clean energy leading up to the last increment. It would remove the driver for demand-side action, and changes to supply (and resulting emissions reductions) would get more expensive and unlikely.

    The broad market recognized by the current Scope 2 Guidance facilitates greater access to clean energy. According to US EPA's National Assessment of Consumer Access to Green Power Supply: Leadership and Impact Considerations. (https://www.epa.gov/system/files/documents/2022-05/EPAGreenPowerAccessAssessment-Dec2021_508.pdf), even in the US, where there is a diverse patchwork of purchasing options, 22% of all U.S. non-residential customers only have access to one supply option (unbundled retail RECs). The Corporate Standard has a responsibility to provide a consistent way for all companies to disclose the impact of their choices. Limiting recognition of legally credible procurement to options available to only the best resourced companies, sets an inequitable standard and disincentivizes the full range of actors needed to address emissions from engaging in mitigation activities.

    CRS does support opportunities to provide greater transparency around procurement decisions, location-based information and avoided emissions

related to credible clean energy procurement. Expanded guidance around how to disclose and communicate these actions and impacts would be welcome to support supplemental disclosure outside of the scopes.

Questions on Scope 2 Guidance Attribute Quality Criteria

The Scope 2 Guidance Quality Criteria requirements were developed to represent the minimum features necessary to implement a market-based method of scope 2 GHG accounting using Energy Attribute Certificates (EACs). As designed, the market-based accounting method allows organizations to report in their inventory an immediate GHG emission reduction without necessarily needing to demonstrate a corresponding immediate and equivalent reduction in emissions to the atmosphere. This outcome is consistent with the supply/demand aggregational theory of change described above. (Note, please see questions 20-21 evaluating this topic.) However, the current EAC quality criteria required to claim the zero-emission attributes of a grid resource enables a range of EAC procurement options representing a broad spectrum of outcomes a reporting organization can take responsibility for in their inventory. Narrowly in the context of scope 2 inventory accounting, so long as the minimum quality criteria are fulfilled, all procurement options, strategies, etc. are treated equivalently.

Chapter 7, Criteria 4 "Vintage" states all contractual instruments shall "Be issued and redeemed as close as possible to the period of energy consumption to which the instrument is applied." Common practice today is for an organization to match some amount of their annual electric consumption load with Energy Attribute Certificates (EACs) produced in the same reporting year.

38. What are the trade-offs between continuing this practice as compared to introducing a more specific quality criteria than "as close as possible"? Should this quality criteria be made more specific (e.g., to specify it must be within the same year, month, hour, etc.) or remain unchanged? Please briefly explain or use the proposal template for a detailed reply.

    The current criteria for vintage should be maintained. As an international standard, the GHG Protocol needs to facilitate reporting across a wide range of markets with varying product availability and transaction infrastructure. While in some markets new products are being designed that support more specific and granular matching of generation to load, it is the exception rather than the norm. Creating more specific requirements, especially making a more granular timeframe (e.g., hourly) a requirement will hurt overall demand for credible and potentially impactful procurement where more granular products are not available or are cost prohibitive.

    Furthermore, adjusting the time period for matching generation to consumption to something like hourly accounting only increases accuracy when reporting is done on that same timeframe (e.g., hourly). Annual claims and reporting are equivalently accurate on an annual basis, which is consistent with the GHG Protocol's reporting timeframe.

Measuring on an hourly basis may have different advantages in terms of the impact of procurement. Greater resolution may help drive procurement with different temporal benefits (e.g., electricity storage, renewable generation resources that operate at specific times of day/seasons). Vintage flexibility has been accepted to better drive overall demand and markets. Though it should not be a requirement, companies can procure and should be permitted to report scope 2 emissions using an hourly or shorter timeframe if they have the data and can substantiate those claims.

Chapter 7, Criteria 5 "Market Boundaries" states all contractual instruments shall "Be sourced from the same market in which the reporting entity's electricity-consuming operations are located and to which the instrument is applied." Currently certificate market-boundaries encompass broad geographic regions such as entire continents and span multiple physical grid boundaries (i.e., see Scope 2 Guidance, page 64: "…markets for unbundled certificates have often been less constrained than those for electricity itself").

39. What are the trade-offs between continuing this practice as compared to introducing more specific guidance on the Market Boundary quality criteria? Please briefly explain or use the proposal template for a detailed reply.

    There must be guidance related to market boundaries in the Scope 2 Guidance, and it must remain flexible. While markets for electricity are not global—they are bounded geographically—they are not the same everywhere and the area of applicability for generation attributes (emissions) is not necessarily constrained to the area in which it is possible to physically deliver electricity. Attribute markets can be different (e.g., larger) than the physical grid because attributes (emissions) are not delivered through the grid. The boundaries are those of the regulatory and legal system through which they are contractually delivered and enforceable. Such a difference does not affect accuracy and allows for demand/purchasing of electricity to support new clean supply where that supply needs to happen to create the most benefit.

    The Scope 2 Guidance is top-down, static over multi-year periods, and global. Whereas the electricity and generation attribute market boundaries are dynamic (evolving) and regional. Market boundaries (the boundaries of credible transactions) can only be determined through analysis of a market and electricity sector, involving engagement with market participants, utilities, generators, government regulators and others. That should be done through an open transparent process. Standards like Green-e® are expanding around the world and doing this work. The GHG Protocol should defer to regional standards where they exist. Where they do not, the guidance can encourage companies to be transparent and conservative, but it should remain broad to allow for future market analysis and standard development, as well as different and changing regional circumstances.

There are many considerations for determining market boundaries, including: consistency of the laws and regulatory framework governing the electricity sector, use and availability of robust tracking infrastructure, recognition of market instruments, grid interconnection (transmission infrastructure), and the calculation and availability of residual mixes and other data. There are various other considerations for regional standards related to impact, including: incentives received by generators, consistency of environmental regulations affecting the electricity sector, differences in emissions rates between regions, the presence of carbon border taxes or other carbon value transfers, the age of generating facilities, etc. None of these are sufficient to determine market boundaries on their own or necessarily appropriate as a global criterion for market boundaries.

Market-based Scope 2 accounting appropriately allows for sourcing and use of generation regardless of physical delivery of energy, creating larger markets that can scale renewable and clean generation over a larger area and making it more cost-effective. Historically, the result has been innovative and impactful new procurement options, like VPPAs. It has also facilitated interregional procurement that maximizes avoided grid emissions associated with purchased generation. Setting restrictive geographical boundaries for reporting (e.g., clean energy purchasing for Scope 2 emissions reporting only from within the customer's local grid region or balancing authority area) would exclude these procurements and reduce impact.

Chapter 7: Scope 2 Quality Criteria presents eight specific quality criteria.

40. Please provide any additional considerations related to any of these criteria and/or potential additional criteria that could improve the application of location-based and/or market-based Scope 2 reporting (see Scope 2 Guidance, Chapter 4 for additional detail on how these methods contribute to GHG reductions in the electricity sector). Please briefly explain or use the proposal template for a detailed reply.

    CRS supports the existing quality criteria as it ensures credible claims without artificially limiting demand for available procurement options.

    A minor clarification that may be helpful would be to add language indicating that transfer and/or retirement of contractual instruments could be "on behalf of the reporting entity or a group including the reporting entity." This would make it more explicitly clear that contractual instruments would not have to be in a reporting entity's own name in its own accounts if it could be documented that another party retained the instruments on the reporting company's behalf or that the reporting entity is part of a group on behalf of which the attributes were retired. This clarification would apply only to criteria 3 and 7, and would help streamline verification activities. More context for this proposed change is presented in the Clean Energy Accounting Project's Accounting for Standard Delivery Renewable Energy (https://resource-solutions.org/document/030921/).

41. Please provide any additional considerations or context related to new clarifications or guidance in scope 2, maintaining the existing Scope 2 Guidance without changes, changes in the current location-based and/or market-based methods, or new methodological options that account for indirect reductions and meet GHG Protocol decision criteria (for more information on the decision criteria, please see the annex of the proposal template)? You may enter brief comments here or submit a more detailed proposal using the proposal template.

    CRS did not respond to this question.