



# Template for submitting proposals related to GHG Protocol's *Corporate Standard, Scope 2 Guidance, Scope 3 Standard, Scope 3 Calculation Guidance* and market-based accounting approaches

(Optional)

## Proposal instructions

GHG Protocol is conducting four related surveys in reference to the following GHG Protocol standards, guidance and topics:

1. Corporate Accounting and Reporting Standard (Revised Edition, 2004) ("Corporate Standard")
2. Scope 2 Guidance (2015)
3. Corporate Value Chain (Scope 3) Accounting and Reporting Standard (2011) ("Scope 3 Standard"), and Technical Guidance for Calculating Scope 3 Emissions, version 1.0, 2013 ("Scope 3 Calculation Guidance")
4. Market-based accounting approaches

**The survey is open until February 28, 2023.** To fill out the survey, [click here](#).

As part of the survey process, respondents may provide proposals for potential updates, amendments, or additional guidance to the *Corporate Standard, Scope 2 Guidance, Scope 3 Standard, or Scope 3 Calculation Guidance*, by providing the information requested in this template. You may also use this template to provide justification for maintaining a current approach on a given topic.

Submitting proposals is optional. Respondents may submit multiple proposals related to different topics.

Proposals should be as concise as possible while providing the requested information. Submissions that are outside of the template may not be considered. Proposals may be made publicly available.

To submit the proposal, please save this file and fill out the fields below. When you've completed your proposal, please send the file as an attachment to [info\\_ghg@ghgprotocol.org](mailto:info_ghg@ghgprotocol.org). Please name your file STANDARD\_Proposal\_AFFILIATION, e.g., *Scope 2\_Proposal\_WRI*.

## Respondent information

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If proposals are made publicly available, would you like your proposal to be made publicly available? Please write either "Yes" (make publicly available) or "No" (do not make publicly available).

Yes

If your proposal is made publicly available, would you like it to be made publicly available with attribution (with your name and organization provided) or anonymous (without any name or organization provided)? Please write either "With attribution" or "Anonymous".

With attribution

## Proposal and supporting information

- 1. Which standard or guidance does the proposal relate to (Corporate Standard, Scope 2 Guidance, Scope 3 Standard, Scope 3 Calculation Guidance, general/cross-cutting, market-based accounting approaches, or other)? If other, please specify.**

Scope 2 Guidance

**2. What is the GHG accounting and reporting topic the proposal seeks to address?**

We are proposing a new Scope 2 methodology to help catalyze decarbonization and guide institutions toward higher-impact choices and investments that accelerate decarbonization.

**3. What is the potential problem(s) or limitation(s) of the current standard or guidance which necessitates this proposal?**

Current standards more and more often incentivize actions that result in reduced an organizational footprint without a corresponding reduction in atmospheric emissions.

Although Scope 2 accounting refers to emissions in name, in practice the current Scope 2 market based framework is actually rooted in counting and matching MWh of electricity as an indirect proxy for emissions. Organizations pursuing net-zero Scope 2 emissions are currently purchasing enough MWh of RECs to match what they consume. Also, under the current market-based method, if some organizations reduce their carbon footprints with EACs, then emissions will be shifted to other organizations using the residual mix factor, not necessarily resulting in a reduction in actual atmospheric emissions.

Moreover, current Scope 2 accounting treats all MWh of renewable generation equally. There is also growing acknowledgement that not all renewable energy projects provide the same atmospheric emissions-reduction benefit, a dynamic that is not captured in the current GHGP Scope 2 market-based calculations that focus on matching MWh of load with MWh of renewable energy.

But the GHGP has successful methods to count the change in atmospheric emissions that projects drive—for example, the older Project Protocol for Grid-Connected Electricity Projects. The problem is that, because such methods are not reflected in inventories, as a practical matter many companies are not considering effects on atmospheric GHG emissions when they make decisions.

**4. Describe the proposed change(s) or additional guidance.**

WattTime proposes adding a new impact-based accounting metric to Scope 2. This ‘impact accounting’ approach focuses on the avoided emissions impact of renewable generation. And in order to solve the problem that avoided emissions are not an apples-to-apples comparison with current footprinting methods, the innovation is to also add the ‘induced’ emissions caused by electricity consumption. Both induced and avoided emissions would be calculated in a consistent, apples-to-apples manner, using marginal emissions rates as per the Project Protocol for Grid-Connected Electricity Projects.

One of the primary advantages of this proposed methodology is that it reorients Scope 2 accounting toward total atmospheric decarbonization by focusing directly on the emissions impacts of electricity consumption and renewable generation. It also provides clear metrics to measure progress towards decarbonization goals. This is because it moves away from an emphasis on merely using a proxy—matching MWh of electricity—under the current market-based approach of Scope 2 accounting.

Furthermore, since metrics for accounting and decision making are consistent, inherent incentives are better aligned with decarbonization, such as by giving credit for actions that reduce the greatest emissions, like shifting load to clean times and locations and building clean generation in the dirtiest grid regions where renewables displace more fossil-fueled generation.

Under this proposed 'impact accounting' framework, all electricity consumers would have Scope 2 induced emissions. Specifically, an organization's induced emissions would be equal to their time specific load multiplied by the time-specific marginal emissions rate at their location. This incentivizes consumers such as corporations and governments to move electricity load to low emissions times and locations.

$$\text{Induced Emissions} = \sum_i \sum_t \text{Load}_i[t] * \text{MEF}_i[t]$$

Where:

$i$  is in the set of all locations that an entity consumes electricity

$t$  is in the set of all time steps across a year considered in the calculation

$\text{Load}_i[t]$  = the entity's load at location  $i$  during time  $t$

$\text{MEF}_i[t]$  = the marginal emissions factor at location  $i$  during time  $t$

Similarly, under this proposed accounting framework, renewable energy generation has avoided emissions, calculated as their time-specific generation profile multiplied by the time-specific marginal emissions rate at their location. This incentivizes renewables developers to site and offtakers to preferentially select projects in locations with higher marginal emissions and target generation profiles to high-emissions periods when renewables can displace more fossil-fueled power plants (rather than oversaturating grids already rich in renewables and/or grids where renewable curtailment is becoming a growing challenge).

$$\text{Avoided Emissions} = \sum_i \sum_t -\text{Generation}_i[t] * \text{MEF}_i[t]$$

Where:

$i$  is in the set of all locations that an entity generates electricity

$t$  is in the set of all time steps across a year considered in the calculation

$\text{Load}_i[t]$  = the entity's generation at location  $i$  during time  $t$

$\text{MEF}_i[t]$  = the marginal emissions factor at location  $i$  during time  $t$

Here we use a positive number to indicate induced emissions and a negative number to indicate avoided emissions.

To claim avoided emissions from building a new generator, an organization would need to clearly prove the degree to which they cause the renewable energy to be developed. A rigorous additionality test would need to be established to transfer emissions-reduction claims from generators to consumers and would have to carefully consider the renewable energy procurement mechanism and the degree to which it caused new renewable energy to be developed.

**5. Please explain how the proposal aligns with the GHG Protocol decision-making criteria and hierarchy (A, B, C, D below), while providing justification/evidence where possible.**

**A. GHG Protocol accounting and reporting approaches shall meet the GHG Protocol accounting and reporting principles (see Annex for definitions):**

- Accuracy, Completeness, Consistency, Relevance, Transparency
- Additional principles for land sector activities and CO<sub>2</sub> removals: Conservativeness, Permanence, and Comparability if relevant

This proposal would improve the accuracy of the accounting principles established in the GHG since it enables more accurate estimates of the emissions impacts of different load and generation interventions.

Exactly like the current Scope 2 emissions calculation, if applied to all participants in a market, this approach allocates total system emissions such that the sum of Scope 2 emissions across all parties (induced emissions for end users and avoided emissions for generators) equals total direct emissions (Scope 1) for the electricity sector. This proposed emissions accounting framework is a different way of attributing emissions to all actors in the electric grid built on the framework advanced by [Rudkevich and Ruiz](#).

**B. GHG Protocol accounting and reporting approaches shall align with the latest climate science and global climate goals (i.e., keeping global warming below 1.5°C). To support this objective (non-exhaustive list):**

- Direct emissions reported in a company's inventory should correspond to emissions to the atmosphere. Reductions in direct emissions reported in a company's inventory should correspond to reductions in emissions to the atmosphere.
- Indirect emissions reported in a company's inventory should in the aggregate correspond to emissions to the atmosphere. Reductions in indirect emissions reported in a company's inventory should in the aggregate correspond to reductions in emissions to the atmosphere.

To ensure that avoided emissions reported in an organization's inventory correspond to real-world total atmospheric emissions reductions, a rigorous additionality test would need to be established to transfer emissions-reduction claims from generators to consumers and would have to carefully consider the renewable energy procurement mechanism and the degree to which it caused new renewable energy to be developed. Different procurement mechanisms, like unbundled EACs, power purchase agreements, and green tariffs all provide different levels of revenue certainty to developers and clearly contribute differently to getting renewable projects developed. This complexity is not currently recognized in the GHGP Scope 2 market-based method as all EACs are treated equally, whether bundled as part of a PPA, required in a regulatory environment, or unbundled.

There are numerous proposals that attempt to quantify this differential impact of different procurement options. For example, RMI has proposed a '[procurement factor](#)' that begins to compare the value different procurement options provide to renewable energy projects. We are intrigued by this proposed methodology because it shifts from a binary test for additionality towards a spectrum that different procurement mechanisms would fall on. We are interested in exploring this and other candidate high-quality additionality tests that could be used in this accounting scheme.

By requiring a rigorous additionality test, emissions reductions/avoided emissions that organizations report would correspond to real-world atmospheric emissions reductions.

**C. GHG Protocol accounting frameworks should support ambitious climate goals and actions in the private and public sector.**

- Would this proposal enable organizations to pursue more effective GHG mitigation/decarbonization efforts as compared to the existing standards and guidance? If so, how?
- Would this proposal better inform decision making by reporting organizations and their stakeholders (e.g. related to climate-related financial risks and other relevant information associated with GHG emissions reporting)?

This proposed impact-based framework shifts the focus from an accounting system that fundamentally focuses on MWh to one that fundamentally focuses on how an institution's actions affect climate change by causing total atmospheric emissions to go up or down. This should be the primary goal of the GHG Protocol: to help track and reduce real-world GHG emissions.

This framework incentivizes institutions to take the actions that will genuinely be most helpful for true decarbonization by allowing them to evaluate the emissions impact of different potential actions. All potential action would be evaluated on a level playing field using a single metric, allowing organizations to effectively assess different potential interventions. The incentive to deploy solutions and strategies such as energy storage, load shifting, renewable development, consumption siting, and transmission development will be aligned with where and when they will have the most emissions reductions. Load will have greater emissions during dirtier periods and lower emissions during cleaner periods. This would also encourage siting of new energy-consuming facilities with significant electricity demand in cleaner regions. On the generation side, renewables will have greater avoided emissions in dirtier regions and at dirtier times, encouraging the development of renewables in places and with generation profiles that displace more dirtier generation.

**D. GHG Protocol accounting frameworks which meet the above criteria should be feasible. (For aspects of accounting frameworks that meet the above criteria but are difficult to implement, GHG Protocol should provide additional guidance and tools to support implementation.)**

- What specific information, data or calculation methods are required to implement this proposal (e.g., in the case of scope 2, data granularity, grid data, consumption data, emission information, etc.)? Would new data/methods be needed? Are current data/methods available? How would this be implemented in practice?
- Would this proposal accommodate and be accessible to all organizations globally who seek to account for and report their GHG emissions? Are there potential challenges which would need to be further addressed to implement this proposal globally? What would be the potential solutions?

The proposed accounting approach can be implemented with existing datasets and data that organizations already collect to compile their inventory. Instead of using average emissions factors, organizations calculating their footprint will need to use marginal emissions factors. Similarly, when

calculating avoided emissions, organizations will need to apply location specific emissions factors to generation.

To facilitate implementation, publicly available marginal emissions data sources already exist that cover the globe including [eGRID](#) non-baseload factors, [AVERT](#) from the EPA, [Cambium](#) from NREL, and the UNFCCC's [Harmonized IFI Default Grid Factors](#). More and more sources continue to become available every year. For example, the EIA is also in the process of releasing marginal emissions data, as required in [Section 40412 of the 2021 U.S. Infrastructure Investment and Jobs Act](#).

While WattTime recommends using the most granular temporal and spatial data that are practically available, this approach can be calculated using annual load and generation data. The use of more granular data will improve the accuracy of accounting and identify greater opportunities for emissions reductions, but the approach articulated here can still be implemented using annual data. Refinements in spatial and temporal granularity are continuously being made.

**6. Consistent with the hierarchy provided above, are there potential drawbacks or challenges to adopting this proposal? If so, what are they?**

This approach calls for a paradigm shift from using average emissions data to marginal emissions data. While this has long been generally accepted in the academic literature, emissions accounting practitioners would have to become accustomed to a new evaluation metric. This would be mitigated somewhat by the fact that most of the same data sources companies currently use for average emissions factors (e.g. the US EPA's summary of its eGRID data) also provide marginal emissions factors in the exact same format, and in fact in the same summary documents.

Also, generators (both fossil and clean/renewable) would now have to report scope 2 emissions. This is a departure from existing practice. This ensures that Scope 2 emissions total to Scope 1 direct emissions in the power sector.

**7. Would the proposal improve alignment with other climate disclosure rules, programs and initiatives or lead to lack of alignment? Please describe.**

Most accounting and climate disclosure programs refer to the GHG Protocol for allowable metrics and measures. However, this framework would also better align the GHGP with the leading alternatives, namely emissions trading programs (where prices typically reflects the cost of marginal GHG emissions abatement); carbon offsets (which measures the marginal emissions of projects).

- 8. Please attach or reference supporting evidence, research, analysis, or other information to support the proposal, including any active research or ongoing evaluations. If relevant, please also explain how the effectiveness of the proposal can be evaluated and tracked over time.**

This approach was first suggested by Ruiz and Rudkevich in their paper Locational Carbon Footprint of the Power Industry: Implications for Operations, Planning and Policy Making:

[https://www.researchgate.net/publication/302233428\\_Locational\\_Carbon\\_Footprint\\_of\\_the\\_Power\\_Industry\\_Implications\\_for\\_Operations\\_Planning\\_and\\_Policy\\_Making](https://www.researchgate.net/publication/302233428_Locational_Carbon_Footprint_of_the_Power_Industry_Implications_for_Operations_Planning_and_Policy_Making)

- 9. If applicable, describe the process or stakeholders/groups consulted as part of developing this proposal.**

WattTime spoke extensively with a wide range of stakeholders and groups including corporations, non-profits, and renewable developers. In particular, WattTime has over the last 7 years interviewed nearly 100 renewable energy developer, offtakers, and brokers about what possible changes to the GHG Scope 2 Guidance would make them most likely to move fastest to reduce total atmospheric GHG emissions.

- 10. If applicable, provide any additional information not covered in the questions above.**

A whitepaper issued by WattTime discussing this proposal in detail can be found at:

<https://www.watttime.org/app/uploads/2022/09/WattTime-AccountingForImpact-202209-vFinal2.pdf>



## Proposal Annex

### GHG Protocol Decision-Making Criteria and Hierarchy

- A. First, GHG Protocol accounting and reporting approaches shall meet the GHG Protocol accounting and reporting principles:**
- Accuracy, Completeness, Consistency, Relevance, Transparency
  - Additional principles for land sector activities and CO<sub>2</sub> removals: Conservativeness, Permanence, and Comparability if relevant
  - (See table below for definitions)
- B. Second, GHG Protocol accounting and reporting approaches shall align with the latest climate science and global climate goals (i.e., keeping global warming below 1.5°C). To support this objective (non-exhaustive list):**
- Direct emissions reported in a company's inventory should correspond to emissions to the atmosphere. Reductions in direct emissions reported in a company's inventory should correspond to reductions in emissions to the atmosphere.
  - Indirect emissions reported in a company's inventory should in the aggregate correspond to emissions to the atmosphere. Reductions in indirect emissions reported in a company's inventory should in the aggregate correspond to reductions in emissions to the atmosphere.
- C. Third, GHG Protocol accounting frameworks should support ambitious climate goals and actions in the private and public sector:**
- Accounting framework/s would enable organizations to pursue more effective GHG mitigation/decarbonization efforts as compared to the existing standards and guidance
  - Accounting framework/s would better inform decision making by reporting organizations and their stakeholders (e.g. related to climate-related financial risks and other relevant information associated with GHG emissions reporting)
- D. Fourth, GHG Protocol accounting frameworks which meet the above criteria should be feasible to implement for the users of the frameworks.**
- For aspects of accounting frameworks that meet the above criteria but are difficult to implement, GHG Protocol should provide additional guidance and tools to support implementation.

### GHG Protocol Accounting and Reporting Principles

Principle	Definition
Accuracy	Ensure that the quantification of GHG emissions (and removals, if applicable) is systematically neither over nor under actual emissions (and removals, if applicable), and that uncertainties are reduced as far as practicable. Achieve sufficient accuracy to enable users to make decisions with reasonable assurance as to the integrity of the reported information.
Completeness	Account for and report on all GHG emissions (and removals, if applicable) from sources, sinks, and activities within the inventory boundary. Disclose and justify any specific exclusions.

<b>Consistency</b>	Use consistent methodologies to allow for meaningful performance tracking of emissions (and removals, if applicable) over time and between companies. Transparently document any changes to the data, inventory boundary, methods, or any other relevant factors in the time series.
<b>Relevance</b>	Ensure the GHG inventory appropriately reflects the GHG emissions (and removals, if applicable) of the company and serves the decision-making needs of users – both internal and external to the company.
<b>Transparency</b>	Address all relevant issues in a factual and coherent manner, based on a clear audit trail. Disclose any relevant assumptions and make appropriate references to the accounting and calculation methodologies and data sources used.
<b>Conservativeness</b> (Land Sector and Removals Guidance)	Use conservative assumptions, values, and procedures when uncertainty is high. Conservative values and assumptions are those that are more likely to overestimate GHG emissions and underestimate removals, rather than underestimate emissions and overestimate removals.
<b>Permanence</b> (Land Sector and Removals Guidance)	Ensure mechanisms are in place to monitor the continued storage of reported removals, account for reversals, and report emissions from associated carbon pools.
<b>Comparability (optional)</b> (Land Sector and Removals Guidance)	Apply common methodologies, data sources, assumptions, and reporting formats such that the reported GHG inventories from multiple companies can be compared.