

Alternative Position

Require Annual Matching and “Reasonable Geographic Links”; Clarify but Do Not Require or Recommend Hourly Matching or Deliverability Criteria as Proposed

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Summary

We propose that the Scope 2 Quality Criteria allow, but not require, companies to use hourly temporal matching or more granular geographic boundaries (e.g., market zones, bidding zones). These approaches should be **optional** (“may”), **not required** (“shall”) or **recommended** (“should”). Instead, the default requirements (“shall”) for Quality Criteria 4 and 5 would remain based on annual matching and reasonable market boundaries, with targeted updates to improve clarity and scientific integrity.

This alternative position enhances transparency, consistency, and ambition within the market-based method while preserving the flexibility companies need to act. Allowing companies to select and apply a consistent level of granularity across their portfolios supports all GHG Protocol Decision-Making Criteria, balancing accuracy with practicality to drive ambitious global climate action.

Suggested Implementation Pathway

We propose updating Quality Criteria 4 and 5 as follows:

- **Quality Criteria 4:** Emission factors *shall* be based on energy production within the same reporting year of electricity consumption. Companies *may* use monthly or hourly matching, but this is neither recommended nor required.
- **Quality Criteria 5:** The “same market” requirement should be clarified with an explicit list or map of accepted market boundaries, following existing guidance to use established boundaries in which certificates may be traded and redeemed, as determined by local jurisdictions, and are reasonably linked to the electricity consumption (Scope 2 Guidance, 64-65). Companies *may* use more granular market boundaries, but this is neither recommended nor required.

Data hierarchies would be established to reflect the various time- and location-matching options. Threshold exemptions would no longer be necessary as the data hierarchies would afford sufficient flexibility.

We also support the proposed **legacy clause** for contracts executed before the revised standard takes effect, allowing continued reporting under the current guidance for the duration of those agreements. This clause remains relevant even under a “may” approach, as the updated clarification of Quality Criteria 4 and 5 could conflict with prior interpretations by companies. It would also enable companies to adopt hourly matching and more localized market boundaries gradually, honoring legacy contracts in certain markets as they transition voluntarily toward greater granularity.

Additionally, we propose amending Section 7.2 on **recommended disclosures** to clarify that companies making voluntary claims shall indicate the level of granularity supporting the claim (e.g., “matched on an annual basis” or “matched on an hourly basis”).

Rationale for the Alternative

1A. Scientific Integrity: The [Technical Working Group Discussion Topic Overview](#) acknowledges that updates to the market-based method may be needed to uphold scientific integrity. Our proposal incorporates updates to improve inventory accuracy while avoiding prescriptive requirements that outpace current scientific consensus.

We oppose the consolidated draft’s use of “shall” - and would also oppose use of “should” - for hourly matching and narrower geographic boundaries, which implies superior scientific validity. This assertion remains contested. Research has shown that hourly matching does not improve scientific validity due to intra-regional transmission congestion,¹ double-

¹ Sofia, S., & Dvorkin, Y. (2024). Carbon impact of transmission constraints. Available at SSRN.

counting inaccuracies,² and the potential to inadvertently slow system-wide decarbonization progress.³ The [Technical Working Group Discussion Topic Overview](#) omits key research from groups like the International Energy Agency⁴ or Rocky Mountain institute⁵ showing that in many contexts, stricter temporal and geographic matching can lead to *lower* climate impact than more conventional sourcing strategies.

1B. GHG accounting and reporting principles: Explicit, consistent data hierarchies, combined with flexibility in time and location matching, reduces ambiguity and supports application of the standard across companies, strengthening overall reporting quality. Our proposal also improves comparability by clarifying Section 7.2 with guidance for companies to report claims matching their accounting granularity – annual, monthly, or hourly - ensuring clearer claims.

2A. Support decision making that drives ambitious global climate action: Our proposal supports ambitious climate action by ensuring the Protocol remains practical, feasible, and accessible for most companies. It allows voluntary use of more detailed hourly- and location-matching without mandating granularity, avoiding costly complexity that could discourage participation. This flexibility preserves momentum and broad engagement, allowing companies to continue making impactful clean energy investments at scale.

2B. Support programs based on GHG Protocol and uses of GHG data: The current Scope 2 Guidance is already widely embedded in global climate laws and regulations. Our proposal introduces improvements that can be more readily integrated into current mandatory reporting frameworks including IFRS Climate-Related Disclosures, European Sustainability Reporting Standards: Climate Change, ISO 14064-1:2018, and California Climate Corporate Data Accountability Act SB253 and SB219, as well as voluntary initiatives like SBTi, RE100, GRI, and CDP. California law requires large corporations to report emissions using the GHG Protocol. In this context, a “may” approach is preferable over “should,” which is uncommon in binding regulatory structures. “May” is more appropriate, as it avoids conflicting interpretations and reduces the likelihood that CARB would need to issue additional clarifications.

3. Feasibility to implement: The current proposal to mandate hourly matching and narrower geographic boundaries is not feasible for most companies. These methods are accessible to only a small subset of buyers and would create major implementation challenges across the broader business community. Mandating these approaches would reduce the Protocol’s effectiveness and global applicability. The [Technical Working Group Discussion Topic Overview](#) acknowledges this: “a time- and location-matching requirement may not be possible for organizations across a range of sizes, sophistication, and across various geographies.” Key challenges include:⁶

- **Operational complexity:** Most companies - especially those with globally distributed operations, where energy needs can range from a few kilowatts to multiple megawatts across thousands of locations - would lack the resources to manage added data needs, reporting requirements, auditing procedures, and contracting complexity.
 - A larger tech company noted that they operate in over 150 countries with more than 4,000 locations, with facilities in cities and regions that vary dramatically in market maturity and clean energy availability. Implementing strict hourly or localized requirements across such a portfolio would be logistically and financially unworkable for them.
 - A smaller tech company, with <2 FTEs allocated to manage emissions accounting, procurement, and reporting for a portfolio of leased offices and collocated data centers, reported that adding further complexity or regional restrictions would stretch them beyond internal capacity limits.
 - A manufacturing company added that their plant operations routinely shift production volume and product types, with capacity utilization ranging from 50–75%. These fluctuations make it extremely difficult to plan for hourly matching.
 - As companies electrify their operations and fleets, stricter reporting requirements could also slow EV adoption. Stricter matching requirements for variable charging - especially for short-charging sessions lasting under 30 minutes - adds further complexity.
- **Market constraints:** Even in parts of the U.S., such as the Southeast, buyers report that procurement remains effectively impossible after years of effort, with projects priced out of reach and on-site renewables already maxed

² Ballentine, R., & Falwell, P. (2025). How to Make Hourly Scope 2 Allocational Accounting Work. Available at SSRN 5213821.

³ <https://www.mckinsey.com/industries/electric-power-and-natural-gas/our-insights/rethinking-your-companys-clean-power-strategy#/>.

⁴ <https://www.iea.org/reports/advancing-decarbonisation-through-clean-electricity-procurement>.

⁵ <https://rmi.org/insight/clean-power-by-the-hour/>.

⁶ This section includes anonymous anecdotes from companies outside the TWG, shared on the condition of confidentiality.

out. In such cases, narrowing geographic boundaries further would remove the only remaining path to meeting emission reduction goals – driving some companies to abandon their targets altogether.

- One U.S. buyer estimated that, based on existing PPA data, they would need to over procure by more than 650% if an hourly matching requirement were paired with ISO/RTO-level market boundaries in the U.S., just to achieve 98% hourly matching in SPP.
- A large industrial customer with 1,000 facilities in 70 countries currently sources PPAs and green tariffs within grid-specific market boundaries. They operate in over 30 grids with less than 50 GWh/year of load - and more than 10 grids with under 10 GWh/year. Under narrower market definitions, they would need to source projects under 25 MW or 5 MW, which are not viable for single offtakers.
- Across markets, stricter matching requirements may force companies into lower-impact procurement. Those currently aggregating demand to sign PPAs might lose this ability and have to rely more on unbundled certificates. Even large companies still able to sign PPAs may reduce PPA sizes due to lack of credit for hourly generation beyond their load profile.
- In markets outside Europe and the U.S., where PPAs and storage are not yet available at scale, hourly matching remains unachievable for the foreseeable future. Proposing a global accounting requirement based largely on Western grid examples highlights the limited analysis and lack of global applicability.
- A supplier operating in China noted that if only hourly matching is recognized, then only two options remain: self-generation or direct-connection PPAs, both of which are severely limited. For example, direct PPAs are only in the pilot stage in Jiangsu Province.
- A second supplier in Asia requested hourly load data from their team to assess storage options for one factory. 14 staff were assigned to collect manual meter readings every 30 minutes - due to lack of smart meter access, which is common across many Asian grids.
- **Increased costs:** Hourly matching and stricter boundaries increase costs and complexity, especially for resource-constrained businesses, for whom energy is not their core business, and are procuring clean energy voluntarily.
 - A global consumer goods company estimates that shifting from annual-matched PPAs to multiple smaller, hourly-matched PPAs, before shifting to narrower market boundaries, could already increase costs by 50-200%, depending on location and technology mix - rendering their sourcing financially unviable.
 - A company with 100% renewable electricity today noted in markets like Japan, certificate prices are already several times the global average, while in others like Taiwan, supply is nearly nonexistent. Price increases tied to hourly or regional restrictions would likely force them to reduce procurement volumes.
 - A large industrial company with over 1.3 TWh of global load operates in markets without viable offsite renewable options. Onsite solutions address only part of their Scope 2 emissions. Maintaining their current standard of sourcing bundled certificates within grid-specific boundaries will already require significant advocacy and market development. Adding an hourly-matching requirement - especially in markets like Ghana, Russia, and Egypt - would increase costs and complexity to the point that leadership would likely abandon the GHG Protocol or create their own accounting standard.
 - Another buyer confirmed that if clean energy procurement becomes significantly more expensive, their leadership would likely scale back or walk away from clean electricity targets altogether, rather than risk investing now and missing goals later - particularly in a budget environment already shaped by inflation and annual cost-cutting.
- **Opportunity costs:** Companies have highlighted the added time and expense of implementing robust software systems to support granular matching and reporting. This means a greater share of clean energy budgets would shift toward data management instead of funding new clean energy projects to drive emission reduction impact.
 - One buyer shared that their current sustainability reporting platform, which supports a combination of GHG and other ESG data, costs \$300,000 annually. They've been discouraged from exploring more specialized tools for market-based accounting, as these tools are estimated to double software costs.
 - A second buyer confirmed they would need to double their internal engineering resources to adapt their reporting and forecasting tools.
 - The same small tech company above noted that while they would need external support to manage the added requirements, it would be very difficult to make the business case.
- **Risk of disengagement:** Many buyers have indicated these requirements would be extremely difficult to meet, potentially leading them to exit the voluntary market or stop using the Protocol altogether. There is also a

significant risk of losing – or failing to attract – small and medium enterprises (SMEs) that are still building their GHG accounting capabilities.

A May 2025 [Clean Energy Buyers Association](#) member survey⁷ found:

- 75% oppose mandatory hourly matching (19% support it)
- Of the 75% that oppose mandatory hourly matching, more than 50% stated they would still oppose it with exemptions
- 66% oppose stricter market boundaries (only 22% support it)
- Conversely, energy buyers showed openness to optional time and location matching, with only 16% opposing it

[In a similar survey](#) conducted by Green Strategies, nearly 80% of respondents lacked confidence they would be able to procure time-matched clean electricity within smaller market boundaries.⁸

Note on “May” vs. “Should”: A “may” approach is recommended over the use of “should” as an alternative to “shall.” The use of “should” creates confusion - is it a best practice or a soft requirement? This ambiguity creates inconsistent interpretations and potential compliance risks. For example, a regulator or agency staffer could interpret “should” as mandatory. An auditor might require a company to justify why it didn’t pursue hourly matching or more granular geographic boundaries. Another might view it as optional and accept alternative approaches without issue.

Moving to a “may” approach would also eliminate the need for exemption thresholds (e.g., 5 GWh/site/year), which are problematic as they:

- Add complexity and are difficult to define (e.g., what constitutes a “site”? If it is defined as a meter, companies may place multiple meters at one location to stay below the threshold).
- May create perverse incentives (e.g., avoiding electrification and/or onsite EV charging to stay under a threshold).
- Undermine consistency, as companies with diverse demand profiles across many markets would need to switch between hourly and non-hourly matching within their inventory.

Thresholds expose the limitations of stricter requirements. If numerous carveouts are needed, it is likely not the right rule.

Overall View of the Draft

We support the aim of strengthening Scope 2 reporting but do not support the proposed requirements for hourly matching and narrower geographic boundaries. We have voiced this position and voted accordingly in the Technical Working Group meetings. These changes would make the Protocol impractical for most companies and risk undermining the voluntary market, all in the face of uncertain scientific integrity.⁹

Corporate buyers have been essential drivers of clean energy deployment - but the voluntary market still covers only a small share of global electricity use. RE100 commitments account for just 1.8%, and the IEA estimates that only ~3% of 2030 electricity generation will come from market-driven renewables.¹⁰¹¹ The strength of the corporate market lies in its ability to scale ambition and push for broader grid decarbonization. Protocol restrictions risk undermining that progress.

The GHG Protocol must remain accessible, flexible, and credible to continue serving as the global standard. Maintaining high corporate engagement helps ensure consistent reporting across markets and reinforces the Protocol’s role in climate laws and regulations worldwide. This proposal reflects an approach grounded in operational realism and global inclusivity. It strengthens scientific integrity and reporting clarity while preserving the flexibility essential for continued ambition and broad adoption.

⁷ Results reflect answers of 32 CEBA energy buyer member companies.

⁸ 23 company responses representing over \$5 trillion in valuation with headquarters across Europe, Asia, and North America.

⁹ <https://www.mckinsey.com/industries/electric-power-and-natural-gas/our-insights/rethinking-your-companys-clean-power-strategy>.

¹⁰ <https://ember-energy.org/latest-insights/global-electricity-review-2025/global-electricity-trends/#global-electricity-demand>,
<https://www.there100.org/2024-impact-report>.

¹¹ <https://www.icaew.com/-/media/corporate/files/technical/energy-and-natural-resources/renewables-2024.ashx>.