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 upload the file via this online folder. Please name your file STANDARD_Proposal_AFFILIATION, e.g., *Scope 2_Proposal_WRI*.

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.**

General/cross-cutting

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

Treatment of biogenic and bioenergy emissions

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

The Corporate Standard stipulates that "Direct CO2 emissions from the combustion of biomass **shall** not be included in scope 1 but reported separately," and the Scope 2 Guidance states that "Based on the Corporate Standard, any CH4 or N2O emissions from biogenic energy sources use **shall** be reported in scope 2, while the CO2 portion of the biofuel combustion **shall** be reported outside the scopes." While the Scope 2 Guidance notes that bioenergy "still produces GHG emissions and should not be treated with a 'zero' emission factor," in practice, the current guidance effectively leads to bioenergy being treated as zero-carbon. In addition, the current guidance does not justify why these emissions are treated differently from emissions from all other sources

While technically these biogenic emissions are still reported in an organization's inventory, by reporting them separately from the scopes, this means that in practice, these emissions totals are often ignored in GHG target setting, public reporting, and regulation, where the focus is on data within the scopes. For example, proposed regulations in the U.S. such as the SEC Climate Risk Disclosure rule and the Federal Supplier Climate Risk disclosure rule measure climate risks based on a company's Scope 1-3 inventory, and do not require consideration of emissions outside of these scopes. Furthermore, when setting GHG targets, many organizations only set goals based on their Scope 1 and Scope 2 emissions (and increasingly Scope 3 emissions), but not on emissions reported outside of the scopes. This means that in practice, the current requirement to report biogenic emissions outside of the scopes essentially treats these emissions as zero carbon.

The Scope 2 Guidance warns that "For the location-based approach, most commonly used grid average emission factor—including those issued by EPA eGRID (U.S.), Defra (U.K.), and the International Energy Agency (for all countries worldwide)—do not note the percentage of biomass in the emission factor and do not separately report the biogenic CO2, effectively treating it as "zero" emissions. Companies should document this omission in any grid average emission factors used." However, throughout the guidance the use of these same factors is recommended in the emission

factor hierarchies. We believe that the protocol should include stronger guidance stating that such biomass-adjusted emissions factors shall not be used for accounting.

One example of the interpretation of this guidance in practice is the treatment of bioenergy emissions in SIMAP, a widely-used carbon accounting platform for campuses. The SIMAP platform states: "Following the GHG Protocol guidelines, SIMAP separates out biogenic emissions of carbon and considers these emissions to be carbon neutral."

To the extent that the protocol is designed to help provide accurate information about a reporter's carbon footprint and incentivize emission reductions, this current exclusion is counter to these goals. Biomass combustion releases direct CO2 emissions to the atmosphere at a rate (per energy content) comparable to that of fossil fuels.

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

To address this issue, we propose implementing the following changes:

1) Direct CO2 emissions from the combustion of biomass should be included in scope 1, and not reported separately.

2) CO2, CH4, and N2O emissions from biogenic energy sources should be reported in Scope 2, and not reported separately outside the scopes.

3) Update the discussion of biofuel emissions, and update warnings on the use of emissions factors that by default exclude biomass emissions.

4) Companies shall not use grid emission factors that apply an adjustment treating biomass emissions as zero-carbon.

5) Any lifecycle emission reductions associated with the growing of the biomass should be directly measured and reported consistent with applicable guidance on offsets, scope 3 fuel cycle emissions, and/or the land-sector guidance.

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_2 removals: Conservativeness, Permanence, and Comparability if relevant

This proposal aligns with several of the GHG Protocol Principles:

1) Accuracy: The current rules that allow biogenic emissions to be reported outside of the scopes and/or use grid emissions factors that treat bioenergy as zero-carbon systematically under-quantifies actual GHG emissions to the atmosphere.

2) Completeness: The current rules *in practice* do not account for all GHG emission sources and activities within the inventory boundary.

3) Relevance: the current rules do not reflect the GHG emissions of the company or serve the decision-making needs of internal and external users of the report. For example, the current rules would allow a hypothetical company that exclusively burns biomass within their boundaries to report zero Scope 1 CO2 emissions, even if they are in fact responsible for a large amount of direct CO2 emissions to the atmosphere. Such information would not be relevant to the company's shareholders who are trying to evaluate climate-related risks.

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.

This proposal would improve alignment with the latest climate science and global climate goals. By moving biogenic emissions into the scopes, it will help ensure that the emissions totals used for goal setting and disclosure of climate impacts correspond with actual emissions to the atmosphere.

Additionally, this proposal would better align with global climate goals by providing information that is more aligned with policy-relevant timescales of keeping global warming below 1.5C. While it is true that under certain biomass growth and harvesting practices, bioenergy may be carbon-neutral over a a multi-decadal timescale, the relevant timeframe for climate action and reducing atmospheric CO2 emissions may be shorter than the timescale over which these resources are net carbon neutral.

As discussed above, the current rules in practice allow companies to ignore biomass emissions within the scopes, which may provide an incentive for fuel switching to bioenergy and greater use of these resources, even if they are not zero-carbon and in fact emit a comparable amount of carbon to the atmosphere as fossil fuels. For example, the CO2 emissions factors for stationary power generation used by the U.S. EPA show that biofuels are in many cases more carbon intensive than fossil fuels:

Solid Fuels: Coal = 206-228 lbCO2 per mmBTU, Wood = 207 lb CO2 per mmBTU, Other solid biomass = 232 lb CO2 per mmBTU, Agricultural byproducts = 261 lb CO2 per mmBTU. Gaseous fuels: Natural Gas = 117 lb CO2 per mmBTU, Biogas/landfill gas = 127 lb CO2 per mmBTU. Liquid Fuels: Petroleum-based fuels = 159-166 lb CO2 per mmBTU, Liquid biofuels = 185 lb CO2 per mmBTU.

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)?

The current rules would allow a hypothetical company that exclusively burns biomass within their boundaries to report zero Scope 1 CO2 emissions, even if they are in fact responsible for a large amount of direct CO2 emissions to the atmosphere. Such information would not be relevant to the company's shareholders who are trying to evaluate climate-related risks. Likewise, reporting bioenergy emissions outside of Scope 2 may encourage fuel switching to biomass, even if this is not a sustainable option for full grid decarbonization. The proposed revisions would enable more effective decarbonization efforts and provide more relevant information to decision-makers and stakeholders.

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?

Implementing this proposal should be broadly feasible. Organizations are already required to track and report direct emissions from biomass combustion or indirect emissions from the consumption of electricity produced using bioenergy separately from the scopes. This change would simply involve reporting this number in a different part of their GHG inventory report.

Several existing datasets such as eGRID apply an adjustment that treats all biogenic emissions as carbon-neutral. This change would require these datasets to adjust their emission factor calculation methodology to stop applying the biomass adjustment, which would be relatively simple. In fact, some datasets such as the Open Grid Emissions dataset already publish emission factors that are not adjusted for biomass emissions.

Adopting this proposal may substantially increase the scope 2 emissions footprint of organizations consuming electricity in regions that rely heavily on biofuels, and would likely trigger the need to re-calculate emissions in the baseline year.

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

N/A

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

Although not directly explained in the Corporate Standard or Scope 2 Guidance, the current treatment of biogenic emissions is ostensibly in place to align corporate accounting with national carbon inventory practices. However, as one academic viewpoint (Haberl et al 2012) discusses, in reference to a similar approach being used in the Kyoto Protocol:

"The assumption that all biomass is carbon-neutral results from a misapplication of the original guidance provided for the national-level carbon accounting under the United Nations Framework Convention on Climate Change (UNFCC). Under the UNFCCC accounting rules, countries report their emissions from energy use and from land-use change separately. For example, if a hectare of forest is cleared and the wood used for bioenergy, the carbon lost from the forest is counted as a land-use emission. To avoid double-counting, the rules therefore allow countries to ignore the same carbon when it is released after combustion. This accounting principle does not assume that biomass is carbon-neutral, but rather that emissions can be reported in the land-use sector. This accounting system is complete and accurate because emissions are reported from both land and energy sectors worldwide. The accounting rule under the Kyoto Protocol is different: it caps emissions from energy use but does not apply worldwide and it applies only incompletely to land use even in the Annex I countries. By excluding biogenic emissions from the energy system, the Protocol erred because this practice means that those emissions are in many cases never accounted for at all. Similarly, many national and European policies and, as well as many lifecycle and other analyses, mistakenly ignore biogenic emissions from energy use without including changes in land-based carbon as a result of that bioenergy use."

This change would also improve alignment with the Science-based Targets Initiative (SBTI), which states that "Direct CO2 emissions from the combustion of biofuels and/or biomass feedstocks, as well as sequestered carbon associated with such types of bioenergy feedstock, 2 must be included alongside the company's inventory and must be included in the target boundary when setting a science-based target and when reporting progress against that target." The SBTI further states: "Assumptions of neutrality for bioenergy tend to overlook that there is a significant time-lag between the bio-based resource removal (wood/crop) and later regeneration. They also overlook possible differences in productivity among forest/crop systems used as bioenergy feedstock and the effects of long-term carbon storage in bio-based products and/or disposal. For these reasons, until a standardized method for bioenergy GHG accounting is developed under the GHG Protocol, the SBTi strongly recommends companies take into account the time of emissions (i.e. wood/crop removal) and sequestration (i.e. forest/crop regrowth) in their accounting methodologies."

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.

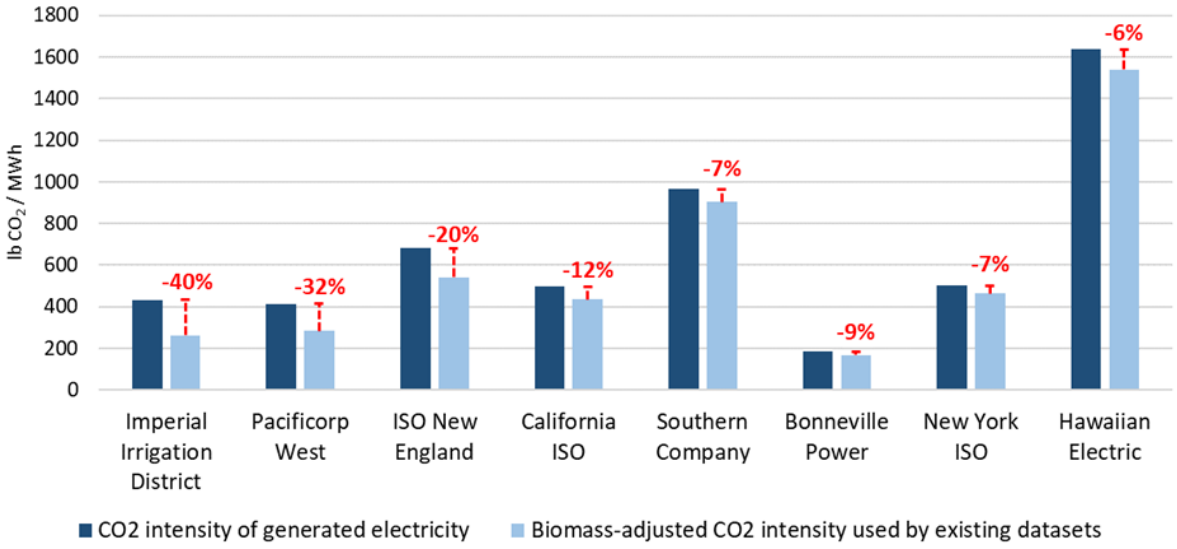
Academic critiques of current bioenergy accounting approaches:

1. Johnson, E. Goodbye to carbon neutral: Getting biomass footprints right. *Environmental Impact Assessment Review* **29**, 165–168 (2009). https://www.sciencedirect.com/science/article/abs/pii/S0195925508001637
2. Haberl, H. *et al.* Correcting a fundamental error in greenhouse gas accounting related to bioenergy. *Energy Policy* **45**, 18–23 (2012). https://www.sciencedirect.com/science/article/pii/S0301421512001681
3. U.S. Environmental Protection Agency. Framework for Assessing Biogenic CO2 Emissions from Stationary Sources. https://19january2017snapshot.epa.gov/sites/production/files/2016-08/documents/framework-for-assessing-biogenic-co2-emissions.pdf (2014).
4. Downie, A., Lau, D., Cowie, A. & Munroe, P. Approaches to greenhouse gas accounting methods for biomass carbon. *Biomass and Bioenergy* **60**, 18–31 (2014). https://www.sciencedirect.com/science/article/abs/pii/S0961953413004820
5. Brander, M. Comparative analysis of attributional corporate greenhouse gas accounting, consequential life cycle assessment, and project/policy level accounting: A bioenergy case study. *Journal of Cleaner Production* **167**, 1401–1414 (2017). https://www.sciencedirect.com/science/article/pii/S0959652617303116

Reviews of the carbon-neutrality of bioenergy:

1. Cherubini, F., Peters, G. P., Berntsen, T., Strømman, A. H. & Hertwich, E. CO2 emissions from biomass combustion for bioenergy: atmospheric decay and contribution to global warming. GCB Bioenergy 3, 413–426 (2011). https://onlinelibrary.wiley.com/doi/full/10.1111/j.1757-1707.2011.01102.x
2. Nian, V. The carbon neutrality of electricity generation from woody biomass and coal, a critical comparative evaluation. Applied Energy 179, 1069–1080 (2016). https://www.sciencedirect.com/science/article/abs/pii/S030626191630945X
3. Schlesinger, W. H. Are wood pellets a green fuel? Science (2018) doi:10.1126/science.aat2305.
4. Paolini, V. et al. Environmental impact of biogas: A short review of current knowledge. Journal of Environmental Science and Health, Part A 53, 899–906 (2018). https://www.tandfonline.com/doi/full/10.1080/10934529.2018.1459076
5. Sterman, J. D., Siegel, L. & Rooney-Varga, J. N. Does replacing coal with wood lower CO2 emissions? Dynamic lifecycle analysis of wood bioenergy. Environ. Res. Lett. 13, 015007 (2018). https://iopscience.iop.org/article/10.1088/1748-9326/aaa512/meta
6. Rudek, J. & Schwietzke, S. Not all biogas is created equal. Environmental Defense Fund Energy Exchange https://blogs.edf.org/energyexchange/2019/04/15/not-all-biogas-is-created-equal/ (2019).
7. Brandão, M., Kirschbaum, M. U. F., Cowie, A. L. & Hjuler, S. V. Quantifying the climate change effects of bioenergy systems: Comparison of 15 impact assessment methods. GCB Bioenergy 11, 727–743 (2019).

Upcoming research by Miller et al. titled "Evaluating the hourly emissions intensity of the US electricity system," examined the effect of treating bioenergy as zero-carbon when calculating location-based emission factors for the U.S. This research found that this exclusion underestimates direct CO_2 emissions from electricity generation in the U.S. by 3% nationally and leads to substantial under-representations of power sector emissions in some of the largest grid regions in the U.S.:



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

N/A

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

N/A

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_2 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.

Consistency	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.
Relevance	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.
Transparency	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.
Conservativeness (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.
Permanence (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.
Comparability (optional) (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.