



GREENHOUSE
GAS PROTOCOL

PROPOSAL ON
SCOPE 2 GUIDANCE
UPDATES



WORLD
RESOURCES
INSTITUTE



wbcsd



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 March 14, 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*.

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?

Enabling Granular Market-based Scope 2 Accounting.

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

EnergyTag is somewhat satisfied with the current scope 2 method as it enables consumer action through a market-based method. It is crucial that a market-based approach is improved, not removed. However, updates are needed to improve its accuracy. Specifically, updates that increase the temporal and spatial granularity of Scope 2 reporting without changing its fundamental nature can significantly improve the GHG Protocol. Annual temporal and continental spatial boundaries are too broad, leading to carbon accounting being too far detached from the physical realities of the grid reducing its accuracy and effectiveness. The changes proposed by EnergyTag below seek to address these flaws and are based on robust evidence.

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

In order to improve scope 2 market-based accounting EnergyTag proposes six key pillars:

- 1. Maintain Market-Based:** Maintain an improved market-based method under Scope 2.
- 2. Granular Certificates Most Precise EACs:** GCs should be listed on top of the emissions factor hierarchy and used where available.
- 3. Hourly Temporality:** Production and consumption should be matched on an hourly basis.
- 4. Deliverable Market Boundaries:** Clarify deliverability criteria (i.e. same grid, considering interconnections) to avoid inaccurate supply claims.
- 5. Consider Additionality:** Investigate if and under what criteria additionality could be recognised.
- 6. Consider Avoided Emissions:** Investigate how these could be standardised and reported separate to scope 2.

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 CO₂ removals: Conservativeness, Permanence, and Comparability if relevant

EnergyTag proposal would significantly improve

- **Accuracy:** To represent emissions of electricity supplied to a consumer, it is critical that the electricity could have been supplied with a reasonable level of certainty. For example, annual accounting allows un-stored solar energy to be claimed at nighttime, this is not accurate and removes a key incentive for storage. Hourly accounting would mean that the energy would have to be stored first ensuring a more accurate reflection of reality. Similarly, claims should be made on deliverable boundaries, to ensure a reasonable market boundary avoiding claims being made where electricity could never have been delivered (e.g Iceland to France) or are very unlikely to have been delivered. Hourly, deliverable accounting that leverages typical power market boundaries would make market-based accounting more accurate.
- **Completeness:** Ideally, granular accounting should take place only using Granular Certificates to ensure there is no double accounting and that all emissions in the inventory boundary are accounted for. The availability of these instruments is expanding rapidly. For example, in the US M-RETS, PJM and 3rd party providers ensure that GCs are already available across almost all the US. Similarly, in Europe, 3rd party providers like Flexidao, Granular Energy, Energy Track and Trace, Powerledger and others can issue GCs anywhere where hourly data is available. I-REC also has a GC offer and operates in over 40 countries around the world. Most of the GC schemes mentioned above are currently aligning with the EnergyTag standard which aims at ensuring harmonised, robust hourly tracking worldwide.
- **Consistency:** EnergyTag brings together over 500 participant organisations from around the world to drive harmonisation and consistency in hourly accounting methodologies. The [EnergyTag Standard and Guidelines available on our website](#) provide more information, and we welcome them being leveraged as part of efforts to driving global consistency of accounting.
- **Relevance:** The method being proposed by EnergyTag greatly increases alignment between how companies actually contract for electricity (e.g in power markets) and how the carbon associated with those contracts is counted. This new granular accounting respects the (sub)hourly temporal and deliverability requirement that are in place in power markets providing both an accurate and highly relevant carbon accounting approach.
- **Transparency:** Using Granular Certificates following an auditable standard is crucial to ensuring transparency. EnergyTag has published its open standards, developed through an open consultation process with over 600 individual elements of feedback. EnergyTag is currently auditing 7 active Granular Certificates schemes around the world, with more expected in the coming months. Transparent and open standards are crucial to a trusted accounting scheme.

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.

Robust forward-looking capacity expansion modelling of carbon accounting approaches is the best way to investigate to what extent each approach aligns reported and real-world emissions. To the best of our knowledge, the only carbon accounting approach that has been shown by capacity expansion modelling to align reported (i.e attributional) and real-world (long term consequential) emissions is “granular accounting” where carbon-free supply and demand are matched on an hourly, deliverable basis with supply from relatively new or uprated assets (i.e additional). There is a growing expert consensus about the robustness of a strong granular hourly accounting approach as shows in the following studies:

1. [Technical University Berlin : System-level impacts of 24/7 carbon-free electricity procurement in Europe](#)
2. [Technical University Berlin : Hydrogen : Annual vs Hourly](#)
3. [Princeton University : Minimizing emissions from grid-based hydrogen production in the United States](#)
4. [Princeton University : System-level Impacts of 24/7 Carbon-free Electricity Procurement](#)
5. [Princeton University : Electricity System and Market Impacts of Time-based Attribute Trading and 24/7 Carbon-free Electricity Procurement](#)
6. [International Energy Agency : Advancing Decarbonisation Through Clean Electricity Procurement](#)
7. [Florence School of Regulation : Green Hydrogen - how grey can it be?](#)

[EnergyTag's 24/7 in Action File maintains a regularly updated list of capacity expansion modelling on carbon accounting topics.](#)

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)?

More Effective GHG Decarbonisation Efforts

Yes. The accounting approach we are proposing is already being used by both governmental and corporate organizations to make robust “24/7 CFE” goals that go beyond today’s approach. This approach is more effective based on the robust academic justification referred to above.

Governments have adopted 24/7 CFE in targets, tenders and regulations in a clear sign of the enhanced decarbonisation benefits of this approach:

1. [European Union - Renewable Hydrogen Delegated Act requiring hourly accounting for Hydrogen.](#)
2. [United States Federal Government - 50% 24/7 Goal - Presidential Executive Order 14057](#)
3. [United Kingdom Government - RTFO Guidance for Renewable Fuels of Non-Biological Origin requiring hourly accounting](#)
4. [United Kingdom Government -Low-carbon hydrogen standard requiring hourly accounting](#)
5. [French Government - VertVolt Green Standard requiring hourly accounting for green offers.](#)
6. [Irish Government - 2023 Climate Action Plan requiring hourly granular accounting for Data Centre](#)
7. [German Government Tender for Ammonia Imports Requiring hourly granular accounting](#)

Various companies have also made goals to source clean power every hour on their local grid, namely:

1. [Google](#)
2. [Microsoft](#)
3. [Iron Mountain](#)
4. [Peninsula Clean Energy](#)

A number of US cities have also made granular accounting commitments:

1. [Des Moines, Iowa](#)
2. [Waterloo, Iowa](#)
3. [South Lake Tahoe](#)
4. [Ithaca, NY](#)

More Effective Decision-Making

Naturally, a more accurate accounting framework as is proposed here, gives a more granular and precise overview of a companies carbon emissions and related exposure. Crucially, as this is a market-based method it also provides decision-makers with actionable and accurate levers to reduce their emissions.

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?

Robust Granular Certificates

Granular Certificates (GCs) are the next generation of Energy Attribute Certificates which, unlike today's EACs, record the time of production. EnergyTag [coordinates 10+ projects around the world](#) (in NA, EU and APAC regions) demonstrating hourly matching and Granular Certificates. The pilots have already done hourly tracking on well over 1 million MWh of energy, proving that hourly matching and Granular Certificates are a technical reality. Where available, Granular Certificates should be the top of the emissions factor data hierarchy as the most precise and transparent disclosure instrument.

GCs have an internationally recognised industry standard - the [EnergyTag Granular Certificate Scheme Standard](#) which details how these certificates should be issued, transferred and retired to avoid double-counting. The Standard has the support of over 100 organizations from around the world, including UN Energy and most of the world's largest electricity providers, buyers and trade associations. It was developed with the oversight of the world's leading energy attribute system experts. EnergyTag's Chair founded and ran the Association of Issuing Bodies, which oversees the world's largest energy attribute system today, the European Guarantee of Origin, which tracks over 30% of European electricity. To ensure compliance and trusted Granular Certificates, EnergyTag has started audits on seven Granular Certificate Schemes around the world. The audits are led by a team with over a decade of experience in auditing the Energy Attribute Certificates system (in particular the EU GO System). Crucially, the EnergyTag standard outlines how GCs can be issued today - ensuring no double-counting - in regions where the EAC Issuer does not offer Granular Certificates. This hugely increases the access to Granular Certificates around the world from trusted GC Issuers and hourly tracking software providers.

Granular Guarantees of Origin will likely be adopted in Europe's new Renewable Energy Directive (in line with the EU Parliament's public support for Granular GOs), opening the door for EU countries to start issuing Granular GOs. Various GO Issuers have already successfully proved GCs in Europe, for example the Norwegian system which tracks over 100 TWh annually already has hourly tracking embedded in its technical functionality.

In Taiwan, the EAC system has always been a GC system requiring 15-minute matching to be proven before certificates are issued. In the United States, M-RETS, the world's largest registry platform, has piloted GCs successfully and can offer hourly tracking across the U.S today except for in the New England states and in New York (where in any case GCs could be offered by 3rd party software providers if there is data). Also in the U.S. PJM Gats, the registry that issues in the largest ISO in the U.S, will offer hourly RECs to any customer starting March 2023, in a another clear sign of the growing availability of hourly tracking.

The I-REC registry operates in over 55+ countries and is offering its GC solution for customers around the world. Various software providers (i.e FlexiDAO, Granular Energy, Powerledger, Cleartrace, EnergyTrack and Trace) are starting to offer hourly tracking and Granular Certificates to their consumers in regions where the local registry has not yet moved to Granular Certificates. Granular

Certificates schemes can work at scale already. The availability and volume of Granular Certificates is expected to increase rapidly over the coming years, as has been the case with the Energy Attribute Certificates since they were incorporated in the Protocol in 2015. This rapid demand increase will be driven by both voluntary demand from corporates and compliance demand (i.e for Green hydrogen).

Robust Granular Data

While robust hourly data is already available in many parts of the world, this is not the case everywhere yet. As with all forms of carbon accounting whether location- or market-based, the availability of requisite data to ensure feasibility in an open and standardized form can always be improved. Initiatives such as the Linux Foundation Energy Carbon Data Specification are actively working on open standards to make this happen at scale. Such initiatives should be incentivised to continue their work to increase transparency around electricity supply for customers and help build the right incentives for grid decarbonisation. Nevertheless, lack of available data in some locations should be acknowledged and continuously improved rather than be used as a reason to exclude more accurate and transparent carbon accounting methodologies. In particular, we have identified the following areas where databases and tools can be further developed

- **Open data standards:** Open source data standards to improve access to electricity production and consumption (i.e. kWh) data.
- **Energy data API:** APIs to more easily access grid emissions and production data from system operators and/or utilities.
- **EAC registry API:** API access to EAC registry for 3rd party solution providers (this exists in many places today but could be made much more widespread). Similarly, GC registries should also be obliged to provide requisite API functionality to facilitate hourly matching.
- **Hourly Average emissions factors:** Granular (hourly, local) average emission factors are needed to perform robust hourly accounting. This data is already largely available from System operators or companies like ElectricityMaps and Advanced Infrastructure.
- **Hourly Residual emissions factors:** Granular (hourly, local) residual emission factors provide the additional information needed to avoid the double-counting that occurs if using only average emissions factors. A number of organizations are developing methods for the calculation of this hourly residual mix factor and EnergyTag will look to help harmonize approaches where possible.
- **Accounting Software tools:** Continued development of software solutions to remove the complexity from carbon accounting for consumers. The new set of tools emerging for hourly matching, as has been seen in the EnergyTag pilots, removes a great deal of the complexity for consumers, and better enables them to make the right choices. Carbon accounting is often quite manual and innovation can alleviate complexity as software solutions have done for various processes in the modern economy.
- **Annual weighting factors to approximate hourly matching:** To address the challenges of hourly data availability in the short-term, and provide options for small and medium enterprises, the hourly calculation can be adjusted to accommodate when only annual data is available: each part of the hourly calculation can be approximated using weighting factors representing hourly matching of carbon-free generation to electricity usage. The goal of these factors would be to quantify emissions from continued reliance on fossil generation on an

hourly basis that underlies the procurement of intermittent clean energy attributes on an annual basis. These weighting factors can be derived from publicly available data for standardized hourly load curves by building type and hourly supply profiles by carbon-free generation source(s) by location. This would provide an accessible, incremental improvement to the existing annual market-based method such that it would better reflect physical emissions associated with clean energy procurement strategies. However, it is crucial that hourly data be used where this is available with weighting factors used ONLY IF hourly data is not available.

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

As mentioned above, the potential challenge with the proposal is ensuring the rapid roll-out of Granular Certificates and hourly data. Rapid progress is being made on both fronts with these challenges seen as a normal transition to a more accurate system. Given the clear benefits for the accuracy and effectiveness of the granular accounting approach, where the GCs and data is available this accounting should be used. It will also be important to recognise that this is not the case everywhere and therefore transitions from today's accounting to a more accurate granular framework should be considered and managed in a way that acknowledges the time it takes to change while keeping in mind the urgency of adopting more accurate accounting frameworks.

In summary, as with all transitions to improved systems, it will take some time to have all data and tools available everywhere. This issue is common for both location-based and market-based methods which are both based on annual accounting today, which provides a suboptimal picture of company accounts. Most importantly, the imperative for change to a more accurate accounting framework greatly outweighs any challenges.

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

Yes, as stated previously, governments are now adopting more advanced market-based carbon accounting requirements, in particular for hydrogen. This puts the current GHGP out of alignment with these regulations which are now more granular and robust. The GHG Protocol should strongly consider alignment with these emerging government standards in order to avoid being out of sync with regulations which may put the relevance of the GHGP in question.

In particular, the following governmental granular carbon accounting methodologies should be kept in mind:

1. [European Union - Renewable Hydrogen Delegated Act requiring hourly accounting for Hydrogen.](#)
2. [United States Federal Government - 50% 24/7 Goal - Presidential Executive Order 14057](#)
3. [United Kingdom Government - RTFO Guidance for Renewable Fuels of Non-Biological Origin requiring hourly accounting](#)
4. [United Kingdom Government -Low-carbon hydrogen standard requiring hourly accounting](#)
5. [French Government - VertVolt Green Standard requiring hourly accounting for green offers.](#)
6. [Irish Government - 2023 Climate Action Plan requiring hourly granular accounting for Data Centre](#)
7. [German Government Tender for Ammonia Imports Requiring hourly granular accounting](#)

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.

EnergyTag maintains the [“24/7 in Action”](#) tracking database which is publicly available and regularly updated. It provides an exhaustive overview of most of the key aspects required to justify the carbon accounting approach being proposed here. The file maintains 9 tabs covering the various critical topics and listing evidence for each:

1. **Mandates** - Lists government implementation of granular accounting
2. **Research** - Lists capacity expansion modelling of granular accounting
3. **Independent Support** - Lists the public support from over a dozen environmental NGOs and system operators for granular accounting to be adopted.
4. **Targets** - Lists all corporate and city targets based on granular accounting.
5. **Deals** - Lists the various sourcing contracts signed that require granular accounting
6. **Tracking Projects** - Lists various projects around the world, including the EnergyTag pilots, that show that hourly tracking is a technical reality.
7. **Products** - Lists various supply products and tariffs that are based on hourly accounting.
8. **Communities** - Lists various “24/7” focussed communities.
9. **Whitepapers** - Lists various studies and analysis in support of granular accounting.

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

EnergyTag’s proposal was developed following our standard position development process through EnergyTag’s working group on policy which has over 400 participants and regularly has an attendance

of over 100 at meetings. The position was developed over three key phases 1) Initial draft by EnergyTag secretariat based on literature review and evidence 2) Various discussions in GHG Expert Sub-group (see list of names below) 3) share for 2 weeks comment period with wider working group. It should be noted that EnergyTag's response seeks majority alignment on key topics for an accounting approach based on Granular Certificates and backed by independent analysis. This does not necessarily represent the exact position of all organisations involved in the process.

A full overview of the process and the GHG Expert Sub-group members can be found [in this slide deck](#).

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

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 CO₂ 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.